### 503811957 05/04/2016

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3858605

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
TIMOTHY J. BENDEL	04/06/2016
MARK V. KREIN	04/06/2016
DAVID N. JOFFE	04/06/2016
SANDI SETIAWAN	04/05/2016
WILLIAM ANTHONY NOBILI	04/12/2016
DAVID JOA	04/06/2016

### **RECEIVING PARTY DATA**

Name:	BANK OF AMERICA CORPORATION
Street Address:	MAIL CODE NC 1-027-20-05
Internal Address:	214 N. TRYON ST.
City:	CHARLOTTE
State/Country:	NORTH CAROLINA
Postal Code:	28255

### **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	15146137

### **CORRESPONDENCE DATA**

**Fax Number:** (312)463-5001

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:** 312-463-5000

Email: aonoda@bannerwitcoff.com
Correspondent Name: BANNER & WITCOFF, LTD.
Address Line 1: 10 S. WACKER DRIVE

Address Line 2: SUITE 3000

Address Line 4: CHICAGO, ILLINOIS 60606

ATTORNEY DOCKET NUMBER:	007131.01768
NAME OF SUBMITTER:	KENNETH F. SMOLIK
SIGNATURE:	/Kenneth F. Smolik/
DATE SIGNED:	05/04/2016

503811957 PATENT REEL: 038456 FRAME: 0288

	This document serves as an Oath/Declaration (37 CFR 1.63).
Total Attachments: 12	
source=bendel#page1.tif	
source=bendel#page2.tif	
source=bendel#page3.tif	
source=bendel#page4.tif	
source=bendel#page5.tif	
source=bendel#page6.tif	
source=bendel#page7.tif	
source=bendel#page8.tif	
source=bendel#page9.tif	
source=bendel#page10.tif	
source=bendel#page11.tif	
source=bendel#page12.tif	

PATENT REEL: 038456 FRAME: 0289

# 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	PREDICTING ECONOMIC CONDITIONS
As the below	named inventor, I hereby declare that:
This declaration is directed to:	[X] The attached application, by
	United States application or PCT international application number filed on
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 of not more than five (5) years, or both.
	ASSIGNMENT
State/Provinc date herewith authorize the	Fimothy J. Bendel ("Assignor"), a citizen of the <u>United States</u> (Country), residing in <u>Charlotte, NC</u> (City, e) have invented the above invention. If the following lines are blank, the above application was filed on even of 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. $\underline{15/146,137}$ , filed $\underline{5-4-2016}$ .
Delaware, and title and inter	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 t said Assignor, representative countries for e countries in it entitled under Letters Patent in-parts and e confidential ir request the Co inventions or interest. I represent without further nominees, and provisional, di proceedings, s	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 es, 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 so own 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, continuations, continuations, treaties, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and promissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and resent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will execute all nonvisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its signs, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.

#### **WARNING:**

purposes are not retained in the application hie and therefore a	re not publicly available.
LEGAL NAME OF INVENTOR	
Inventor: Timothy J. Bendel	Date:
Signature: The ARU	

# 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	PREDICTING ECONOMIC CONDITIONS
As the below	named inventor, I hereby declare that:
This declaration is directed to:	on
	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	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	Mark V. Krein ("Assignor"), a citizen of the United States (Country), residing in Charlotte, NC 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>15/146,137</u> , filed <u>5-4-2016</u> .
Delaware, and title and inter	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 t said Assignor, representative countries fore countries in it entitled under Letters Patent in-parts and e confidential ir request the Co inventions or interest. I repr without further nominees, any provisional, di proceedings, s	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, continuations, continuations, tensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, formation, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and ammissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and resent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will be consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or and all facts known to me regarding said inventions whenever requested, and that I will execute all non-visional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal ign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its signs, and nominees, to obtain and enforce proper patent protection for said inventions in all countries

#### **WARNING:**

purposes are not retained in the application file and therefore	are not publicly available.
LEGAL NAME OF INVENTOR	
Inventor: Mark V. Krein	Date: 4/6/2016
Signature: M. J. V. C.	

# 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	PREDICTING ECONOMIC CONDITIONS
As the below	named inventor, I hereby declare that:
This declaration is directed to:	The attached application, 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	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
State/Provinc date herewith authorize the	David N. Joffe ("Assignor"), a citizen of the <u>United States</u> (Country), residing in <u>Charlotte, NC</u> (City, e) have invented the above invention. If the following lines are blank, the above application was filed on even 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. $\underline{15/146,137}$ , filed $\underline{5-4-2016}$ .
Delaware, and title and inter	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 it entitled under Letters Patent in-parts and econfidential in request the Conventions or interest. I republished the confidential further of the confidential in request the Conventions or interest. I republished the confidential further of the convention of the confidential further of the c	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 es, the full and exclusive right, title and interest for the territory of the United States of America and all light 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 granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, continuations, continuations, trensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and present and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will are consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or y and all facts known to me regarding said inventions whenever requested, and that I will execute all non-visional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its signs, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.

[Page 1 of 2]

PATENT REEL: 038456 FRAME: 0294

#### **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.

purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: David N. Joffe

Signature:

# 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	PREDICTING ECONOMIC CONDITIONS
As the below	named inventor, I hereby deciare that:
This declaration is directed to:	(A) The abacies approach, 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	arn 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/Preven date her authorize the	iandi Setiawan ("Assignor"), a citizen of the <u>United Kingdom</u> (Country), residing in <u>Charlotte, NC</u> 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 ior to filing the recordation.
	U.S. Application No. $15/146,137$ , filed $5-4-2016$
Delaware, and title and inter	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:
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, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do	

[Page 1 of 2]

PATENT REEL: 038456 FRAME: 0296

#### WARNING:

LEGAL NAME OF INVENTOR	
Inventor: Sandi Setiawan	Date: 4/5/2016
Signature:	

# 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	PREDICTING ECONOMIC CONDITIONS
As the below	named inventor, i hereby declare that:
This declaration is directed to:	M the attached application, or
	United States application or PCT international application number filed on
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 of not more than five (5) years, or both.
***************************************	ASSIGNMENT
(City, State/Pi even date her authorize the	Nilliam Anthony Nobili ("Assignor"), a citizen of the <u>United States</u> (Country), residing in <u>Charlotte, NC</u> 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>15/146,137</u> , filed <u>5-4-2016</u> .
Delaware, and title and inter	INK 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 it entitled under Letters Patentin-parts and econfidential ir request the Conventions or interest. I repwithout furthnominees, and provisional, disproceedings,	FORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary or he 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 eign 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, continuations, treaties, and and to all copyrights, trademarks with their associated goodwill, trade secrets, information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and present and compilations, and or official whose duty it is to issue patents, to issue all Letters Patent on said resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and resent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will are consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assign, or y and all facts known to me regarding said inventions whenever requested, and that I will execute all non-invisional, reissue, preexamination, continuation, and continuation in-parting reasonable for said Assignee, its selectors and continues to obtain and expertence and continues to obtain an expertence of the entire right, title and

### WARNING:

hashnaes are not refamed in the abblication life and theretore a	are not publicly		
LEGAL NAME OF INVENTOR			
Inventor: William Anthony Nobili	Date:	4/12/16	
Signature: Arllin Aithon Hold			

## COMBINED DECLARATION (37 CFR 1.53) AND ASSIGNMENT FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	PREDICT	ING ECONOMIC CONDITIONS
As the below	named inventor, I hereby declare that:	
This declarations directed to	90 No the arrespect application as	
	United States application or filed on	PCT international application number
The above-ide	entified application was made or author	eed to be made by me.
I believe that	I am the original inventor or an original	oint inventor of a claimed invention in the application.
I hereby acknowledge that any willful false statement made in this declaration is pun imprisonment of not more than five (5) years, or built		
***************************************		ASSIGNMENT
State/Province date herewith authorize the	te) have invented the above invention. h, otherwise, to comply with 37 C.F.R. \$3 attorneys for Bank of America to insert rior to filing the recordation.	ed <u>States</u> (Country), residing in <u>San Francisco, CA</u> (City, the following lines are blank, the above application was filed on even 21 for recordal of this assignment, I, an assignor below, hereby the filling date and application number below after they become
	U.S. Application No $-15/1$	16,137 Hed 5-4-2016
Delaware, an	of having its offices and place of business	see"), a Corporation duly organized under the laws of the State of at Cherlotte, North Carolina, is desirous of acquiring the entire right, d in and to all applications and Letters Patent therefor granted in the foreign thereto:
payment for said Assignor representative countries in i entitled under Letters Pater in-parts and confidential request the interest. I rejuditions for interest, and nominees, as	the making of inventions, or employee by these presents do sell, assign and trives, the full and exclusive right, title and eigh thereto, and throughout the world its own name and to claim any priority right makes and the claim any priority right makes therefor, and all non-provision extensions thereof, and in and to all copiniformation, and compilations, necessar Commissioner of Patents, and any official resulting thereform to said Assignee, or present and warrant that I have full right her consideration, but at the expense of my and all facts known to me regarding as the self-self and all facts known to me regarding as the self-self-self-self-self-self-self-self-	known that, for good and valuable consideration, including salary or enefits, the receipt and sufficiency of which is hereby acknowledged, I ensier unto said Assignee, its successors, assigns and legal interest for the territory of the United States of America and all and in space. (Including the right to apply for Letters Patent in foreign into for such foreign applications to which such applications are otherwise), in and to said inventions and in and to all applications and sals, divisionals, reasones, reexaminations, continuations, continuation-rights, trademarks with their associated goodwill, trade secrets, or useful to make, use, or sell the inventions. I hereby authorize and whose duty it is to issue patents, to issue all letters Patent on said its successors and assigns, as assignee of the entire right, title and to agree to, execute, and deliver this assignment. I agree that I will assignee, communicate to said Assignee, or its successors, assigns, or sid inventions whenever requested, and that I will execute all constation and continuation-in-part applications, testify in any legal
broceedings.	, sign all lawful papers, make all rightful s	saths, and generally do everything reasonable for said Assignee, its gree proper patent protection for said inventions in all countries.

[Page 1 of 2]

WA		

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.

EGAL NAME OF INVEN	TOR L	Date:	4.	6-2016	
ignature:					****
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
	·				
Page 1 of 2)					

PATENT REEL: 038456 FRAME: 0301

RECORDED: 05/04/2016