PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5958995

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
MICHAL LIPSON	08/09/2017
YOU-CHIA CHANG	07/13/2017
SAMANTHA P. ROBERTS	07/20/2017
BRIAN STERN	01/16/2018

RECEIVING PARTY DATA

Name:	THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK
Street Address:	535 WEST 116TH STREET
Internal Address:	412 LOW MEMORIAL LIBRARY
City:	NEW YORK
State/Country:	NEW YORK
Postal Code:	10027

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16626616

CORRESPONDENCE DATA

Fax Number: (215)568-3439

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.

Email: assignments@woodcock.com **Correspondent Name: BAKER & HOSTETLER LLP**

Address Line 1: 2929 ARCH STREET, CIRA CENTRE

Address Line 2: 12TH FLOOR

Address Line 4: PHILADELPHIA, PENNSYLVANIA 19104

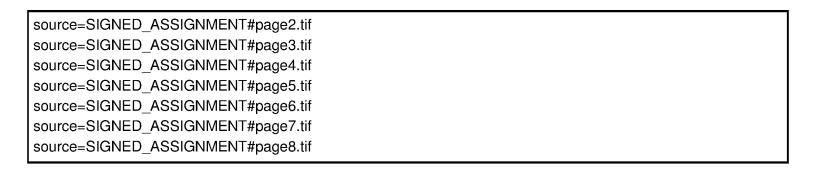
ATTORNEY DOCKET NUMBER:	101879.000113
NAME OF SUBMITTER:	VALERIE CHICCHI
SIGNATURE:	/Valerie Chicchi/
DATE SIGNED:	02/12/2020

Total Attachments: 8

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PATENT REEL: 051793 FRAME: 0420

505912278



PATENT REEL: 051793 FRAME: 0421

ASSIGNMENT

WHEREAS, I, Michal Lipson, a citizen of United States residing at 452 Riverside Drive, Apt. 62, New York, New York 10027, ASSIGNOR, am an inventor of one or more inventions disclosed, described and/or claimed in the application referred to as Docket Number 101879.000037 / CU17260 ("the invention"), assigned application number 62/524,901 filed on June 26, 2017, entitled RESONANCE-FREE LIGHT RECYCLING IN WAVEGUIDES ("the subject application");

AND WHEREAS, The Trustees of Columbia University in the City of New York, ASSIGNEE, having a place of business at 535 West 116th Street, 412 Low Memorial Library, New York, New York 10027, is desirous of obtaining my entire right, title, and interest in, to, and under the invention:

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I, the ASSIGNOR, hereby sell, assign, transfer, and set over, unto the ASSIGNEE, its successors, legal representatives, and assigns, my entire right, title, and interest in, to, and under the invention, and all applications for industrial property protection, including without limitation, all applications for patents, utility models, inventors' certificates, and designs that have been filed, and that may hereafter be filed, in any country, that disclose, describe, and/or claim the invention, including, without limitation, the subject application and the priority application, and all extensions, renewals, and roissues of such applications, including all divisions and continuations in whole or in part; all patents granted on such applications in any country, and all extensions, renewals, and reissues of such patents, including all divisions and continuations in whole or in part; the right to file such applications in any country; and the right to claim for such applications in any country the priority rights derived from the priority application and the subject application under the International Convention for the Protection of Industrial Property, the Patent Laws of the United States, any other international agreement or protection, or the domestic laws of any country in which any such application is filed, as may be applicable.

AND I HEREBY covenant and agree that I have full right to convey my entire interest herein assigned, and that I have not executed, and will not execute, any agreement in conflict herewith.

AND I HEREBY further covenant and agree that I will communicate to the ASSIGNEB, its successors, legal representatives, and assigns, any facts known to me respecting the invention, and testify in any legal proceeding, sign all lawful papers, execute all disclaimers and all divisional, continuing, reissue, and foreign applications, make all rightful oaths, deliver upon request all papers, documents, affidavits, or other instruments that may be necessary or helpful in the prosecution of any application for industrial property protection describing and/or claiming the invention, and generally do everything possible to aid the ASSIGNEE, its successors, legal

representatives, and assigns, to obtain and enforce proper protection for the invention in all countries.

IN TESTIMONY WHEREOF, I have signed my name below on the date indicated above my signature.

Macko		guso	
Signature –	Michal	Lipson	***

STATEMENT OF WITNESS

SIGNED at	NY	· NU	USA-
A 11 .	(City)	(State)	(Country)

This 9th day of August, 2017.

I, Kustal	LULUNO	whose full residence address is
\$ 1 mg 1 mm 1 mm 1 mm		
· 530 L	VEST NAM St	
	21/21 1/1/1	

was personally present and did see Michal Lipson execute the above assignment on the day of AUMS. 2017, and such assignor is personally known to me to be the person described in such document.

· XIEWL

ASSIGNMENT

WHEREAS, I, You-Chia Chang, a citizen of <u>lawary</u>, residing at 251 West 109th Street, Apt. 3B, New York, New York 10025, ASSIGNOR, am an inventor of one or more inventions disclosed, described and/or claimed in the application referred to as Docket Number 101879.000037 / CU17260 ("the invention"), assigned application number 62/524,901 filed on June 26, 2017, entitled RESONANCE-FREE LIGHT RECYCLING IN WAVEGUIDES ("the subject application");

AND WHEREAS, The Trustees of Columbia University in the City of New York, ASSIGNEE, having a place of business at 535 West 116th Street, 412 Low Memorial Library, New York, New York 10027, is desirous of obtaining my entire right, title, and interest in, to, and under the invention:

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I, the ASSIGNOR, hereby sell, assign, transfer, and set over, unto the ASSIGNEE, its successors, legal representatives, and assigns, my entire right, title, and interest in, to, and under the invention, and all applications for industrial property protection, including without limitation, all applications for patents, utility models, inventors' certificates, and designs that have been filed, and that may hereafter be filed, in any country, that disclose, describe, and/or claim the invention, including, without limitation, the subject application and the priority application, and all extensions, renewals, and reissues of such applications, including all divisions and continuations in whole or in part; all patents granted on such applications in any country, and all extensions, renewals, and reissues of such patents, including all divisions and continuations in whole or in part; the right to file such applications in any country; and the right to claim for such applications in any country the priority rights derived from the priority application and the subject application under the International Convention for the Protection of Industrial Property, the Patent Laws of the United States, any other international agreement or protection, or the domestic laws of any country in which any such application is filed, as may be applicable.

AND I HEREBY covenant and agree that I have full right to convey my entire interest herein assigned, and that I have not executed, and will not execute, any agreement in conflict herewith.

AND I HEREBY further covenant and agree that I will communicate to the ASSIGNEE, its successors, legal representatives, and assigns, any facts known to me respecting the invention, and testify in any legal proceeding, sign all lawful papers, execute all disclaimers and all divisional, continuing, reissue, and foreign applications, make all rightful oaths, deliver upon request all papers, documents, affidavits, or other instruments that may be necessary or helpful in the prosecution of any application for industrial property protection describing and/or claiming the invention, and generally do everything possible to aid the ASSIGNEE, its successors, legal

representatives, and assigns, to obtain and enforce proper protection for the invention in all countries.

IN TESTIMONY WHEREOF, I have signed my name below on the date indicated above my signature.

Executed this 13th day of July, year of 2017.

for Cha Chan

STATEMENT OF WITNESS

SIGNED at New York City, New York, U.S.A.
(City) (State) (Country)

This 13th day of Twy, , 2017.

I, MOSHE ZANKA whose full residence address is 30.60 Henry Hudson Parkny, Apt 3B, New York, New York,

was personally present and did see You-Chia Chang execute the above assignment on the , 2017, and such assignor is personally known to me to be the person

described in such document.

Signature of Witness

Page 2 of 2

ASSIGNMENT

WHEREAS, I, Samantha P. Roberts, a citizen of United States, residing at 2232 Slaterville Road, Ithaca, New York 14850, ASSIGNOR, am an inventor of one or more inventions disclosed, described and/or claimed in the application referred to as Docket Number 101879.000037 / CU17260 ("the invention"), assigned application number 62/524,901 filed on June 26, 2017, entitled RESONANCE-FREE LIGHT RECYCLING IN WAVEGUIDES ("the subject application");

AND WHEREAS, The Trustees of Columbia University in the City of New York, ASSIGNEE, having a place of business at 535 West 116th Street, 412 Low Memorial Library, New York, New York 10027, is desirous of obtaining my entire right, title, and interest in, to, and under the invention:

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I, the ASSIGNOR, hereby sell, assign, transfer, and set over, unto the ASSIGNEE, its successors, legal representatives, and assigns, my entire right, title, and interest in, to, and under the invention, and all applications for industrial property protection, including without limitation, all applications for patents, utility models, inventors' certificates, and designs that have been filed, and that may hereafter be filed, in any country, that disclose, describe, and/or claim the invention, including, without limitation, the subject application and the priority application, and all extensions, renewals, and reissues of such applications, including all divisions and continuations in whole or in part; all patents granted on such applications in any country, and all extensions, renewals, and reissues of such patents, including all divisions and continuations in whole or in part; the right to file such applications in any country; and the right to claim for such applications in any country the priority rights derived from the priority application and the subject application under the International Convention for the Protection of Industrial Property, the Patent Laws of the United States, any other international agreement or protection, or the domestic laws of any country in which any such application is filed, as may be applicable.

AND I HEREBY covenant and agree that I have full right to convey my entire interest herein assigned, and that I have not executed, and will not execute, any agreement in conflict herewith.

AND I HEREBY further covenant and agree that I will communicate to the ASSIGNEE, its successors, legal representatives, and assigns, any facts known to me respecting the invention, and testify in any legal proceeding, sign all lawful papers, execute all disclaimers and all divisional, continuing, reissue, and foreign applications, make all rightful oaths, deliver upon request all papers, documents, affidavits, or other instruments that may be necessary or helpful in the prosecution of any application for industrial property protection describing and/or claiming the invention, and generally do everything possible to aid the ASSIGNEE, its successors, legal

representatives, and assigns, to obtain and enforce proper protection for the invention in all countries.

IN TESTIMONY WHEREOF, I have signed my name below on the date indicated above my signature.

Executed this 20th day of July, year of 2017.

STATEMENT OF WITNESS

SIGNED at New York NY. USA.
(City) (State) (Country)

This 20th day of July , 2017.

I, You-Chia Chang whose full residence address is

251 W 109th St., New York, NY 10025

was personally present and did see Samantha P. Roberts execute the above assignment on the day of July 2017, and such assignor is personally known to me to be the person described in such document.

Signature of Witness

ASSIGNMENT

WHEREAS, I, Brian Stern, a citizen of United States, residing at 195 Claremont Avenue, Apt. 23, New York, New York 10027, ASSIGNOR, am an inventor of one or more inventions disclosed, described and/or claimed in the application referred to as Docket Number 101879.000037 / CU17260 ("the invention"), assigned application number 62/524,901 filed on June 26, 2017, entitled RESONANCE-FREE LIGHT RECYCLING IN WAVEGUIDES ("the subject application");

AND WHEREAS, The Trustees of Columbia University in the City of New York, ASSIGNEE, having a place of business at 535 West 116th Street, 412 Low Memorial Library, New York, New York 10027, is desirous of obtaining my entire right, title, and interest in, to, and under the invention:

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I, the ASSIGNOR, hereby sell, assign, transfer, and set over, unto the ASSIGNEE, its successors, legal representatives, and assigns, my entire right, title, and interest in, to, and under the invention, and all applications for industrial property protection, including without limitation, all applications for patents, utility models, inventors' certificates, and designs that have been filed, and that may hereafter be filed, in any country, that disclose, describe, and/or claim the invention, including, without limitation, the subject application and the priority application, and all extensions, renewals, and reissues of such applications, including all divisions and continuations in whole or in part; all patents granted on such applications in any country, and all extensions, renewals, and reissues of such patents, including all divisions and continuations in whole or in part; the right to file such applications in any country; and the right to claim for such applications in any country the priority rights derived from the priority application and the subject application under the International Convention for the Protection of Industrial Property, the Patent Laws of the United States, any other international agreement or protection, or the domestic laws of any country in which any such application is filed, as may be applicable.

AND I HERBBY covenant and agree that I have full right to convey my entire interest herein assigned, and that I have not executed, and will not execute, any agreement in conflict herewith.

AND I HEREBY further covenant and agree that I will communicate to the ASSIGNEE, its successors, legal representatives, and assigns, any facts known to me respecting the invention, and testify in any legal proceeding, sign all lawful papers, execute all disclaimers and all divisional, continuing, reissue, and foreign applications, make all rightful oaths, deliver upon request all papers, documents, affidavits, or other instruments that may be necessary or helpful in the prosecution of any application for industrial property protection describing and/or claiming the invention, and generally do everything possible to aid the ASSIGNEE, its successors, legal

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representatives, and assigns, to obcountries.	otain and enforce p	roper protection for the invention in all
IN TESTIMONY WHEREO my signature.	OF, I have signed m	y name below on the date indicated above
Executed this day o	f Jan	, year of 2017.
Signature – Brian Stern ************* STATEMENT OF WITNESS SIGNED at New York (City)	林冰冰林本水水水水水水水水水水水水	**************************************
·		(Country)
This 16 day of Jan	, 201 3 ,	
I, You-Chia Chang 251 W logth St Apt 3B		
		the above assignment on the 16 day assonably known to me to be the person

Page 2 of 2

PATENT REEL: 051793 FRAME: 0429