

4/28/17

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04/28/2017



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Commissioner of Patents and Trademarks, Washington, DC

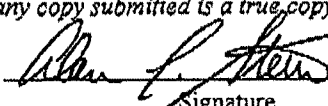
1. Name of conveying party(ies): Craig B. Gentry Additional name(s) of conveying party(ies) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		2. Name and address of receiving party(ies): Name: International Business Machines Corporation Address: New Orchard Road City: Armonk State: NY ZIP Code: 10504 Country: Usa Additional name(s) & address(es) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
3. Nature of Conveyance: <input type="checkbox"/> Assignment <input type="checkbox"/> Merger <input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name <input checked="" type="checkbox"/> Other: To correct the application number in the cover sheet previously recorded at reel 028618 and frame 0641 from incorrect application No. 13/458,818 to the correct application number identified belwo and record a new corrected assignment document. Execution Date: July 15 ,2012 and May 15, 2014			
4. Application number(s) or patent number(s): If this document is being filed together with a new application, the execution date of the application is: _____ A. Patent Application No.(s): 13/458,518 B. Patent No.(s): Additional numbers attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5. Name and address of party to whom correspondence concerning document should be mailed: Name: Mark F. Harrington, Esq. Address: Harrington & Smith, Attorneys At Law LLC 4 Research Drive City: Shelton State: CT ZIP Code: 06484-6212		6. Total number of applications and/or patents involved: 1 7. Total fee (37 CFR 3.41):\$40.00 <input type="checkbox"/> Enclosed <input checked="" type="checkbox"/> Charge deposit account <input checked="" type="checkbox"/> Please charge any fee deficiency to deposit account	
		8. Deposit account number: <u>50-1924</u>	
DO NOT USE THIS SPACE			
9. Statement And Signature: <i>To the best of my knowledge and belief, the foregoing information is true and correct and, the attached document is either an original document or a true copy of the original document.</i> Mark F. Harrington Name of Person Signing Signature 4/24/2017 Date Total number of pages including cover sheet(s): Page 1 of 1.			

Form PTO-159S

RECORDATION FORM COVER SHEET PATENTS ONLY

YOR920110361US2

To the Director of the U.S. Patent and Trademark Office: Please record the attached document(s) or the new address(es) below:

<p>1. Name of conveying party(ies):</p> <p>Craig B. Gentry</p> <p>Additional name(s) of conveying party(ies) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	<p>2. Name and address of receiving party(ies):</p> <p>Name: International Business Machines Corporation</p> <p>Address: New Orchard Road</p> <p>City: Armonk State: NY ZIP Code: 10504</p> <p>Country:</p> <p>Additional name(s) & address(es) attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>
<p>3. Nature of Conveyance:</p> <p><input checked="" type="checkbox"/> Assignment <input type="checkbox"/> Merger <input type="checkbox"/> Security Agreement <input type="checkbox"/> Change of Name <input type="checkbox"/> Other:</p> <p>Execution Date(s): July 15, 2012</p>	
<p>4. Application number(s) or patent number(s): <input type="checkbox"/> This document is being filed together with a new application.</p> <p>A. Patent Application No.(s): 13/458,818 B. Patent No.(s):</p> <p>Additional numbers attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	
<p>5. Name and address of party to whom correspondence concerning document should be mailed:</p> <p>Name: Alan L. Stern, --- Address: Harrington & Smith, Attorneys At Law, LLC 4 Research Drive, Suite 202</p> <p>City: Shelton</p> <p>State: CT ZIP Code: 06484-6212</p>	<p>6. Total number of applications and/or patents involved: 1</p> <p>7. Total fee (37 CFR 3.41):\$40.00</p> <p><input type="checkbox"/> Enclosed <input checked="" type="checkbox"/> Charge deposit account <input checked="" type="checkbox"/> Please charge any fee deficiency to deposit account</p> <p>8. Deposit account number: <u>50-0510</u></p>
<p>9. Signature:</p> <p><i>If this is a new cover sheet to correct an error in a recorded document, the information provided on this new cover sheet is true and correct and any copy submitted is a true copy of the original document.</i></p> <p><u>Alan L. Stern</u>  <u>7/17/12</u> Name of Person Signing Signature Date</p> <p>Total number of pages including cover sheet(s), attachments, and documents: 3 Page 1 of 3.</p>	

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PATENT REEL: 042226 FRAME: 0633

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: **Fully Homomorphic Encryption**

As a below named 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 13/458,518 filed on April 27, 2012.

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, the undersigned inventor(s) has/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;

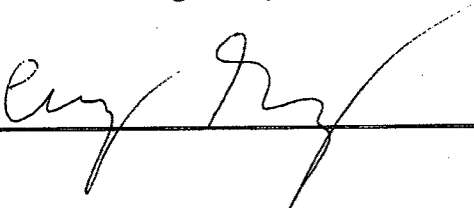
Whereas, International Business Machines Corporation, a corporation of New York having a place of business at Armonk, New York (herein referred to as "IBM"), desires to acquire, and each undersigned inventor desires to grant to IBM, the entire worldwide right, title, and interest in and to the Invention 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, each undersigned inventor ("ASSIGNOR") hereby sells or has sold, assigns or has assigned, and otherwise transfers or has transferred to IBM (the "ASSIGNEE"), its successors, legal representatives, and assigns, the 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, each undersigned inventor hereby authorizes and requests 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 IBM, its successors, legal representatives, and assigns, the entire worldwide right, title, and interest in and to the same to be held and enjoyed by IBM, 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 the undersigned had this Assignment not been made; and each undersigned inventor agrees 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 IBM, its successors, legal representatives, and assigns, whenever requested by IBM, its successors, legal representatives, or assigns.

Each undersigned inventor acknowledges their prior and ongoing obligations to sell, assign, and transfer the rights under this Assignment to IBM and is unaware of any reason why they may not have the full and unencumbered right to sell, assign, and transfer the rights hereby sold, assigned, and transferred, and has not executed, and will not execute, any document or instrument in conflict herewith. Each undersigned inventor also hereby grants IBM, 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: **Craig Gentry**

Signature:  Date: May 15, 2014

IBM DOCKET NUMBER: YOR020110361US2

ASSIGNMENT

Whereas, the undersigned Inventor(s) has/has made certain inventions, improvements, and discoveries (herein referred to as the "Invention"), in:

Title of the Invention: Fully Homomorphic Encryption

and further identified by the IBM Docket Number provided above in the header of this Assignment, for which an application for a United States Patent was executed concurrently herewith or was filed having:

Application No.: 13/458,818 (insert series code/serial number here if/when available)

Whereas, International Business Machines Corporation, a corporation of New York having a place of business at Armonk, New York (herein referred to as "IBM"), desires to acquire, and each undersigned Inventor desires to grant to IBM, the 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, each undersigned Inventor ("ASSIGNOR") hereby sells, assigns, and otherwise transfers to IBM (the "ASSIGNEE"), its successors, legal representatives, and assigns, the 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, each undersigned Inventor hereby authorizes and requests 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 IBM, its successors, legal representatives, and assigns, the entire worldwide right, title, and interest in and to the same to be held and enjoyed by IBM, 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 the undersigned had this Assignment not been made; and each undersigned Inventor agrees 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 IBM, its successors, legal representatives, and assigns, whenever requested by IBM, its successors, legal representatives, or assigns.

Each undersigned Inventor acknowledges their prior and ongoing obligations to sell, assign, and transfer the rights under this Assignment to IBM and is unaware of any reason why they may not have the full and unencumbered right to sell, assign, and transfer the rights hereby sold, assigned, and transferred, and has not executed, and will not execute, any document or instrument in conflict herewith. Each undersigned Inventor also hereby grants IBM, 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.

[Inventor Signature Page(s) Follows]

IBM DOCKET NUMBER: YOR920110361US2

Executed by Inventor 1

Signature: Craig B. Gentry Date: July 15, 2012
Craig B. Gentry

Page 2 of 2

RECORDED: 07/17/2012
RECORDED: 02/22/2017

PATENT
REEL: 042226 FRAME: 0637