

FORM PTO-1619A

Expires 08/30/09
OMB 0651-0027U.S. Department of Commerce
Patent and Trademark Office
PATENT

S-109,880

**RECORDATION FORM COVER SHEET
PATENTS ONLY**

TO: The Director of the United States Patent and Trademark Office: Please record the attached original document(s) or copy(ies).

Submission Type☒ New☐ Resubmission (Non-Recordation)

Document ID#

☐ Correction of PTO Error

Reel #

Frame #

☐ Corrective Document

Reel #

Frame #

Conveyance Type☒ Assignment☐ Security Agreement☐ License☐ Change of Name☐ Merger☐ Other

U.S. Government

(For Use ONLY by U.S. Government Agencies)

☒ Departmental File☐ Secret File**Conveying Party(ies)**☒ Mark if additional names of conveying parties attached

Name (line 1) GERALD, Rex E. II

Execution Date
Month Day Year
03/16/2007

Name (line 2)

Second Party

Name (line 1) RUSCIC, Katarina J.

Execution Date
Month Day Year
02/20/2007

Name (line 2)

Receiving Party☐ Mark if additional names of receiving parties attached

Name (line 1) United States Department of Energy

Name (line 2)

☐ If document to be recorded is an assignment and the receiving party is not domiciled in the United States, an appointment of a domestic representative is attached. (Designation must be a separate document from Assignment.)

Address (line 1) GC-62, MS 6F-067 (FORSTL)

Address (line 2) 1000 Independence Avenue, S.W.

Address (line 3) Washington

D.C.

20585-0162

City

State/Country

Zip Code

Domestic Representative Name and Address

Enter for the first Receiving Party only.

Name

Address (line 1)

Address (line 2)

Address (line 3)

Address (line 4)

FOR OFFICE USE ONLY

Public burden reporting for this collection of information is estimated to average approximately 30 minutes per Cover Sheet to be recorded, including time for reviewing the document and gathering the data needed to complete the Cover Sheet. Send comments regarding this burden estimate to the U.S. Patent and Trademark Office, Chief Information Officer, Washington, D.C. 20231 and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Paperwork Reduction Project (0651-0027), Washington, D.C. 20503. See OMB Information Collection Budget Package 0651-0027, Patent and Trademark Assignment Practices. DO NOT SEND REQUESTS TO RECORD ASSIGNMENT DOCUMENTS TO THIS

Mail documents to be recorded with required cover sheet(s) information to:

Mail Stop Assignment Recordation Services, Director of the United States Patent and Trademark Office,
P.O. Box 1450, Alexandria, VA 22313-1450**PATENT**

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REEL: 019815 FRAME: 0792

CH \$40.00 012752 11690413

FORM PTO-1619B

Expires 06/30/99
OMB 0651-0027

Page 2

U.S. Department of Commerce
Patent and Trademark Office
PATENT

Correspondent Name and Address

Area Code and Telephone Number

202-586-2810

Name Betty Winchester

Address (line 1) United States Department of Energy

Address (line 2) GC-62, MS 6F-067 (FORSTL)

Address (line 3) 1000 Independence Avenue, S.W.

Address (line 4) Washington, D.C. 20585-0162

Pages

Enter the total number of pages of the attached conveyance document
including any attachments.

9

Application Number(s) or Patent Number(s)

☐ Mark if additional numbers attached

Enter either the Patent Application Number or the Patent Number (DO NOT ENTER BOTH numbers for the same property).

Patent Application Number(s)

Patent Number(s)

11/690413

If this document is being filed together with a new Patent Application, enter the date the patent application
was

Month Day Year

Patent Cooperation Treaty (PCT)

Enter PCT application number
only if a U.S. Application Number
has not been assigned.

PCT

PCT

PCT

PCT

PCT

PCT

Number of Properties

Enter the total number of properties involved.

1

Fee Amount

Fee Amount for Properties Listed (37 CFR 3.41): \$

40.00

Method of Payment:

Enclosed ☐Deposit Account ☒

Deposit Account

(Enter for payment by deposit account or if additional fees can be charged to the
Deposit Account Number:

01-2752

Authorization to charge additional fees:

Yes

☒

No

☐

Statement and Signature

To the best of my knowledge and belief, the foregoing information is true and correct and any
attached copy is a true copy of the original document. Charges to deposit account are authorized, as
indicated herein.

Katherine Baldwin

Name of Person Signing

Katherine Baldwin

Signature

9-12-07

Date

PATENT

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FORM PTO-1619C

Expires 06/30/99
OMB 0651-0027**RECORDATION FORM COVER SHEET
CONTINUATION
PATENTS ONLY**U.S. Department of Commerce
Patent and Trademark Office
PATENT**Conveying Party(ies)**

Mark if additional names of conveying parties attached

Enter additional Conveying Parties

Name (line 1) SEARS, Devin N.

Execution Date
Month Day Year
03/05/2007

Name (line 2)

Name (line 1) SMITH, Luis J.

Execution Date
Month Day Year
02/16/2007

Name (line 2)

Name (line 1) KLINGLER, Robert J.

Execution Date
Month Day Year
03/09/2007

Name (line 2)

Receiving Party

Mark if additional names of receiving parties attached

Name (line 1)

Name (line 2)

Address (line 1)

Address (line 2)

Address (line 3)

City

State/Country

Zip Code

Name (line 1)

Name (line 2)

Address (line 1)

Address (line 2)

Address (line 3)

City

State/Country

Zip Code

☐ If document to be recorded is an assignment and the receiving party is not domiciled in the United States, an appointment of a domestic representative is attached. (Designation must be a separate document from Assignment.)☐ If document to be recorded is an assignment and the receiving party is not domiciled in the United States, an appointment of a domestic representative is attached. (Designation must be a separate document from Assignment.)**Application Number(s) or Patent Number(s)**

Mark if additional numbers attached

Enter either the Patent Application Number or the Patent Number (DO NOT ENTER BOTH numbers for the same property).

Patent Application Number(s)

Patent Number(s)

11/690413

FORM PTO-1619C

Expires 08/30/99
OMB 0651-0027**RECORDATION FORM COVER SHEET
CONTINUATION
PATENTS ONLY**U.S. Department of Commerce
Patent and Trademark Office
PATENT**Conveying Party(ies)**☐ Mark if additional names of conveying parties attached

Enter additional Conveying Parties

Name (line 1) RATHKE, Jerome W.

Execution Date
Month Day Year
03/09/2007

Name (line 2)

Execution Date
Month Day Year

Name (line 1)

Execution Date
Month Day Year

Name (line 2)

Name (line 1)

Name (line 2)

Receiving Party☐ Mark if additional names of receiving parties attached

Name (line 1)

☐ If document to be recorded
is an assignment and the
receiving party is not
domiciled in the United
States, an appointment
of a domestic
representative is attached.
(Designation must be a
separate document from
Assignment.)

Name (line 2)

Address (line 1)

Address (line 2)

Address (line 3)

City

State/Country

Zip Code

Name (line 1)

☐ If document to be recorded
is an assignment and the
receiving party is not
domiciled in the United
States, an appointment
of a domestic
representative is attached.
(Designation must be a
separate document from
Assignment.)

Name (line 2)

Address (line 1)

Address (line 2)

Address (line 3)

City

State/Country

Zip Code

Application Number(s) or Patent Number(s)☐ Mark if additional numbers attached

Enter either the Patent Application Number or the Patent Number (DO NOT ENTER BOTH numbers for the same property).

Patent Application Number(s)

Patent Number(s)

11/690413

Joint

U.S. Department of Energy
PATENT ASSIGNMENT FORM

11/690413

WHEREAS, we, Rex E. Gerald II, Katarina J. Ruscic, Devin N. Sears, Luis J. Smith, Robert J. Klingler and Jerome W. Rathke, citizens of the United States residing in Brookfield, County of Cook, State of IL; residing in _____, County of _____, State of _____; residing in _____, County of _____, State of _____; residing in Glenview, County of Cook, State of Illinois; and residing in Homewood, County of Will, State of Illinois; have invented certain new and useful improvements in A UNIQUE BATTERY WITH AN ACTIVE MEMBRANE SEPARATOR HAVING UNIFORM PHYSICO-CHEMICALLY FUNCTIONALIZED ION CHANNELS AND A METHOD MAKING THE SAME, for which we are about to file an application for United States Letters Patent identified as S-109,880 and executed by us on the 16th day of March 20 07; and on the _____ day of _____ 20 ____; and on the _____ day of _____ 20 ____; and on the _____ day of 9th 20 07; and on the 9th day of March 20 07;

WHEREAS, the Government of the United States desires to acquire the entire right, title, and interest in and to said invention and in and to any Letters Patent wherever they may be issued thereon;

NOW, THEREFORE, to all whom it may concern, be it known that for and in consideration of the sum of One Dollar to us in hand paid by the Government of the United States, and for other good and valuable consideration, the receipt of which is hereby acknowledged, we by these presents do sell, assign, and transfer unto the said Government of the United States, as represented by the United States Department of Energy, and/or its assigns, the entire right, title, and interest in and to the said invention and in and to any and all Letters Patent wherever they may be granted thereon as well as reissues and extensions of said Letters Patent are or may be granted, reissued, or extended, as fully and entirely as the same would have been held or enjoyed by us had this assignment not been made.

We agree to make, execute, and deliver unto the Government of the United States, or to the United States Department of Energy, any and all papers, documents, affidavits, renewal, divisional and reissue applications, statements, or other instruments in such usual or other forms, terms and contents as may be required by the United States Department of Energy, or its duly authorized representative, in or incident to the prosecution or conduct of any and all applications, before as well as after the issuance of any Letters thereon, or in the adjustment or settlement of any interferences or other actions or proceedings that said applications may

encounter or in which they may become involved and we agree that we will encounter or in which they may become involved and we agree that we will aid the Government of the United States in every way in protecting the inventions as may be requested by the United States Department of Energy or its assigns, except that any expenses arising through extending such assistance will be paid for by proper arrangement with the Government of the United States.

WITNESS:

Sandra A. Clessner
(SEAL)

WITNESS:

(SEAL)

WITNESS:

(SEAL)

WITNESS:

(SEAL)

WITNESS:

Sandra A. Clessner
(SEAL)

WITNESS:

Sandra A. Clessner
(SEAL)

INVENTORS:

Greg E. Zepeda
Date March 16, 2007

INVENTORS:

Date _____

INVENTORS:

Date _____

INVENTORS:

Date _____

INVENTORS:

Robert J. Klingler
Date March 9, 2007

INVENTORS:

Jerome W. Ratae
Date March 9, 2007

Joint

**U.S. Department of Energy
PATENT ASSIGNMENT FORM**

WHEREAS, we, Rex E. Gerald II, Katarina J. Ruscic, Devin N. Sears, Luis J. Smith, Robert J. Klingler and Jerome W. Rathke, citizens of the United States residing in _____, County of _____,
 State of _____; residing in _____, County of _____,
 State of ALBERTA; residing in Edmonton, County of Parkland,
 State of _____; residing in _____, County of _____,
 State of _____; residing in _____, County of _____,
 State of _____; and residing in _____, County of _____,
 State of _____; have invented certain new and useful improvements in
A UNIQUE BATTERY WITH AN ACTIVE MEMBRANE SEPARATOR HAVING UNIFORM PHYSICO-
 CHEMICALLY FUNCTIONALIZED ION CHANNELS AND A METHOD MAKING THE SAME, for
 which we are about to file an application for United States Letters Patent
 identified as S-109,880 and executed by us on the _____ day of _____
 20 ____; and on the _____ day of _____, 20 ____; and on the 5 day of
MARCH, 20 07; and on the _____ day of _____, 20 ____; and on the
 _____ day of _____, 20 ____; and on the _____ day of _____, 20 ____;

WHEREAS, the Government of the United States desires to acquire the entire right, title, and interest in and to said invention and in and to any Letters Patent wherever they may be issued thereon;

NOW, THEREFORE, to all whom it may concern, be it known that for and in consideration of the sum of One Dollar to us in hand paid by the Government of the United States, and for other good and valuable consideration, the receipt of which is hereby acknowledged, we by these presents do sell, assign, and transfer unto the said Government of the United States, as represented by the United States Department of Energy, and/or its assigns, the entire right, title, and interest in and to the said invention and in and to any and all Letters Patent wherever they may be granted thereon as well as reissues and extensions of said Letters Patent are or may be granted, reissued, or extended, as fully and entirely as the same would have been held or enjoyed by us had this assignment not been made.

We agree to make, execute, and deliver unto the Government of the United States, or to the United States Department of Energy, any and all papers, documents, affidavits, renewal, divisional and reissue applications, statements, or other instruments in such usual or other forms, terms and contents as may be required by the United States Department of Energy, or its duly authorized representative, in or incident to the prosecution or conduct of any and all applications, before as well as after the issuance of any Letters thereon, or in the adjustment or settlement of any interferences or other actions or proceedings that said applications may

PATENT

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encounter or in which they may become involved and we agree that we will encounter or in which they may become involved and we agree that we will aid the Government of the United States in every way in protecting the inventions as may be requested by the United States Department of Energy or its assigns, except that any expenses arising through extending such assistance will be paid for by proper arrangement with the Government of the United States.

WITNESS:

(SEAL)

INVENTORS:

Date

WITNESS:

(SEAL)

INVENTORS:

Date

WITNESS:

(SEAL)

INVENTORS:

Date

WITNESS:

(SEAL)

INVENTORS:

Date

WITNESS:

(SEAL)

INVENTORS:

Date

WITNESS:

(SEAL)

INVENTORS:

Date

Joint

U.S. Department of Energy
PATENT ASSIGNMENT FORM

WHEREAS, we, Rex E. Gerald II, Katarina J. Ruscic, Devin N. Sears, Luis J. Smith, Robert J. Klingler and Jerome W. Rathke, citizens of the United States residing in _____, County of _____, State of _____; residing in _____, County of _____, State of _____; residing in _____, County of _____, State of _____; residing in Natick, County of Middlesex, State of MA; residing in _____, County of _____, State of _____; and residing in _____, County of _____, State of _____; have invented certain new and useful improvements in A UNIQUE BATTERY WITH AN ACTIVE MEMBRANE SEPARATOR HAVING UNIFORM PHYSICO-CHEMICALLY FUNCTIONALIZED ION CHANNELS AND A METHOD MAKING THE SAME, for which we are about to file an application for United States Letters Patent identified as S-109,880 and executed by us on the _____ day of _____ 20 ____; and on the _____ day of _____ 20 ____; and on the _____ day of _____ 20 ____; and on the 16th day of Feb 2007; and on the _____ day of _____ 20 ____; and on the _____ day of _____ 20 ____;

WHEREAS, the Government of the United States desires to acquire the entire right, title, and interest in and to said invention and in and to any Letters Patent wherever they may be issued thereon;

NOW, THEREFORE, to all whom it may concern, be it known that for and in consideration of the sum of One Dollar to us in hand paid by the Government of the United States, and for other good and valuable consideration, the receipt of which is hereby acknowledged, we by these presents do sell, assign, and transfer unto the said Government of the United States, as represented by the United States Department of Energy, and/or its assigns, the entire right, title, and interest in and to the said invention and in and to any and all Letters Patent wherever they may be granted thereon as well as reissues and extensions of said Letters Patent are or may be granted, reissued, or extended, as fully and entirely as the same would have been held or enjoyed by us had this assignment not been made.

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WITNESS:

(SEAL)

WITNESS:

(SEAL)

WITNESS:

(SEAL)

WITNESS:

Priscilla Antkowiak
(SEAL)

WITNESS:

(SEAL)

WITNESS:

(SEAL)

INVENTORS:

Date

INVENTORS:

Date

INVENTORS:

Date

INVENTORS:

Luis J. Smith
Date 2-16-07

INVENTORS:

Date

INVENTORS:

Date

Joint

**U.S. Department of Energy
PATENT ASSIGNMENT FORM**

WHEREAS, we, Rex E. Gerald II, Katarina J. Ruscic, Devin N. Sears, Luis J. Smith, Robert J. Klingler and Jerome W. Rathke, citizens of the United States residing in _____, County of _____, State of _____; residing in Chicago, County of Cook, State of IL; residing in _____, County of _____, State of _____; residing in _____, County of _____, State of _____; residing in _____, County of _____, State of _____; and residing in _____, County of _____, State of _____; have invented certain new and useful improvements in A UNIQUE BATTERY WITH AN ACTIVE MEMBRANE SEPARATOR HAVING UNIFORM PHYSICO-CHEMICALLY FUNCTIONALIZED ION CHANNELS AND A METHOD MAKING THE SAME, for which we are about to file an application for United States Letters Patent identified as S-109,880 and executed by us on the _____ day of _____ 20 ____; and on the 20th day of February, 20 07; and on the _____ day of _____ 20 ____; and on the _____ day of _____ 20 ____; and on the _____ day of _____ 20 ____; and on the _____ day of _____ 20 ____;

WHEREAS, the Government of the United States desires to acquire the entire right, title, and interest in and to said invention and in and to any Letters Patent wherever they may be issued thereon:

NOW, THEREFORE, to all whom it may concern, be it known that for and in consideration of the sum of One Dollar to us in hand paid by the Government of the United States, and for other good and valuable consideration, the receipt of which is hereby acknowledged, we by these presents do sell, assign, and transfer unto the said Government of the United States, as represented by the United States Department of Energy, and/or its assigns, the entire right, title, and interest in and to the said invention and in and to any and all Letters Patent wherever they may be granted thereon as well as reissues and extensions of said Letters Patent are or may be granted, reissued, or extended, as fully and entirely as the same would have been held or enjoyed by us had this assignment not been made.

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PATENT

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WITNESS:

(SEAL)

WITNESS:

(SEAL) LEIGH D. PLANT

WITNESS:

(SEAL)

WITNESS:

(SEAL)

WITNESS:

(SEAL)

WITNESS:

(SEAL)

INVENTORS:

Date

INVENTORS:

Katarina J. Ruscic

Date February 20, 2007

INVENTORS:

Date

INVENTORS:

Date

INVENTORS:

Date

INVENTORS:

Date

Approved and consented to this 19th day of April, 2007.

ATTEST: Maria R. Blasius
(SEAL)

William D. Luck
By William D. Luck
The University of Chicago
Argonne National Laboratory
Accepted for the Benefit of the Government of the United States.

WITNESS:

Ruth Baldwin

UNITED STATES DEPARTMENT OF ENERGY

By [Signature]
Assistant General Counsel for Patents