504506998 08/16/2017

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4553702

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
MANU JACOB KURIAN	08/09/2017
SORIN N. CISMAS	08/15/2017
JAMES P. SCOPIS	08/14/2017
PAUL GRAYSON ROSCOE	08/16/2017
THOMAS J. DURKIN	08/15/2017

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: 1

Property Type	Number
Application Number:	15678912

CORRESPONDENCE DATA

Fax Number: (704)339-5800

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.

Phone: 7043311000

Email: barbarabrown@mvalaw.com

MOORE & VAN ALLEN PLLC FOR BOFA **Correspondent Name:**

Address Line 1: 3015 CARRINGTON MILL BOULEVARD, STE 400

Address Line 2: POST OFFICE BOX 13706

RESEARCH TRIANGLE PK, NORTH CAROLINA 27709 Address Line 4:

ATTORNEY DOCKET NUMBER:	7889US1.014033.3046
NAME OF SUBMITTER:	W. KEVIN RANSOM
SIGNATURE:	/W. Kevin Ransom/
DATE SIGNED:	08/16/2017
	This document serves as an Oath/Declaration (37 CFR 1.63).

PAIENI

REEL: 043311 FRAME: 0147 504506998

Total Attachments: 10 source=7889US1_3046_Combined_Declaration-Assignments#page1.tif source=7889US1_3046_Combined_Declaration-Assignments#page2.tif source=7889US1_3046_Combined_Declaration-Assignments#page3.tif source=7889US1_3046_Combined_Declaration-Assignments#page4.tif source=7889US1_3046_Combined_Declaration-Assignments#page5.tif source=7889US1_3046_Combined_Declaration-Assignments#page6.tif source=7889US1_3046_Combined_Declaration-Assignments#page7.tif source=7889US1_3046_Combined_Declaration-Assignments#page8.tif source=7889US1_3046_Combined_Declaration-Assignments#page9.tif source=7889US1_3046_Combined_Declaration-Assignments#page9.tif

PATENT REEL: 043311 FRAME: 0148

PMN: 7889US1

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	ELASTIC AUTHENTICATION SYSTEM
As the below	named inventor, I hereby declare that:
This declaration is directed to:	The attached apphication, or
	United States application or PCT international application number
The above-ide	entified 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 hereby ackn imprisonmen	owledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or of not more than five (5) years, or both.
	ASSIGNMENT
(City, State/Preven date her authorize the	Manu Jacob Kurian ("Assignor"), a citizen of the United States of America (Country), residing in Dallas, Texas rovince) have invented the above invention. If the following lines are blank, the above application was filed on ewith, otherwise, to comply with 37 C.F.R. §3.21 for recordal of this assignment, I, an assignor below, hereby attorneys for Bank of America to insert the filing date and application number below after they become ior to filing the recordation.
	U.S. Application No. <u>15/678,912</u> , filed <u>August 16, 2017</u> .
Delaware, and title and inter	NK OF AMERICA CORPORATION ("Assignee"), a Corporation duly organized under the laws of the State of dhaving its offices and place of business at Charlotte, North Carolina, is desirous of acquiring the entire right, est in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the of America, and in any and all countries foreign thereto:
NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions 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,	

countries.

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

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 Date: \$8/09/2017-

Inventor: MANU JACOB KURIAN

Signature: M. J. Kuria,

PMN: 7889US1

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

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	United States application or PCT international application number
The above-ide	entified 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.
	owledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or t of not more than five (5) years, or both.
	ASSIGNMENT
(City, State/Preven date her authorize the	Sorin N. Cismas ("Assignor"), a citizen of the United States of America (Country), residing in Addison, Texas rovince) have invented the above invention. If the following lines are blank, the above application was filed on rewith, otherwise, to comply with 37 C.F.R. §3.21 for recordal of this assignment, I, an assignor below, hereby attorneys for Bank of America to insert the filing date and application number below after they become fior to filing the recordation.
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Delaware, and title and inter	NK OF AMERICA CORPORATION ("Assignee"), a Corporation duly organized under the laws of the State of d having its offices and place of business at Charlotte, North Carolina, is desirous of acquiring the entire right, est in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the of America, and in any and all countries foreign thereto:
payment for t said Assignor, representativ countries for countries in it entitled unde Letters Paten continuation- secrets, confi- authorize and Patent on said right, title and agree that I w successors, as will execute a testify in any	FORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary or the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal es, the full and exclusive right, title and interest for the territory of the United States of America and all sign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign is own name and to claim any priority rights for such foreign applications to which such applications are rinternational conventions, treaties, or otherwise), in and to said inventions and in and to all applications and to granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, reviews, continuations, in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters dinventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire dinterest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its issigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I ll non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all

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purposes are not retained in the application file and therefore are	a not publicly available.
LEGAL NAME OF INVENTOR	
Inventor: SORIN N. CISMAS	Date:
Signature:	

PMN: 7889US1

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This declaration is directed to:	The attached application, or
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The above-ide	ntified 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.
-	owledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or of not more than five (5) years, or both.
	ASSIGNMENT
(City, State/Pr even date her authorize the	ames P. Scopis ("Assignor"), a citizen of the United States of America (Country), residing in Newark, Delaware ovince) have invented the above invention. If the following lines are blank, the above application was filed on ewith, otherwise, to comply with 37 C.F.R. §3.21 for recordal of this assignment, I, an assignor below, hereby attorneys for Bank of America to insert the filing date and application number below after they become for to filing the recordation.
	U.S. Application No. <u>15/678,912</u> , filed <u>August 16, 2017</u> .
Delaware, and title and interest	NK OF AMERICA CORPORATION ("Assignee"), a Corporation duly organized under the laws of the State of I having its offices and place of business at Charlotte, North Carolina, is desirous of acquiring the entire right, est in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the of America, and in any and all countries foreign thereto:
payment for the said Assignor, representative countries for ecountries in its entitled under Letters Patent continuation-is secrets, confiduathorize and Patent on said right, title and agree that I wis successors, as will execute all	ORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary or the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal est, the full and exclusive right, title and interest for the territory of the United States of America and all ign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign sown name and to claim any priority rights for such foreign applications to which such applications are international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, reviews, continuations, n-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade lential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I ll without further consideration, but at the expense of Assignee, communicate to said Assignee, or its signs, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, egal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for

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LEGAL NAME OF INVENTOR

Inventor: JAMES P. SCOPIS

Signature:

[Page 2 of 2]

PMN: 7889US1

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I hereby ackr imprisonmen	owledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or t of not more than five (5) years, or both.
	ASSIGNMENT
Flintshire, Ur above applica assignment,	Paul Grayson Roscoe ("Assignor"), a citizen of Wales, United Kingdom (Country), residing in Treuddyn, ited Kingdom (City, State/Province) have invented the above invention. If the following lines are blank, the ation was filed on even date herewith, otherwise, to comply with 37 C.F.R. §3.21 for recordal of this, an assignor below, hereby authorize the attorneys for Bank of America to insert the filing date and application wafter they become known and prior to filing the recordation.
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payment for said Assignor representative countries for countries in it entitled under Letters Pater continuation secrets, confiauthorize an Patent on sairight, title an agree that I versuccessors, a will execute testify in any	FORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary or the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I is, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal yes, the full and exclusive right, title and interest for the territory of the United States of America and all eign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign ts own name and to claim any priority rights for such foreign applications to which such applications are er international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and it granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, reviews, continuations, in-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade idential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby direquest the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters dinventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire dinterest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its ssigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for e, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all

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LEGAL NAME OF INVENTOR		
Inventor: PAUL GRAYSON ROSCOE	Date: <u>16/08/2017</u>	
Signature:		

PMN: 7889US1

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	ASSIGNMENT
Heights, Illino application w assignor belo	Thomas J. Durkin ("Assignor"), a citizen of the United States of America (Country), residing in Arlington is (City, State/Province) have invented the above invention. If the following lines are blank, the above as filed on even date herewith, otherwise, to comply with 37 C.F.R. §3.21 for recordal of this assignment, I, an w, hereby authorize the attorneys for Bank of America to insert the filing date and application number below come known and prior to filing the recordation.
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Delaware, an title and inter	ANK OF AMERICA CORPORATION ("Assignee"), a Corporation duly organized under the laws of the State of d having its offices and place of business at Charlotte, North Carolina, is desirous of acquiring the entire right, rest in and to the aforesaid inventions and in and to all applications and Letters Patent therefor granted in the of America, and in any and all countries foreign thereto:
payment for said Assignor representative countries for countries in it entitled under Letters Patent continuation-secrets, configuration authorize and Patent on sairight, title an agree that I will execute a testify in any	FORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary or the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal less, the full and exclusive right, title and interest for the territory of the United States of America and all leign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign is own name and to claim any priority rights for such foreign applications to which such applications are are international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and t granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, reviews, continuations, in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade dential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby a request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters and inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire dinterest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its signs, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for this successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all

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LEGAL NAME OF INVENTOR			
		А	ugust, 15, 2017
Inventor: THOMAS J. DURKIN		Date: _	
Signature:	Thomas J Durkin		