PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

SUBMISSION TYPE: CORRECTIVE ASSIGNMENT **NATURE OF CONVEYANCE:** Corrective Assignment to correct the THE NAMES OF THE SECOND AND THIRD ASSIGNORS previously recorded on Reel 032359 Frame 0161. Assignor(s) hereby confirms the ASSIGNMENT.

CONVEYING PARTY DATA

| Name | Execution Date |
|------------------|----------------|
| GALINA GRUNIN | 02/28/2014 |
| DAVID E. NACHMAN | 03/03/2014 |
| NADER M. NASSAR | 02/28/2014 |
| TAMER NASSAR | 02/28/2014 |

RECEIVING PARTY DATA

| Name: INTERNATIONAL BUSINESS MACHINES CORPORATION | |
|---|------------------|
| Street Address: | NEW ORCHARD ROAD |
| City: | ARMONK |
| State/Country: | NEW YORK |
| Postal Code: | 10504 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14198354 |

CORRESPONDENCE DATA

Fax Number: (202)331-3838

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.

202-331-8777 Phone:

Email: docketing@cahnsamuels.com

CAHN & SAMUELS, LLP **Correspondent Name:** Address Line 1: 1100 17TH STREET N.W.

Address Line 2: SUITE 401

Address Line 4: WASHINGTON, D.C. 20036

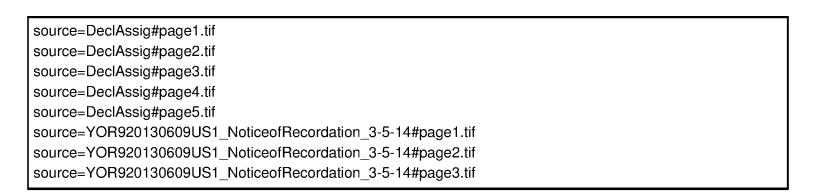
| ATTORNEY DOCKET NUMBER: | YOR920130609US1 |
|-------------------------|-----------------|
| NAME OF SUBMITTER: | DUANE N. MOORE |
| SIGNATURE: | /DUANE MOORE/ |
| DATE SIGNED: | 09/15/2017 |
| | |

Total Attachments: 8

PATENT REEL: 043970 FRAME: 0678

EPAS ID: PAT4597170

504550462



PATENT REEL: 043970 FRAME: 0679 502708176 03/05/2014

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

EPAS ID: PAT2754781

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

CONVEYING PARTY DATA

| Name | Execution Date |
|---------------|----------------|
| GALINA GRUNIN | 02/28/2014 |
| DAVID NACHMAN | 03/03/2014 |
| NADER NASSAR | 02/28/2014 |
| TAMER NASSAR | 02/28/2014 |

RECEIVING PARTY DATA

| Name: | INTERNATIONAL BUSINESS MACHINES CORPORATION |
|-----------------|---|
| Street Address: | NEW ORCHARD ROAD |
| City: | ARMONK |
| State/Country: | NEW YORK |
| Postal Code: | 10504 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14198354 |

CORRESPONDENCE DATA

Fax Number: (202)331-8777 Phone: 202-331-8777

Email: duane.moore@cahnsamuels.com

Correspondence will be sent via US Mail when the email attempt is unsuccessful.

Correspondent Name: CAHN & SAMUELS, LLP
Address Line 1: 1100 17TH STREET, NW

Address Line 2: SUITE 401

Address Line 4: WASHINGTON, DISTRICT OF COLUMBIA 20036

| ATTORNEY DOCKET NUMBER: | YOR920130609US1 |
|-------------------------|-----------------|
| NAME OF SUBMITTER: | DUANE N. MOORE |

PATENT REEL: 043970 FRAME: 0680

DECLARATION (37 C.F.R. 1.63) FOR UTILITY PATENT APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76) AND ASSIGNMENT

Title of Invention: UTILITY CONSUMPTION ADVISOR

| As a below named and undersigned inventor, I hereby declare that: |
|--|
| This declaration is directed to the attached application, or (if following box is checked): |
| [] United States application or PCT international application number |
| The above-identified application was made or authorized to be made by me. |
| I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. |
| I have reviewed and understand the contents of the application, including the claims. |
| I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR Section 1.56. |

Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the IBM Docket Number provided above in the header of this document:

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns. whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

Page 1 of 2

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge 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.

| (1) | Legal Name of Inventor: GALINA GRUNIN | |
|-----|---|--------------------|
| | Signature: <u>Galina G</u> | un's Date: 2/28/19 |
| (2) | Legal Name of Inventor: DAVID E. NACHMA | N |
| | Signature: | Date: |
| (3) | Legal Name of Inventor: NADER M. NASSAR | |
| | Signature: | Date: |
| (4) | Legal Name of Inventor: TAMER NASSAR | |
| | Signature: | Date: |

[IF MORE INVENTORS, ADDITIONAL SIGNATURE PAGE(S) FOLLOWS]

Page 2 of 2

PATENT REEL: 043970 FRAME: 0682

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

I hereby acknowledge 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.

| (1) Legal Name of Inventor: GALINA GRUNIN | |
|--|--------------|
| Signature: | Date: |
| (2) Legal Name of Inventor: DAVID E. NACHMAN | |
| Signature: Jail Nach | Date: 3/3/14 |
| (3) Legal Name of Inventor: NADER M. NASSAR | |
| Signature: | Date: |
| (4) Legal Name of Inventor: TAMER NASSAR | |
| Signature: | Date: |

[IF MORE INVENTORS, ADDITIONAL SIGNATURE PAGE(S) FOLLOWS]

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

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| (1) Legal Name of Inventor: GALINA GRUNIN | |
|--|------------------|
| Signature: | Date: |
| (2) Legal Name of Inventor: DAVID E. NACHMAN | |
| Signature: | Date: |
| (3) Legal Name of Inventor: NADER M. NASSAR | |
| Signature: Work w Moser | Date: 02/28/2014 |
| (4) Legal Name of Inventor: TAMER NASSAR | |
| Signature: | Date: |

[IF MORE INVENTORS, ADDITIONAL SIGNATURE PAGE(S) FOLLOWS]

Page 2 of 2

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

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| (1) | Legal Name of Inventor: GALINA GRUNIN | |
|-----|--|-----------|
| | Signature: | Date: |
| (2) | Legal Name of Inventor: DAVID E. NACHMAN | |
| | Signature: | Date: |
| (3) | Legal Name of Inventor: NADER M. NASSAR | |
| | Signature: | Date: |
| (4) | Legal Name of Inventor: TAMER NASSAR | |
| | Signature: Jan Nassa Nassa | 2/28/2014 |

[IF MORE INVENTORS, ADDITIONAL SIGNATURE PAGE(S) FOLLOWS]



UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

MARCH 6, 2014

PTAS

CAHN & SAMUELS, LLP 1100 17TH STREET, NW SUITE 401 WASHINGTON, DC 20036 502708176

UNITED STATES PATENT AND TRADEMARK OFFICE NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT RECORDATION BRANCH OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE ASSIGNMENT RECORDATION BRANCH AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT RECORDATION BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 03/05/2014 REEL/FRAME: 032359/0161

NUMBER OF PAGES: 7

BRIEF: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

DOCKET NUMBER: YOR920130609US1

ASSIGNOR:

GRUNIN, GALINA DOC DATE: 02/28/2014

ASSIGNOR:

NACHMAN, DAVID DOC DATE: 03/03/2014

ASSIGNOR:

NASSAR, NADER DOC DATE: 02/28/2014

ASSIGNOR:

NASSAR, TAMER DOC DATE: 02/28/2014

ASSIGNEE:

INTERNATIONAL BUSINESS MACHINES CORPORATION NEW ORCHARD ROAD ARMONK, NEW YORK 10504

APPLICATION NUMBER: 14198354 FILING DATE: PATENT NUMBER: ISSUE DATE:

TITLE: UTILITY CONSUMPTION ADVISOR

P.O. Box 1450, Alexandria, Virginia 22313-1450 - WWW.USPTO.GOV PATENT

RECORDED: 09/15/2017 REEL: 043970 FRAME: 0686