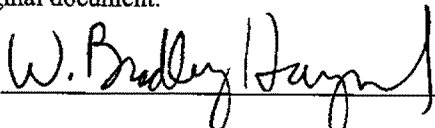


DOCKET NUMBER: AMPC5285

RECORDATION FORM COVER SHEET PATENTS ONLY

To the Honorable Commissioner of Patents and Trademarks:
Please record the attached original documents or copies thereof.

<p>1. Name of conveying party(ies):</p> <p>Paul B. Ruffin Eugene Edwards Christina L. Brantley General Opto Solutions, LLC</p>	<p>2. Name and address of receiving party(ies):</p> <p>United States of America, as represented by the Secretary of the Army 101 Army Pentagon Washington, DC 20310-0101</p>
<p>3. Nature of conveyance: ASSIGNMENT (date executed)</p>	
<p>4A. Patent Application Number(s): 13/553,104</p>	<p>4B. Patent Number(s):</p>
<p>5. Name and address of party to whom correspondence concerning document should be mailed:</p>	<p>Commander Legal Office (AMSAM-LI, Brad Haymond) US Army Aviation and Missile Command Redstone Arsenal, AL 35898-5000</p>
<p>6. Total number of applications and patents involved: <u>1</u></p>	
<p>7. Total Fee (37 CFR 3.41): <u>\$40.00</u></p>	
<p>8. Please charge the required fee and any additional required fees to deposit account number <u>19-2201</u></p>	
DO NOT USE THIS SPACE	
<p>9. Statement and signature. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copies are true copies of the original document.</p> <p style="text-align: center;"></p> <p style="text-align: center;">Reg. No. 35186</p> <p style="text-align: right;">25 July 2012 date</p>	
<p>Total number of pages including this sheet, attachments, and documents: <u>8</u></p>	

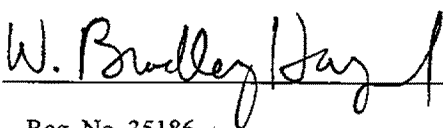
Faxed to US Patent and Trademark Office Assignment Division at 571-273-0140
this 25th day of July 2012

CH \$40.00 192201 13553104

DOCKET NUMBER: AMPC5285

RECORDATION FORM COVER SHEET PATENTS ONLY

To the Honorable Commissioner of Patents and Trademarks:
Please record the attached original documents or copies thereof.

1. Name of conveying party(ies): Fang Luo	2. Name and address of receiving party(ies): General Opto Solutions, LLC 1366 Ridge Master Drive State College, PA 16803
3. Nature of conveyance: ASSIGNMENT (date executed)	
4A. Patent Application Number(s): 13/553,104	4B. Patent Number(s):
5. Name and address of party to whom correspondence concerning document should be mailed:	Commander Legal Office (AMSAM-LI, Brad Haymond) US Army Aviation and Missile Command Redstone Arsenal, AL 35898-5000
6. Total number of applications and patents involved: <u>1</u>	
7. Total Fee (37 CFR 3.41): <u>\$40.00</u>	
8. Please charge the required fee and any additional required fees to deposit account number <u>19-2201</u>	
DO NOT USE THIS SPACE	
9. Statement and signature. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copies are true copies of the original document.	
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  Reg. No. 35186 </div> <div style="text-align: center;"> <u>25 July 2012</u> date </div> </div>	
Total number of pages including this sheet, attachments, and documents: <u>8</u>	

Faxed to US Patent and Trademark Office Assignment Division at 571-273-0140
this 25th day of July 2012

July 17, 2012

To whom it may concern:

This letter is written to confirm that, as an employee of General Opto Solutions, LLC, I, (Fang Luo) and one of the inventors listed in the patent application, entitled "System and method for detecting the amount of stabilizer degradation in solid rocket propellant," would like to assign the invention to General Opto Solutions, LLC.

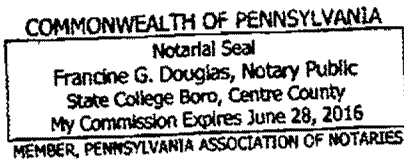
Serial No. 13/553104 Filed 19 July 2012

Sincerely,

Fang (Claire) Luo

Fang Luo 07-17-2012
Signature Date

Francine G. Douglas



ASSIGNMENT

FROM CONTRACTOR TO GOVERNMENT

APPLICATION FOR: System and Method for Detecting the Amount of Stabilizer Degradation
in Solid Rocket Propellant

Title of Invention

INVENTOR(S): Luo, Fang

* SERIAL NO: 13/553104 * FILING DATE: 19 July 2012

* Data not known at execution time may be added later for better identification.

CONTRACTOR** ASSIGNOR: General Opto Solutions, LLC

(Checked box indicates an assignor)

CONTRACT NO: W31P4Q-10-C0206

SUBCONTRACTOR** ASSIGNOR: _____

(Checked box indicates an assignor)

SUBCONTRACT NO: _____

The above-identified Contractor for and in consideration of these premises and for other good and sufficient consideration, the receipt of which is hereby acknowledged, by these presents does sell, assign, and transfer to the United States Government, as represented by the Secretary of the Army and his successors in office:

ONE: The entire right, title and interest throughout the United States, its Territories, Possessions, and Puerto Rico, in and to said invention(s) and patent application and in and to any and all Letters Patent granted thereon, as well as divisions, continuations, reissues, and extensions of said application and Letters Patent, the same to be held and enjoyed by the said Government of the United States, to the full end of the term or terms for which Letters Patent are or may be granted, as fully and entirely as the same would have been held or enjoyed by the Contractor had this assignment not been made, subject only to a non-exclusive, royalty-free license, which license extends to Contractor and to existing and future associated and affiliated companies, if any, within the corporate structure of which Contractor is a part, said license to be non-transferable except to the successor of that part of the Contractor's business to which said license is appurtenant, and which license is hereby reserved.

TWO: The entire right, title and interest, in all foreign countries, in and to said invention(s) and in and to all foreign Letters Patent, subject only to the license, as above recited, which license extends to Contractor and to existing and future associated and affiliated companies, if any, within the corporate structure of which Contractor is a part, said license to be non-transferable except to the successor of that part of the Contractor's business to which said license is appurtenant, and which license is hereby reserved.

**(The terms "Contract" and "Contractor" shall include subcontract and subcontractor, if applicable, wherever they occur.)

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PATENT

Assignment of U.S. Patent Application Serial Number

SIGNED FOR ASSIGNOR ON THIS the 17 day of July, in the year 2012

SIGNATURE OF OFFICER: Shizhuo Yin July 17, 2012

Stuart (Shizhuo) Yin, President of General Opto solutions,

LLC

(Officer's Name - Print or Type)

At: State College Centre PA
(Locality) (County) (State)

I certify that I am the Secretary or other certifying official of the above-identified Corporation or other legal entity; that the officer who signed this instrument on behalf of the Corporation or other legal entity was then of the Corporation or other legal entity, acting by authority of its governing body and within the scope of his or her corporate or other legal powers.

SIGNED ON THIS the 17 day of July, in the year 2012

SIGNATURE OF SECRETARY OR OTHER CERTIFYING OFFICIAL: Fang Luo 07-17-2012

Fang Luo
(Name - Print or Type)

(Corporate or other Seal)

State of PA
County of Centre SS.

On the above date appeared before me Shizhuo Yin and Fang Luo
(Name of Signing Officer) (Name of Certifying Officer)
to me well known, and known to be the PNC Bank and PNC Bank
(Certifying Officer) (Signing Office) (Certifying Office)
of General Opto Solutions, LLC a Research & Development of PA
(Company Name) (Company Type) (State or Country)

names to the foregoing instrument in my presence, and acknowledged the same to be their and said legal entity's free act and deed.

(SEAL)

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Francine G. Douglas, Notary Public
State College Boro, Centre County
My Commission Expires June 28, 2016
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

My commission expires on _____

Francine G Douglas
(Signature of Notary)

PATENT

Docket No. AMPC 5285

ASSIGNMENT OF INVENTION
By Government-Employee Inventor to Government

Title of Invention System and Method for Detecting the Amount of Stabilizer Degradation in Solid Rocket Propellant

Government -Employee Inventor Name: Paul B. Ruffin

*Application Serial No.: 13/553,104

*Filing Date : July 19, 2012

(*Data not known at execution may be added for better identification)

I, the undersigned inventor, in consideration of the rights of the Government of the United States acquired by virtue of the circumstances under which the above-entitled invention was made, hereby:

1. Assign to the Government of the United States, as represented by the Secretary of the Army, the entire right, title and interest throughout the United States, its Territories, Possessions, and Puerto Rico, in and to the above-entitled invention and application for patent and all Letters Patent issuing thereon, and any continuation, continuation-in-part or division of said application and any reissue or extension of said Letters Patent.
2. Agree to assign to the Government upon its request, title and interest in the invention in those foreign countries in which the Government, within eight months of the filing of the United States application for patent, determines to cause an application to be filed; provided that if the Government determines not to cause an application to be filed in any particular foreign country or fails to make such a determination, within the said eight months, all right, title and interest in the invention in such foreign country shall remain in me (us), subject to a nonexclusive, irrevocable, royalty-free license to the Government in any patent which may issue on the invention in such foreign country, including the power to issue sublicenses for use in behalf of the Government and/or furtherance of the foreign policies of the Government.
3. Agree to provide any further information within my (our) knowledge and to execute any further documents necessary to the prosecution of patent applications on the invention, the prosecution and settlement of interferences and recording of title to patent applications and patents issuing thereon.

Signature of Inventor: Paul B. Ruffin

Address: 15107 Lancelot Circle
Harvest, AL 35749

Date of Signature : 25 July 2012

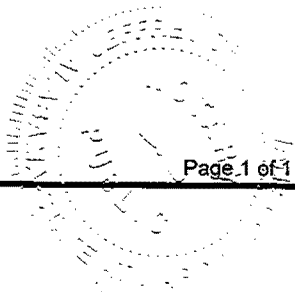
State of Alabama)
) ss.
County of Madison)

On 25 July 2012, Paul B. Ruffin, who produced a driver's license as identification, executed the foregoing instrument before me and acknowledged to me that he understood and executed the same as his own free act and deed.

Jeffrey G. Van Scoy
(Signature of Notary Public)

My Commission expires on 10/14/15

(Seal)



JEFFREY GEORGE VAN SCOY
NOTARY PUBLIC
ALABAMA STATE AT LARGE
MY COMMISSION EXPIRES 10/14/15

Docket No. AMPC 5285

ASSIGNMENT OF INVENTION By Government-Employee Inventor to Government

Title of Invention System and Method for Detecting the Amount of Stabilizer Degradation in Solid Rocket Propellant

Government -Employee Inventor Name: Eugene Edwards
*Application Serial No.: 13/553,104 *Filing Date : July 19, 2012

(*Data not known at execution may be added for better identification)

I, the undersigned inventor, in consideration of the rights of the Government of the United States acquired by virtue of the circumstances under which the above-entitled invention was made, hereby:

1. Assign to the Government of the United States, as represented by the Secretary of the Army, the entire right, title and interest throughout the United States, its Territories, Possessions, and Puerto Rico, in and to the above-entitled invention and application for patent and all Letters Patent issuing thereon, and any continuation, continuation-in-part or division of said application and any reissue or extension of said Letters Patent.
2. Agree to assign to the Government upon its request, title and interest in the invention in those foreign countries in which the Government, within eight months of the filing of the United States application for patent, determines to cause an application to be filed; provided that if the Government determines not to cause an application to be filed in any particular foreign country or fails to make such a determination, within the said eight months, all right, title and interest in the invention in such foreign country shall remain in me (us), subject to a nonexclusive, irrevocable, royalty-free license to the Government in any patent which may issue on the invention in such foreign country, including the power to issue sublicenses for use in behalf of the Government and/or furtherance of the foreign policies of the Government.
3. Agree to provide any further information within my (our) knowledge and to execute any further documents necessary to the prosecution of patent applications on the invention, the prosecution and settlement of interferences and recording of title to patent applications and patents issuing thereon.

Signature of Inventor: *Eugene Edwards*

Address: 6220 Sandia Boulevard
Huntsville, AL 35810

Date of Signature : 25 July 2012

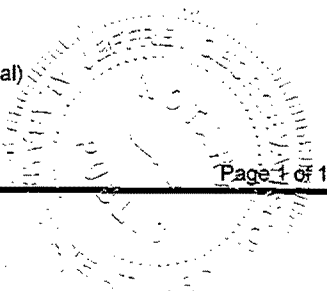
State of Alabama)
) ss.
County of Madison)

On 25 July 2012, Eugene Edwards, who produced a driver's license as identification, executed the foregoing instrument before me and acknowledged to me that he understood and executed the same as his own free act and deed.

Jeffrey George Van Gooy
(Signature of Notary Public)

My Commission expires on 10/14/15

(Seal)



JEFFREY GEORGE VAN GOOY
NOTARY PUBLIC
ALABAMA STATE AT LARGE
MY COMMISSION EXPIRES 10/14/15
PATENT

Docket No. AMPC 5285

**ASSIGNMENT OF INVENTION
By Government-Employee Inventor to Government**

Title of Invention System and Method for Detecting the Amount of Stabilizer Degradation in Solid Rocket Propellant

Government-Employee Inventor Name: Christina L. Brantley

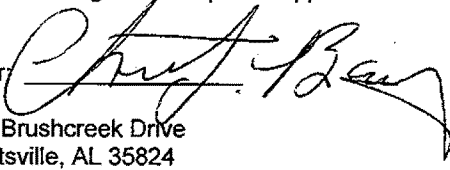
*Application Serial No.: 13/553,104

*Filing Date: July 19, 2012

(*Data not known at execution may be added for better identification)

I, the undersigned inventor, in consideration of the rights of the Government of the United States acquired by virtue of the circumstances under which the above-entitled invention was made, hereby:

1. Assign to the Government of the United States, as represented by the Secretary of the Army, the entire right, title and interest throughout the United States, its Territories, Possessions, and Puerto Rico, in and to the above-entitled invention and application for patent and all Letters Patent issuing thereon, and any continuation, continuation-in-part or division of said application and any reissue or extension of said Letters Patent.
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3. Agree to provide any further information within my (our) knowledge and to execute any further documents necessary to the prosecution of patent applications on the invention, the prosecution and settlement of interferences and recording of title to patent applications and patents issuing thereon.

Signature of Inventor 

Address: 108 Brushcreek Drive
Huntsville, AL 35824

Date of Signature: 25 July 12

State of Alabama)
) ss.
County of Madison)

On 25 July, 2012, Christina L. Brantley, who produced a driver's license as identification, executed the foregoing instrument before me and acknowledged to me that he understood and executed the same as his own free act and deed.





(Signature of Notary Public)

My Commission expires on 10/14/15

**JEFFREY GEORGE VAN SCOY
NOTARY PUBLIC
ALABAMA STATE AT LARGE
MY COMMISSION EXPIRES 10/14/15**

PATENT