

PATENT ASSIGNMENT COVER SHEET

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Stylesheet Version v1.2

EPAS ID: PAT5813093

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| SUBMISSION TYPE: | NEW ASSIGNMENT |
| NATURE OF CONVEYANCE: | ASSIGNMENT |
| CONVEYING PARTY DATA | |
| Name | Execution Date |
| PERRY AARON JONES HALDENBY | 03/27/2017 |
| RAJAN MAHADEVAN | 01/24/2017 |
| JOHN JONG SUK LEE | 01/16/2017 |
| PAUL MON-WAH CHAN | 02/08/2017 |
| ORIN DEL VECCHIO | 02/07/2017 |
| RECEIVING PARTY DATA | |
| Name: | THE TORONTO-DOMINION BANK |
| Street Address: | 66 WELLINGTON STREET WEST, TD TOWER, 15TH FLOOR |
| City: | TORONTO, ONTARIO |
| State/Country: | CANADA |
| Postal Code: | M5K 1A2 |
| PROPERTY NUMBERS Total: 1 | |
| Property Type | Number |
| Application Number: | 14935829 |
| CORRESPONDENCE DATA | |
| Fax Number: | (202)776-7801 |
| <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> | |
| Phone: | 202-776-7800 |
| Email: | lrhayes@duanemorris.com |
| Correspondent Name: | DUANE MORRIS LLP - DC |
| Address Line 1: | 505 9TH STREET |
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| Address Line 4: | WASHINGTON, D.C. 20004-2166 |
| ATTORNEY DOCKET NUMBER: | G4144-00003 |
| NAME OF SUBMITTER: | JAMES A. COOKE, III |
| SIGNATURE: | /James A. Cooke, III/ |
| DATE SIGNED: | 11/11/2019 |
| Total Attachments: 29 | |

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WORLDWIDE

Assignment

WHEREAS, I, **Perry Aaron Jones HALDENBY** (hereinafter the "Assignor"), invented certain new and useful inventions as disclosed and claimed in the patent applications listed on Schedule A attached hereto (hereinafter, the "Patent Applications"),

WHEREAS, **The Toronto-Dominion Bank** (hereinafter "Assignee"), whose postal address is 66 Wellington Street West, TD Tower, 12th Floor, Toronto, Ontario, M5K 1A2, Canada, is desirous of acquiring the entire and exclusive right, title and interest in and to said inventions and said Patent Applications and in and to any Letters Patent which may be granted and issued therefore throughout the world;

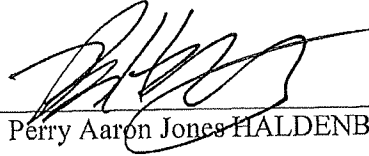
NOW THEREFORE, the Assignor hereby sells, assigns and transfers, to the Assignee, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the entire and exclusive right, title, and interest in and to said inventions in Canada, the U.S., and throughout the world, any improvements thereto, any patent applications, including any utility provisional patent applications and any utility non-provisional patent applications, divisional applications, and continuation patent applications claiming priority therefrom or claiming the benefit thereof ("Subsequent Patent Applications"), including the right to file said Subsequent Patent Applications identifying the Assignee as applicant, and any Letters Patent, including any re-issue patents, which may be granted and issued therefore in Canada, the U.S., and throughout the world.

The Assignor DECLARES that he (i) authorized said Patent Applications and authorizes said Subsequent Patent Applications, (ii) believes that he is an original joint inventor of the invention claimed in said Patent Applications and said Subsequent Patent Applications, and (iii) acknowledges 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.

The Assignor AGREES to do all things reasonably required of him, and to execute all instruments submitted to him by the Assignee, for the purpose of carrying out the full intent of this Assignment, including any Oaths/Declarations and/or Assignments to perfect this sale, assignment and transfer of the inventions, the Patent Applications, and the Subsequent Patent Applications to the Assignee, and hereby requests and authorizes the Patent Office to issue the said Letters Patent to the Assignee, its successors and assigns.

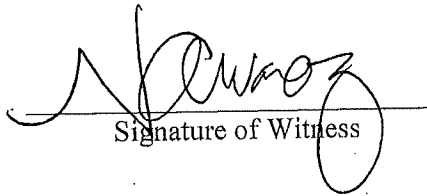
WORLDWIDE

EXECUTED at Toronto, this 27th day of March, 2017


Perry Aaron Jones HALDENBY

STATEMENT BY WITNESS

I, Nicole Alvarez, whose full post office address is 66 Wellington St. West, 15th floor, Toronto, ON M5K 1A2, was personally present and did see Perry Aaron Jones HALDENBY, who is known to me, execute the above Assignment.


Signature of Witness

Schedule A

| <u>Attorney Docket No.</u> | <u>U.S. App. No.</u> | <u>Filing Date</u> | <u>Title</u> |
|----------------------------|----------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| G4144-00001 | 62/204,768 | August 13, 2015 | HYBRID PUBLIC-PRIVATE BLOCK-CHAIN LEDGERS |
| G4144-00129 | 14/796,512 | July 10, 2015 | SYSTEMS AND METHODS FOR PROVIDING SECURE DATA TRANSMISSION BETWEEN NETWORKED COMPUTING SYSTEMS |
| G4144-00002 | 14/928,838 | October 30, 2015 | SYSTEMS AND METHOD FOR TRACKING ENTERPRISE EVENTS USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00003 | 14/935,829 | November 9, 2015 | SYSTEMS AND METHOD FOR TRACKING BEHAVIOR OF NETWORKED DEVICES USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00004 | 14/936,833 | November 10, 2015 | SYSTEMS AND METHODS FOR TRACKING AND TRANSFERRING OWNERSHIP OF CONNECTED DEVICES USING BLOCKCHAIN LEDGERS |
| G4144-00005 | 14/931,414 | November 3, 2015 | SYSTEMS AND METHOD FOR TRACKING SUBDIVIDED OWNERSHIP OF CONNECTED DEVICES USING BLOCK-CHAIN LEDGERS |
| G4144-00006 | 14/936,812 | November 10, 2015 | SYSTEMS AND METHODS FOR DETECTING AND RESOLVING DATA INCONSISTENCIES AMONG NETWORKED DEVICES USING HYBRID PRIVATE-PUBLIC BLOCKCHAIN LEDGERS |
| G4144-00007 | 14/935,799 | November 9, 2015 | SYSTEMS AND METHODS FOR ESTABLISHING AND ENFORCING TRANSACTION-BASED RESTRICTIONS USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00008 | 15/233,475 | August 10, 2016 | MANUFACTURED PRODUCT COUNTERFEITING PREVENTION USING HYBRID BLOCKCHAIN |
| G4144-00009 | 15/232,100 | August 9, 2016 | SECURE REAL-TIME PRODUCT OWNERSHIP TRACKING USING DISTRIBUTED ELECTRONIC LEDGERS |
| G4144-00010 | 15/235,528 | August 12, 2016 | DOCUMENT TRACKING ON A DISTRIBUTED LEDGER |

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|-------------|------------|--------------------|-------------------------------------------------------------------------------------------------|
| G4144-00011 | 15/235,076 | August 11, 2016 | SECURE TRACKING BEACONS USING DISTRIBUTED LEDGERS |
| G4144-00012 | 15/255,236 | September 2, 2016 | SYSTEM AND METHOD FOR MAINTAINING A SEGREGATED DATABASE IN A MULTIPLE DISTRIBUTED LEDGER SYSTEM |
| G4144-00013 | 15/277,540 | September 27, 2016 | PROCESSING NETWORK ARCHITECTURE WITH COMPANION DATABASE |
| G4144-00014 | 15/287,815 | October 7, 2016 | SECURE ELEMENT METHOD FOR DISTRIBUTED ELECTRONIC LEDGER |
| G4144-00015 | 15/285,869 | October 5, 2016 | DISTRIBUTED ELECTRONIC LEDGER WITH METADATA |
| G4144-00016 | 15/277,132 | September 27, 2016 | REAL TIME VIRTUAL DRAFT SYSTEM AND METHOD |
| G4144-00019 | 15/281,433 | September 30, 2016 | INFORMATION MASKING USING CERTIFICATE AUTHORITY |
| G4144-00020 | 15/285,757 | October 5, 2016 | CERTIFICATE AUTHORITY MASTER KEY TRACKING ON DISTRIBUTED LEDGER |
| G4144-00021 | 15/234,947 | August 11, 2016 | A SYSTEM AND METHOD FOR IMPLEMENTING HYBRID PUBLIC-PRIVATE BLOCK-CHAIN LEDGERS |
| G4144-00103 | 15/275,657 | September 26, 2016 | AUTOMATIC PROVISIONING OF SERVICES TO NETWORK-CONNECTED DEVICES |
| G4144-00104 | 15/281,479 | September 30, 2016 | AUTOMATED IMPLEMENTATION OF PROVISIONED SERVICES BASED ON CAPTURED SENSOR DATA |
| G4144-00151 | 15/349,274 | November 11, 2016 | AUTOMATIC PERFORMANCE OF PARAMETER-BASED OPERATIONS IN TRUSTED NETWORK ENVIRONMENTS |

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| G4144-00156 | 15/278,852 | September 28, 2016 | REAL TIME VIRTUAL DRAFT SYSTEM AND METHOD |
| G4144-00157 | 15/281,558 | September 30, 2016 | AUTOMATED IMPLEMENTATION OF PROVISIONED SERVICES BASED ON CAPTURED SENSOR DATA |

Assignment

WHEREAS, I, **Rajan MAHADEVAN** (hereinafter the "Assignor"), invented certain new and useful inventions as disclosed and claimed in the patent applications listed on Schedule A attached hereto (hereinafter, the "Patent Applications"),

WHEREAS, **The Toronto-Dominion Bank** (hereinafter "Assignee"), whose postal address is 66 Wellington Street West, TD Tower, 12th Floor, Toronto, Ontario, M5K 1A2, Canada, is desirous of acquiring the entire and exclusive right, title and interest in and to said inventions and said Patent Applications and in and to any Letters Patent which may be granted and issued therefore throughout the world;

NOW THEREFORE, the Assignor hereby sells, assigns and transfers, to the Assignee, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the entire and exclusive right, title, and interest in and to said inventions in Canada, the U.S., and throughout the world, any improvements thereto, any patent applications, including any utility provisional patent applications and any utility non-provisional patent applications, divisional applications, and continuation patent applications claiming priority therefrom or claiming the benefit thereof ("Subsequent Patent Applications"), including the right to file said Subsequent Patent Applications identifying the Assignee as applicant, and any Letters Patent, including any re-issue patents, which may be granted and issued therefore in Canada, the U.S., and throughout the world.

The Assignor DECLARES that he (i) authorized said Patent Applications and authorizes said Subsequent Patent Applications, (ii) believes that he is an original joint inventor of the invention claimed in said Patent Applications and said Subsequent Patent Applications, and (iii) acknowledges 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.

The Assignor AGREES to do all things reasonably required of him, and to execute all instruments submitted to him by the Assignee, for the purpose of carrying out the full intent of this Assignment, including any Oaths/Declarations and/or Assignments to perfect this sale, assignment and transfer of the inventions, the Patent Applications, and the Subsequent Patent Applications to the Assignee, and hereby requests and authorizes the Patent Office to issue the said Letters Patent to the Assignee, its successors and assigns.

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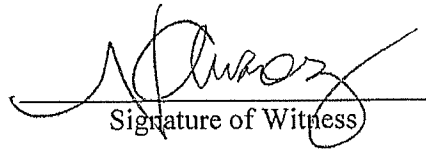
EXECUTED at TORONTO, this 24 day of January, 2017

M. S. H.

Rajan MAHADEVAN

STATEMENT BY WITNESS

I, Nicole Alvarez, whose full post office
address is 60 Wellington St. W. 15th Floor, Toronto, ON, was personally present
MEK 1A2
and did see Rajan MAHADEVAN, who is known to me, execute the above Assignment.


Signature of Witness

WORLDWIDE

Schedule A

| <u>Attorney Docket No.</u> | <u>U.S. App. No.</u> | <u>Filing Date</u> | <u>Title</u> |
|----------------------------|----------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| G4144-00001 | 62/204,768 | August 13, 2015 | HYBRID PUBLIC-PRIVATE BLOCK-CHAIN LEDGERS |
| G4144-00003 | 14/935,829 | November 9, 2015 | SYSTEMS AND METHOD FOR TRACKING BEHAVIOR OF NETWORKED DEVICES USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00004 | 14/936,833 | November 10, 2015 | SYSTEMS AND METHODS FOR TRACKING AND TRANSFERRING OWNERSHIP OF CONNECTED DEVICES USING BLOCKCHAIN LEDGERS |
| G4144-00005 | 14/931,414 | November 3, 2015 | SYSTEMS AND METHOD FOR TRACKING SUBDIVIDED OWNERSHIP OF CONNECTED DEVICES USING BLOCK-CHAIN LEDGERS |
| G4144-00006 | 14/936,812 | November 10, 2015 | SYSTEMS AND METHODS FOR DETECTING AND RESOLVING DATA INCONSISTENCIES AMONG NETWORKED DEVICES USING HYBRID PRIVATE-PUBLIC BLOCKCHAIN LEDGERS |
| G4144-00007 | 14/935,799 | November 9, 2015 | SYSTEMS AND METHODS FOR ESTABLISHING AND ENFORCING TRANSACTION-BASED RESTRICTIONS USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |

WORLDWIDE

Assignment

WHEREAS, I, **John Jong Suk LEE** (hereinafter the "Assignor"), invented certain new and useful inventions as disclosed and claimed in the patent applications listed on Schedule A attached hereto (hereinafter, the "Patent Applications"),

WHEREAS, **The Toronto-Dominion Bank** (hereinafter "Assignee"), whose postal address is 66 Wellington Street West, TD Tower, 12th Floor, Toronto, Ontario, M5K 1A2, Canada, is desirous of acquiring the entire and exclusive right, title and interest in and to said inventions and said Patent Applications and in and to any Letters Patent which may be granted and issued therefore throughout the world;

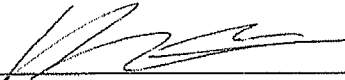
NOW THEREFORE, the Assignor hereby sells, assigns and transfers, to the Assignee, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the entire and exclusive right, title, and interest in and to said inventions in Canada, the U.S., and throughout the world, any improvements thereto, any patent applications, including any utility provisional patent applications and any utility non-provisional patent applications, divisional applications, and continuation patent applications claiming priority therefrom or claiming the benefit thereof ("Subsequent Patent Applications"), including the right to file said Subsequent Patent Applications identifying the Assignee as applicant, and any Letters Patent, including any re-issue patents, which may be granted and issued therefore in Canada, the U.S., and throughout the world.

The Assignor DECLARES that he (i) authorized said Patent Applications and authorizes said Subsequent Patent Applications, (ii) believes that he is an original joint inventor of the invention claimed in said Patent Applications and said Subsequent Patent Applications, and (iii) acknowledges 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.

The Assignor AGREES to do all things reasonably required of him, and to execute all instruments submitted to him by the Assignee, for the purpose of carrying out the full intent of this Assignment, including any Oaths/Declarations and/or Assignments to perfect this sale, assignment and transfer of the inventions, the Patent Applications, and the Subsequent Patent Applications to the Assignee, and hereby requests and authorizes the Patent Office to issue the said Letters Patent to the Assignee, its successors and assigns.

WORLDWIDE


EXECUTED at Toronto, this 16 day of January, 2017



John Jong Suk LEE

STATEMENT BY WITNESS

I, Nicole Alvarez, whose full post office
address is 101 Wellington St. W. 15th Floor, Toronto, ON was personally present
MSKIAZ
and did see John Jong Suk LEE, who is known to me, execute the above Assignment.



Signature of Witness

Schedule A

| <u>Attorney Docket No.</u> | <u>U.S. App. No.</u> | <u>Filing Date</u> | <u>Title</u> |
|----------------------------|----------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| G4144-00001 | 62/204,768 | August 13, 2015 | HYBRID PUBLIC-PRIVATE BLOCK-CHAIN LEDGERS |
| G4144-00085 | 14/723,331 | May 27, 2015 | SYSTEMS AND METHODS FOR PROVIDING MERCHANT FRAUD ALERTS |
| G4144-00123 | 14/795,584 | July 9, 2015 | SYSTEMS AND METHODS FOR AUTHENTICATING USERS OF NETWORKED COMPUTER SYSTEMS BASED ON NON-CREDENTIALLED INFORMATION |
| G4144-00129 | 14/796,512 | July 10, 2015 | SYSTEMS AND METHODS FOR PROVIDING SECURE DATA TRANSMISSION BETWEEN NETWORKED COMPUTING SYSTEMS |
| G4144-00002 | 14/928,838 | October 30, 2015 | SYSTEMS AND METHOD FOR TRACKING ENTERPRISE EVENTS USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00003 | 14/935,829 | November 9, 2015 | SYSTEMS AND METHOD FOR TRACKING BEHAVIOR OF NETWORKED DEVICES USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00004 | 14/936,833 | November 10, 2015 | SYSTEMS AND METHODS FOR TRACKING AND TRANSFERRING OWNERSHIP OF CONNECTED DEVICES USING BLOCKCHAIN LEDGERS |
| G4144-00005 | 14/931,414 | November 3, 2015 | SYSTEMS AND METHOD FOR TRACKING SUBDIVIDED OWNERSHIP OF CONNECTED DEVICES USING BLOCK-CHAIN LEDGERS |
| G4144-00006 | 14/936,812 | November 10, 2015 | SYSTEMS AND METHODS FOR DETECTING AND RESOLVING DATA INCONSISTENCIES AMONG NETWORKED DEVICES USING HYBRID PRIVATE-PUBLIC BLOCKCHAIN LEDGERS |
| G4144-00007 | 14/935,799 | November 9, 2015 | SYSTEMS AND METHODS FOR ESTABLISHING AND ENFORCING TRANSACTION-BASED RESTRICTIONS USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00097 | 14/874,202 | October 2, 2015 | SYSTEMS AND METHODS FOR AUTOMATICALLY GENERATING ORDER DATA BASED ON SOCIAL MEDIA MESSAGING |

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| G4144-00098 | 15/228,705 | August 4, 2016 | SYSTEMS AND METHODS FOR AUTOMATICALLY GENERATING ORDER DATA BASED ON SOCIAL MEDIA MESSAGING |
| G4144-00140 | 14/874,180 | October 2, 2015 | SYSTEMS AND METHODS FOR VERIFYING USER IDENTITY BASED ON SOCIAL MEDIA MESSAGING |
| G4144-00100 | 62/201,392 | August 5, 2015 | SYSTEMS AND METHODS FOR AUTOMATICALLY GENERATING TRADE ORDERS BASED ON SOCIAL MEDIA MESSAGING |
| G4144-00008 | 15/233,475 | August 10, 2016 | MANUFACTURED PRODUCT COUNTERFEITING PREVENTION USING HYBRID BLOCKCHAIN |
| G4144-00009 | 15/232,100 | August 9, 2016 | SECURE REAL-TIME PRODUCT OWNERSHIP TRACKING USING DISTRIBUTED ELECTRONIC LEDGERS |
| G4144-00010 | 15/235,528 | August 12, 2016 | DOCUMENT TRACKING ON A DISTRIBUTED LEDGER |
| G4144-00011 | 15/235,076 | August 11, 2016 | SECURE TRACKING BEACONS USING DISTRIBUTED LEDGERS |
| G4144-00012 | 15/255,236 | September 2, 2016 | SYSTEM AND METHOD FOR MAINTAINING A SEGREGATED DATABASE IN A MULTIPLE DISTRIBUTED LEDGER SYSTEM |
| G4144-00013 | 15/277,540 | September 27, 2016 | PROCESSING NETWORK ARCHITECTURE WITH COMPANION DATABASE |
| G4144-00014 | 15/287,815 | October 7, 2016 | SECURE ELEMENT METHOD FOR DISTRIBUTED ELECTRONIC LEDGER |
| G4144-00015 | 15/285,869 | October 5, 2016 | DISTRIBUTED ELECTRONIC LEDGER WITH METADATA |
| G4144-00016 | 15/277,132 | September 27, 2016 | REAL TIME VIRTUAL DRAFT SYSTEM AND METHOD |
| G4144-00017 | 15/235,199 | October 12, 2016 | SYSTEMS AND METHODS FOR MONITORING REFERRALS |
| G4144-00018 | 15/235,090 | August 11, 2016 | SYSTEM AND METHODS FOR MONITORING CONSTRUCTION PROJECTS |
| G4144-00019 | 15/281,433 | September 30, 2016 | INFORMATION MASKING USING CERTIFICATE AUTHORITY |
| G4144-00020 | 15/285,757 | October 5, 2016 | CERTIFICATE AUTHORITY MASTER KEY TRACKING ON DISTRIBUTED LEDGER |
| G4144-00021 | 15/234,947 | August 11, 2016 | A SYSTEM AND METHOD FOR IMPLEMENTING HYBRID PUBLIC-PRIVATE BLOCK-CHAIN LEDGERS |

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|-------------|------------|--------------------|-------------------------------------------------------------------------------------|
| G4144-00103 | 15/275,657 | September 26, 2016 | AUTOMATIC PROVISIONING OF SERVICES TO NETWORK-CONNECTED DEVICES |
| G4144-00104 | 15/281,479 | September 30, 2016 | AUTOMATED IMPLEMENTATION OF PROVISIONED SERVICES BASED ON CAPTURED SENSOR DATA |
| G4144-00105 | 15/349,508 | November 11, 2016 | DATA-AGGREGATING GRAPHICAL USER INTERFACES |
| G4144-00151 | 15/349,274 | November 11, 2016 | AUTOMATIC PERFORMANCE OF PARAMETER-BASED OPERATIONS IN TRUSTED NETWORK ENVIRONMENTS |
| G4144-00156 | 15/278,852 | September 28, 2016 | REAL TIME VIRTUAL DRAFT SYSTEM AND METHOD |
| G4144-00157 | 15/281,558 | September 30, 2016 | AUTOMATED IMPLEMENTATION OF PROVISIONED SERVICES BASED ON CAPTURED SENSOR DATA |

WORLDWIDE

Assignment

WHEREAS, I, **Paul Mon-Wah CHAN** (hereinafter the “**Assignor**”), invented certain new and useful inventions as disclosed and claimed in the patent applications listed on Schedule A attached hereto (hereinafter, the “**Patent Applications**”),

WHEREAS, **The Toronto-Dominion Bank** (hereinafter “**Assignee**”), whose postal address is 66 Wellington Street West, TD Tower, 12th Floor, Toronto, Ontario, M5K 1A2, Canada, is desirous of acquiring the entire and exclusive right, title and interest in and to said inventions and said Patent Applications and in and to any Letters Patent which may be granted and issued therefore throughout the world;


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The Assignor DECLARES that he (i) authorized said Patent Applications and authorizes said Subsequent Patent Applications, (ii) believes that he is an original joint inventor of the invention claimed in said Patent Applications and said Subsequent Patent Applications, and (iii) acknowledges 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.

The Assignor AGREES to do all things reasonably required of him, and to execute all instruments submitted to him by the Assignee, for the purpose of carrying out the full intent of this Assignment, including any Oaths/Declarations and/or Assignments to perfect this sale, assignment and transfer of the inventions, the Patent Applications, and the Subsequent Patent Applications to the Assignee, and hereby requests and authorizes the Patent Office to issue the said Letters Patent to the Assignee, its successors and assigns.

WORLDWIDE

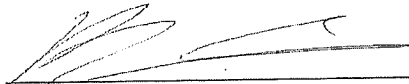
Toronto
SSL
EXECUTED at February, this 8 day of February, 2017



Paul Mon-Wah CHAN

STATEMENT BY WITNESS

I, John Lee, whose full post office
address is 66 Wellington St Toronto, was personally present
and did see Paul Mon-Wah CHAN, who is known to me, execute the above Assignment.



Signature of Witness

Schedule A

| <u>Attorney Docket No.</u> | <u>U.S. App. No.</u> | <u>Filing Date</u> | <u>Title</u> |
|----------------------------|----------------------|--------------------|----------------------------------------------------------------------------------------------|
| G4144-00055 | 62/019,267 | June 30, 2014 | SYSTEMS AND METHODS FOR ADMINISTERING INVESTMENT PORTFOLIOS BASED ON INFORMATION CONSUMPTION |
| G4144-00115 | 62/019,031 | June 30, 2014 | SYSTEMS AND METHODS FOR PROVIDING INVESTMENT SECURED FINANCIAL ACCOUNTS |
| G4144-00090 | 62/016,012 | June 23, 2014 | SYSTEMS AND METHODS FOR PROVIDING AUTHENTICATION |
| G4144-00120 | 62/022,119 | July 8, 2014 | SYSTEMS AND METHODS FOR PROVIDING LOCATION PROXIMITY DETECTION AND NOTIFICATION |
| G4144-00133 | 62/056,794 | September 29, 2014 | SYSTEMS AND METHODS FOR GENERATING AND ADMINISTERING PRE-LOADED MOBILE WALLET APPLICATIONS |
| G4144-00125 | 62/022,470 | July 9, 2014 | SYSTEMS AND METHODS FOR CONFIRMING CUSTOMER IDENTITY USING NON-CREDENTIALLED INFORMATION |
| G4144-00091 | 62/016,017 | June 23, 2014 | SYSTEMS AND METHODS FOR PROVIDING AUTHENTICATION |
| G4144-00096 | 62/056,785 | September 29, 2014 | SYSTEMS AND METHODS FOR ADMINISTERING PRE-LOADED MOBILE WALLET APPLICATIONS |
| G4144-00136 | 62/056,776 | September 29, 2014 | SYSTEMS AND METHODS FOR ADMINISTERING PRE-LOADED MOBILE WALLET APPLICATIONS |
| G4144-00144 | 62/073,881 | October 31, 2014 | SYSTEMS AND METHODS FOR AUTHENTICATING USER IDENTITY BASED ON USED-DEFINED IMAGE DATA |
| G4144-00149 | 62/160,274 | May 12, 2015 | SYSTEMS AND METHODS FOR PROVIDING INFORMATION-TECHNOLOGY ASSETS IN AN OPEN ENVIRONMENT |

PATENT

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|-------------|------------|--------------------|-------------------------------------------------------------------------------------------------------------------|
| G4144-00001 | 62/204,768 | August 13, 2015 | HYBRID PUBLIC-PRIVATE BLOCK-CHAIN LEDGERS |
| G4144-00085 | 14/723,331 | May 27, 2015 | SYSTEMS AND METHODS FOR PROVIDING MERCHANT FRAUD ALERTS |
| G4144-00118 | 14/793,915 | July 8, 2015 | SYSTEMS AND METHODS FOR PROVIDING SENSOR-BASED LOCATION PROXIMITY DETECTION AND NOTIFICATION |
| G4144-00131 | 14/869,818 | September 29, 2015 | SYSTEMS AND METHODS FOR GENERATING AND ADMINISTERING MOBILE APPLICATIONS USING PRE-LOADED TOKENS |
| G4144-00123 | 14/795,584 | July 9, 2015 | SYSTEMS AND METHODS FOR AUTHENTICATING USERS OF NETWORKED COMPUTER SYSTEMS BASED ON NON-CREDENTIALLED INFORMATION |
| G4144-00088 | 14/747,868 | June 23, 2015 | SYSTEMS AND METHODS FOR AUTHENTICATING USER IDENTITIES IN NETWORKED COMPUTER SYSTEMS |
| G4144-00092 | 14/747,895 | June 23, 2015 | SYSTEMS AND METHODS FOR AUTHENTICATING USER IDENTITIES IN NETWORKED COMPUTER SYSTEMS |
| G4144-00113 | 14/755,740 | June 30, 2015 | SYSTEMS AND METHODS FOR IDENTIFYING AND REMEDYING ACCOUNT ERROR EVENTS IN NETWORKED COMPUTER SYSTEMS |
| G4144-00052 | 14/502,407 | September 30, 2014 | SYSTEMS AND METHODS FOR ADMINISTERING INVESTMENT PORTFOLIOS BASED ON INFORMATION CONSUMPTION |
| G4144-00061 | 14/510,969 | October 9, 2014 | SYSTEMS AND METHODS FOR PROVIDING TOKENIZED TRANSACTION ACCOUNTS |
| G4144-00071 | 14/589,848 | January 5, 2015 | SYSTEMS AND METHODS FOR PROVIDING BALANCE NOTIFICATIONS TO CONNECTED DEVICES |
| G4144-00069 | 14/588,861 | January 2, 2015 | SYSTEMS AND METHODS FOR PROVIDING BALANCE NOTIFICATIONS IN AN AUGMENTED REALITY ENVIRONMENT |

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| G4144-00073 | 14/589,840 | January 5, 2015 | SYSTEMS AND METHODS FOR PROVIDING BALANCE AND EVENT NOTIFICATIONS |
| G4144-00082 | 14/680,790 | April 7, 2015 | SYSTEMS AND METHODS FOR PROVIDING INFORMATION-TECHNOLOGY ASSETS IN AN OPEN ENVIRONMENT |
| G4144-00147 | 15/152,142 | May 11, 2016 | SYSTEMS AND METHODS FOR PROVIDING INFORMATION-TECHNOLOGY ASSETS IN AN OPEN ENVIRONMENT |
| G4144-00116 | 14/755,786 | June 30, 2015 | SYSTEMS AND METHODS FOR IDENTIFYING AND REMEDYING ACCOUNT ERROR EVENTS IN NETWORKED COMPUTER SYSTEMS |
| G4144-00121 | 14/794,038 | July 8, 2015 | SYSTEMS AND METHODS FOR PROVIDING SENSOR-BASED LOCATION PROXIMITY DETECTION AND NOTIFICATION |
| G4144-00129 | 14/796,512 | July 10, 2015 | SYSTEMS AND METHODS FOR PROVIDING SECURE DATA TRANSMISSION BETWEEN NETWORKED COMPUTING SYSTEMS |
| G4144-00002 | 14/928,838 | October 30, 2015 | SYSTEMS AND METHOD FOR TRACKING ENTERPRISE EVENTS USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00003 | 14/935,829 | November 9, 2015 | SYSTEMS AND METHOD FOR TRACKING BEHAVIOR OF NETWORKED DEVICES USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00004 | 14/936,833 | November 10, 2015 | SYSTEMS AND METHODS FOR TRACKING AND TRANSFERRING OWNERSHIP OF CONNECTED DEVICES USING BLOCKCHAIN LEDGERS |
| G4144-00005 | 14/931,414 | November 3, 2015 | SYSTEMS AND METHOD FOR TRACKING SUBDIVIDED OWNERSHIP OF CONNECTED DEVICES USING BLOCK-CHAIN LEDGERS |
| G4144-00006 | 14/936,812 | November 10, 2015 | SYSTEMS AND METHODS FOR DETECTING AND RESOLVING DATA INCONSISTENCIES AMONG NETWORKED DEVICES USING HYBRID PRIVATE-PUBLIC BLOCKCHAIN LEDGERS |
| G4144-00007 | 14/935,799 | November 9, 2015 | SYSTEMS AND METHODS FOR ESTABLISHING AND ENFORCING TRANSACTION-BASED RESTRICTIONS USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |

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| G4144-00097 | 14/874,202 | October 2, 2015 | SYSTEMS AND METHODS FOR AUTOMATICALLY GENERATING ORDER DATA BASED ON SOCIAL MEDIA MESSAGING |
| G4144-00098 | 15/228,705 | August 4, 2016 | SYSTEMS AND METHODS FOR AUTOMATICALLY GENERATING ORDER DATA BASED ON SOCIAL MEDIA MESSAGING |
| G4144-00140 | 14/874,180 | October 2, 2015 | SYSTEMS AND METHODS FOR VERIFYING USER IDENTITY BASED ON SOCIAL MEDIA MESSAGING |
| G4144-00134 | 14/869,869 | September 29, 2015 | SYSTEMS AND METHODS FOR ADMINISTERING MOBILE APPLICATIONS USING PRE-LOADED TOKENS |
| G4144-00094 | 14/869,852 | September 29, 2015 | SYSTEMS AND METHODS FOR ADMINISTERING MOBILE APPLICATIONS USING PRE-LOADED TOKENS |
| G4144-00137 | 14/869,833 | September 29, 2015 | SYSTEMS AND METHODS FOR GENERATING AND ADMINISTERING MOBILE APPLICATIONS USING PRE-LOADED TOKENS |
| G4144-00142 | 14/928,500 | October 30, 2015 | SYSTEMS AND METHODS FOR AUTHENTICATING USER IDENTITY BASED ON USER-DEFINED IMAGE DATA |
| G4144-00100 | 62/201,392 | August 5, 2015 | SYSTEMS AND METHODS FOR AUTOMATICALLY GENERATING TRADE ORDERS BASED ON SOCIAL MEDIA MESSAGING |
| G4144-00008 | 15/233,475 | August 10, 2016 | MANUFACTURED PRODUCT COUNTERFEITING PREVENTION USING HYBRID BLOCKCHAIN |
| G4144-00009 | 15/232,100 | August 9, 2016 | SECURE REAL-TIME PRODUCT OWNERSHIP TRACKING USING DISTRIBUTED ELECTRONIC LEDGERS |
| G4144-00010 | 15/235,528 | August 12, 2016 | DOCUMENT TRACKING ON A DISTRIBUTED LEDGER |
| G4144-00011 | 15/235,076 | August 11, 2016 | SECURE TRACKING BEACONS USING DISTRIBUTED LEDGERS |

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| G4144-00012 | 15/255,236 | September 2, 2016 | SYSTEM AND METHOD FOR MAINTAINING A SEGREGATED DATABASE IN A MULTIPLE DISTRIBUTED LEDGER SYSTEM |
| G4144-00013 | 15/277,540 | September 27, 2016 | PROCESSING NETWORK ARCHITECTURE WITH COMPANION DATABASE |
| G4144-00014 | 15/287,815 | October 7, 2016 | SECURE ELEMENT METHOD FOR DISTRIBUTED ELECTRONIC LEDGER |
| G4144-00015 | 15/285,869 | October 5, 2016 | DISTRIBUTED ELECTRONIC LEDGER WITH METADATA |
| G4144-00016 | 15/277,132 | September 27, 2016 | REAL TIME VIRTUAL DRAFT SYSTEM AND METHOD |
| G4144-00017 | 15/235,199 | October 12, 2016 | SYSTEMS AND METHODS FOR MONITORING REFERRALS |
| G4144-00018 | 15/235,090 | August 11, 2016 | SYSTEM AND METHODS FOR MONITORING CONSTRUCTION PROJECTS |
| G4144-00019 | 15/281,433 | September 30, 2016 | INFORMATION MASKING USING CERTIFICATE AUTHORITY |
| G4144-00020 | 15/285,757 | October 5, 2016 | CERTIFICATE AUTHORITY MASTER KEY TRACKING ON DISTRIBUTED LEDGER |
| G4144-00021 | 15/234,947 | August 11, 2016 | A SYSTEM AND METHOD FOR IMPLEMENTING HYBRID PUBLIC-PRIVATE BLOCK-CHAIN LEDGERS |
| G4144-00025 | | | REAL-TIME APPROVAL AND SETTLEMENT OF DATA EXCHANGES BETWEEN COMPUTING SYSTEMS |
| G4144-00103 | 15/275,657 | September 26, 2016 | AUTOMATIC PROVISIONING OF SERVICES TO NETWORK-CONNECTED DEVICES |

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| G4144-00104 | 15/281,479 | September 30, 2016 | AUTOMATED IMPLEMENTATION OF PROVISIONED SERVICES BASED ON CAPTURED SENSOR DATA |
| G4144-00105 | 15/349,508 | November 11, 2016 | DATA-AGGREGATING GRAPHICAL USER INTERFACES |
| G4144-00106 | 15/366,546 | December 1, 2016 | ASYNCHRONOUS CRYPTOGRAM-BASED AUTHENTICATION PROCESSES |
| G4144-00151 | 15/349,274 | November 11, 2016 | AUTOMATIC PERFORMANCE OF PARAMETER-BASED OPERATIONS IN TRUSTED NETWORK ENVIRONMENTS |
| G4144-00156 | 15/278,852 | September 28, 2016 | REAL TIME VIRTUAL DRAFT SYSTEM AND METHOD |
| G4144-00157 | 15/281,558 | September 30, 2016 | AUTOMATED IMPLEMENTATION OF PROVISIONED SERVICES BASED ON CAPTURED SENSOR DATA |

Assignment

WHEREAS, I, **Orin DEL VECCHIO** (hereinafter the "**Assignor**"), invented certain new and useful inventions as disclosed and claimed in the patent applications listed on Schedule A attached hereto (hereinafter, the "**Patent Applications**"),

WHEREAS, **The Toronto-Dominion Bank** (hereinafter "**Assignee**"), whose postal address is 66 Wellington Street West, TD Tower, 12th Floor, Toronto, Ontario, M5K 1A2, Canada, is desirous of acquiring the entire and exclusive right, title and interest in and to said inventions and said Patent Applications and in and to any Letters Patent which may be granted and issued therefore throughout the world;

NOW THEREFORE, the Assignor hereby sells, assigns and transfers, to the Assignee, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the entire and exclusive right, title, and interest in and to said inventions in Canada, the U.S., and throughout the world, any improvements thereto, any patent applications, including any utility provisional patent applications and any utility non-provisional patent applications, divisional applications, and continuation patent applications claiming priority therefrom or claiming the benefit thereof ("**Subsequent Patent Applications**"), including the right to file said Subsequent Patent Applications identifying the Assignee as applicant, and any Letters Patent, including any re-issue patents, which may be granted and issued therefore in Canada, the U.S., and throughout the world.

The Assignor DECLARES that he (i) authorized said Patent Applications and authorizes said Subsequent Patent Applications, (ii) believes that he is an original joint inventor of the invention claimed in said Patent Applications and said Subsequent Patent Applications, and (iii) acknowledges 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.

The Assignor AGREES to do all things reasonably required of him, and to execute all instruments submitted to him by the Assignee, for the purpose of carrying out the full intent of this Assignment, including any Oaths/Declarations and/or Assignments to perfect this sale, assignment and transfer of the inventions, the Patent Applications, and the Subsequent Patent Applications to the Assignee, and hereby requests and authorizes the Patent Office to issue the said Letters Patent to the Assignee, its successors and assigns.

WORLDWIDE

EXECUTED at Toronto, this 7 day of February, 2017

Orin DEL VECCHIO
Orin DEL VECCHIO

STATEMENT BY WITNESS

I, John Lee, whose full post office address is 66 Wellington St Toronto, was personally present and did see Orin DEL VECCHIO, who is known to me, execute the above Assignment.

[Signature]
Signature of Witness

Schedule A

| <u>Attorney Docket No.</u> | <u>U.S. App. No.</u> | <u>Filing Date</u> | <u>Title</u> |
|----------------------------|----------------------|--------------------|---------------------------------------------------------------------------------------------------------|
| G4144-00058 | 61/888,641 | October 9, 2013 | SYSTEMS AND METHODS FOR IDENTIFYING PRODUCT RECOMMENDATIONS BASED ON INVESTMENT PORTFOLIO DATA |
| G4144-00032 | 61/884,678 | September 30, 2013 | METHODS AND SYSTEMS FOR DETERMINING AND PROVIDING NEGATIVE EVENT NOTIFICATIONS |
| G4144-00109 | 61/888,601 | October 9, 2013 | SYSTEMS AND METHODS FOR PROVIDING ENHANCED POINT-OF-SALE SERVICES |
| G4144-00112 | 61/888,621 | October 9, 2013 | SYSTEMS AND METHODS FOR PROVIDING ENHANCED POINT-OF-SALE SERVICES INVOLVING MULTIPLE FINANCIAL ENTITIES |
| G4144-00049 | 61/884,745 | September 30, 2013 | SYSTEMS AND METHODS FOR ADMINISTERING INVESTMENT PORTFOLIOS BASED ON TRANSACTION DATA |
| G4144-00035 | 61/884,798 | September 30, 2013 | SYSTEMS AND METHODS FOR PROVIDING TRANSACTION COMPLETION ALERTS |
| G4144-00077 | 61/951,795 | March 12, 2014 | SYSTEMS AND METHODS FOR PROVIDING TRANSACTION ASSISTANCE |
| G4144-00128 | 62/023,770 | July 11, 2014 | SYSTEMS AND METHODS FOR PROVIDING PREPAID MULTICARDS |
| G4144-00068 | 61/923,355 | January 3, 2014 | SYSTEMS AND METHODS FOR PROVIDING BALANCE NOTIFICATIONS |
| G4144-00100 | 62/201,392 | August 5, 2015 | SYSTEMS AND METHODS FOR AUTOMATICALLY GENERATING TRADE ORDERS BASED ON SOCIAL MEDIA MESSAGING |

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| G4144-00055 | 62/019,267 | June 30, 2014 | SYSTEMS AND METHODS FOR ADMINISTERING INVESTMENT PORTFOLIOS BASED ON INFORMATION CONSUMPTION |
| G4144-00115 | 62/019,031 | June 30, 2014 | SYSTEMS AND METHODS FOR PROVIDING INVESTMENT SECURED FINANCIAL ACCOUNTS |
| G4144-00090 | 62/016,012 | June 23, 2014 | SYSTEMS AND METHODS FOR PROVIDING AUTHENTICATION |
| G4144-00120 | 62/022,119 | July 8, 2014 | SYSTEMS AND METHODS FOR PROVIDING LOCATION PROXIMITY DETECTION AND NOTIFICATION |
| G4144-00125 | 62/022,470 | July 9, 2014 | SYSTEMS AND METHODS FOR CONFIRMING CUSTOMER IDENTITY USING NON-CREDENTIALLED INFORMATION |
| G4144-00091 | 62/016,017 | June 23, 2014 | SYSTEMS AND METHODS FOR PROVIDING AUTHENTICATION |
| G4144-00144 | 62/073,881 | October 31, 2014 | SYSTEMS AND METHODS FOR AUTHENTICATING USER IDENTITY BASED ON USED-DEFINED IMAGE DATA |
| G4144-00001 | 62/204,768 | August 13, 2015 | HYBRID PUBLIC-PRIVATE BLOCK-CHAIN LEDGERS |
| G4144-00046 | 14/504,250 | October 1, 2014 | SYSTEMS AND METHODS FOR ADMINISTERING INVESTMENT PORTFOLIOS BASED ON TRANSACTION DATA |
| G4144-00075 | 14/656,519 | March 12, 2015 | SYSTEMS AND METHODS FOR PROVIDING POPULATED TRANSACTION INTERFACES BASED ON USER-GENERATED TRIGGERS |
| G4144-00126 | 14/796,450 | July 10, 2015 | SYSTEMS AND METHODS FOR PROVIDING PRE-PAID MULTICARDS |
| G4144-00085 | 14/723,331 | May 27, 2015 | SYSTEMS AND METHODS FOR PROVIDING MERCHANT FRAUD ALERTS |
| G4144-00066 | 14/585,069 | December 29, 2014 | SYSTEMS AND METHODS FOR PROVIDING BALANCE NOTIFICATIONS |
| G4144-00045 | 14/502,022 | September 30, 2014 | SYSTEMS AND METHODS FOR ADMINISTERING INVESTMENT PORTFOLIOS BASED ON TRANSACTION DATA |

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| G4144-00036 | 14/273,469 | May 8, 2014 | BIOMETRIC-BASED TRANSACTION FRAUD DETECTION |
| G4144-00041 | 14/301,082 | June 10, 2014 | HIGH FRAUD RISK TRANSACTION AUTHORIZATION |
| G4144-00037 | 14/273,425 | May 8, 2014 | PERSON-TO-PERSON ELECTRONIC PAYMENT PROCESSING |
| G4144-00038 | 14/273,500 | May 8, 2014 | SYSTEM AND METHOD FOR CONSUMER-MERCHANT TRANSACTION ANALYSIS |
| G4144-00118 | 14/793,915 | July 8, 2015 | SYSTEMS AND METHODS FOR PROVIDING SENSOR-BASED LOCATION PROXIMITY DETECTION AND NOTIFICATION |
| G4144-00123 | 14/795,584 | July 9, 2015 | SYSTEMS AND METHODS FOR AUTHENTICATING USERS OF NETWORKED COMPUTER SYSTEMS BASED ON NON-CREDENTIALLED INFORMATION |
| G4144-00088 | 14/747,868 | June 23, 2015 | SYSTEMS AND METHODS FOR AUTHENTICATING USER IDENTITIES IN NETWORKED COMPUTER SYSTEMS |
| G4144-00092 | 14/747,895 | June 23, 2015 | SYSTEMS AND METHODS FOR AUTHENTICATING USER IDENTITIES IN NETWORKED COMPUTER SYSTEMS |
| G4144-00113 | 14/755,740 | June 30, 2015 | SYSTEMS AND METHODS FOR IDENTIFYING AND REMEDYING ACCOUNT ERROR EVENTS IN NETWORKED COMPUTER SYSTEMS |
| G4144-00050 | 14/502,268 | September 30, 2014 | SYSTEMS AND METHODS FOR ADMINISTERING INVESTMENT PORTFOLIOS BASED ON TRANSACTION DATA |
| G4144-00052 | 14/502,407 | September 30, 2014 | SYSTEMS AND METHODS FOR ADMINISTERING INVESTMENT PORTFOLIOS BASED ON INFORMATION CONSUMPTION |
| G4144-00107 | 14/510,831 | October 9, 2014 | SYSTEMS AND METHODS FOR PROVIDING ENHANCED POINT-OF-SALE SERVICES |

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| G4144-00110 | 14/510,873 | October 9, 2014 | SYSTEMS AND METHODS FOR PROVIDING ENHANCED POINT-OF-SALE SERVICES INVOLVING MULTIPLE FINANCIAL ENTITIES |
| G4144-00061 | 14/510,969 | October 9, 2014 | SYSTEMS AND METHODS FOR PROVIDING TOKENIZED TRANSACTION ACCOUNTS |
| G4144-00056 | 14/509,555 | October 8, 2014 | SYSTEMS AND METHODS FOR IDENTIFYING PRODUCT RECOMMENDATIONS BASED ON INVESTMENT PORTFOLIO DATA |
| G4144-00059 | 14/509,583 | October 8, 2014 | SYSTEMS AND METHODS FOR IDENTIFYING PRODUCT RECOMMENDATIONS BASED ON INVESTMENT PORTFOLIO DATA |
| G4144-00063 | 14/510,920 | October 9, 2014 | SYSTEMS AND METHODS FOR IDENTIFYING PRODUCT RECOMMENDATIONS BASED ON INVESTMENT PORTFOLIO DATA |
| G4144-00071 | 14/589,848 | January 5, 2015 | SYSTEMS AND METHODS FOR PROVIDING BALANCE NOTIFICATIONS TO CONNECTED DEVICES |
| G4144-00069 | 14/588,861 | January 2, 2015 | SYSTEMS AND METHODS FOR PROVIDING BALANCE NOTIFICATIONS IN AN AUGMENTED REALITY ENVIRONMENT |
| G4144-00073 | 14/589,840 | January 5, 2015 | SYSTEMS AND METHODS FOR PROVIDING BALANCE AND EVENT NOTIFICATIONS |
| G4144-00078 | 14/656,528 | March 12, 2015 | SYSTEMS AND METHODS FOR PROVIDING POPULATED TRANSACTION INTERFACES BASED ON CONTEXTUAL TRIGGERS |
| G4144-00080 | 14/656,541 | March 12, 2015 | SYSTEMS AND METHODS FOR PROVIDING POPULATED TRANSACTION INTERFACES BASED ON SYSTEM-GENERATED TRIGGERS |
| G4144-00116 | 14/755,786 | June 30, 2015 | SYSTEMS AND METHODS FOR IDENTIFYING AND REMEDYING ACCOUNT ERROR EVENTS IN NETWORKED COMPUTER SYSTEMS |
| G4144-00121 | 14/794,038 | July 8, 2015 | SYSTEMS AND METHODS FOR PROVIDING SENSOR-BASED LOCATION PROXIMITY DETECTION AND NOTIFICATION |

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| G4144-00129 | 14/796,512 | July 10, 2015 | SYSTEMS AND METHODS FOR PROVIDING SECURE DATA TRANSMISSION BETWEEN NETWORKED COMPUTING SYSTEMS |
| G4144-00002 | 14/928,838 | October 30, 2015 | SYSTEMS AND METHOD FOR TRACKING ENTERPRISE EVENTS USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00003 | 14/935,829 | November 9, 2015 | SYSTEMS AND METHOD FOR TRACKING BEHAVIOR OF NETWORKED DEVICES USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00004 | 14/936,833 | November 10, 2015 | SYSTEMS AND METHODS FOR TRACKING AND TRANSFERRING OWNERSHIP OF CONNECTED DEVICES USING BLOCKCHAIN LEDGERS |
| G4144-00005 | 14/931,414 | November 3, 2015 | SYSTEMS AND METHOD FOR TRACKING SUBDIVIDED OWNERSHIP OF CONNECTED DEVICES USING BLOCK-CHAIN LEDGERS |
| G4144-00006 | 14/936,812 | November 10, 2015 | SYSTEMS AND METHODS FOR DETECTING AND RESOLVING DATA INCONSISTENCIES AMONG NETWORKED DEVICES USING HYBRID PRIVATE-PUBLIC BLOCKCHAIN LEDGERS |
| G4144-00007 | 14/935,799 | November 9, 2015 | SYSTEMS AND METHODS FOR ESTABLISHING AND ENFORCING TRANSACTION-BASED RESTRICTIONS USING HYBRID PUBLIC-PRIVATE BLOCKCHAIN LEDGERS |
| G4144-00097 | 14/874,202 | October 2, 2015 | SYSTEMS AND METHODS FOR AUTOMATICALLY GENERATING ORDER DATA BASED ON SOCIAL MEDIA MESSAGING |
| G4144-00098 | 15/228,705 | August 4, 2016 | SYSTEMS AND METHODS FOR AUTOMATICALLY GENERATING ORDER DATA BASED ON SOCIAL MEDIA MESSAGING |
| G4144-00140 | 14/874,180 | October 2, 2015 | SYSTEMS AND METHODS FOR VERIFYING USER IDENTITY BASED ON SOCIAL MEDIA MESSAGING |
| G4144-00142 | 14/928,500 | October 30, 2015 | SYSTEMS AND METHODS FOR AUTHENTICATING USER IDENTITY BASED ON USER-DEFINED IMAGE DATA |
| G4144-00030 | 14/199,476 | March 6, 2014 | METHODS AND SYSTEMS FOR DETERMINING AND PROVIDING NEGATIVE EVENT NOTIFICATIONS |

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| G4144-00033 | 14/199,664 | March 6, 2014 | SYSTEMS AND METHODS FOR PROVIDING TRANSACTION COMPLETION ALERTS |
| G4144-00039 | 14/289,261 | May 28, 2014 | VIRTUAL CERTIFIED FINANCIAL INSTRUMENT SYSTEM |