Form PTO-1595 (Rev. 03-11) OMB No. 0651-0027 (exp. 03/31/2015)	U.S. DEPARTMENT OF COI United States Patent and Tradem	
RECORDATION FOR		
PATENTS	SONLY	
To the Director of the U.S. Patent and Trademark Office: Please	record the attached documents or the new address(es) b	elow.
1. Name of conveying party(ies):	2. Name and address of receiving party(les)	
Feng Lin (02/13/2014), Renji Zhang	Name:Tsinghua University	
(02/13/2014), Qianming Gong (02/13/2014), Lei		
Zhang (02/13/2014),  Addillonal name(s) of conveying party(les) attached?  X Yes No	Internal Address:	
3. Nature of conveyance/Execution Date(s):	Street Address: Qinghuayuan	
	Haidlan District	
Execution Date(s): In parentheses after inventor name	Beijing 100084 PEOPLE'S REPUBLIC OF CHINA	
X Assignment Merger Change of Name  Security Agreement Joint Research Agreement		
	City:	
Government Interest Assignment	State:	
Executive Order 9424, Confirmatory License	Country:Zip:	
Other	Additional name(s) & address(es) Yes X ratached?	No
4. Application or patent number(s):	This document is being filed together with a new application	on.
A. Patent Application No.(s)	B. Patent No.(s)	
14/238,626		
Additional numbers attached?	Yes X No	
Name and address to whom correspondence concerning document should be mailed:	6. Total number of applications and patents involved:	
Name: Ryan L. Bergeron		
LERNER, DAVID, LITTENBERG, KRUMHOLZ & MENTLIK, LLP	7. Total fee (37 CFR 1.21(h) & 3.41) \$ 40.00	
Internal Address: Atty. Dkt.: 9TIP 3.3-030	77. Total lee (37 CFR 1.21(n) & 3.41) 4 40.00	
Street Address: 600 South Avenue West		
	X Authorized to be charged to deposit account	
	Enclosed	
	None required (government interest not affecti	ng title)
City: Westfield	8. Payment information	
State: NJ Zip: 07090		
Phone Number: 908-654-5000		
Fax Number: 908-654-7866	Deposit Account Number 12-1095	~
Email Address: mcormier@ldlkm.com	Authorized User Name Ryan L. Bergeron	
9. Signature:		
& M. C	- February 14, 2014	
Signature	Date	
Ryan L. Bergeron - 66,377	Total number of pages including cover	9
Name of Person Signing	sheet, attachments, and documents:	

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**PATENT** REEL: 032341 FRAME: 0145

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RECORDATION FORM COVER SHEET (PTO-1595) (supplemental sheet)			
Additional Conveying Party(ies)/Execution Date(s) (1. Continued):			
Ting Zhang (02/13/2014), Xiao Yuan (02/13/2014), and Wentao Yan (02/13/2014)			
Additional Assign	ees (2. Continued):	:	
Assignee Name:			
Internal Address:			
Street Address:			
City:	State;	Country:	Zlp:
Assignee Name:			
Internal Address:			
Street Address:			
City:	State:	Country:	Zip:
Assignee Name:			<b></b>
Internal Address:			
Street Address:			
City:	State:	Country:	Zip:
Additional Applica	ations and/or Paten	ts (4. Continued):	
Additional Patent Applicati 4A. Continued:	on Numbers	Additional Patent Numbers 4B. Continued:	
	Additional number	's attached? Yes No	
		Recognition of the state of the	

2

Docket No.: 9TIP 3.3-030

	former PTO/SB/15 (8-00) Modified LDLK8
ACCIONMENT OF LITH ITY APPLICATION	Docket Number (Optional)
ASSIGNMENT OF UTILITY APPLICATION	9TIP 3.3-030
Whereas, I, Feng Lin	of
Qinghuayuan, Haldian District, Beljing, 100084, People's	Republic of China
hereafter referred to as assignor, have with others invented certa ROTOR DEVICE, TURBINE ROTOR DEVICE, AND 6 HAVING SAME	
x for which an application for a United States Letters Pate	nt was filed on February 12, 2014
Application Number 14/238,626 for which an application for a United States Letters Paten	t was executed by me on
x for which an International Application was filed on	July 11, 2012 , as
PCT/CN2012/078518 , designating the United	States.
Whereas, <u>Tsinghua University</u> a corporation of <u>China</u> herein referred to as "assignee" whose ma	10
Qinghuayuan, Haldlan District, Beljing 100084, People's Re	<del>-</del>
is desirous of acquiring the entire right, title and interest in the sai	
is acknowledged, and other good and valuable consideration, I assignee my entire right, title and interest for the United State invention and the aforesald utility patent application and all or applications and patents applied for or granted therefor in the t said invention, including without limitation all applications and patents aforesald utility application pursuant to any law or treaty, and infringement with the right to sue for and collect the same for its legal representatives, and including the right to claim such prior Trademarks is hereby authorized and requested to issue all patents and assignee of the entire interest the representatives, heirs and assignee of the entire interest the representatives, heirs and assigned to hereby agree and covenant all original, divisional, continuation, reissue and other application assignments thereof to said assignee or its assigns, to community known to the undersigned respecting said improvements, whenevel legal proceedings in which any of said applications or patents must in all rightful oaths, and to do generally everything necessary to aid obtain patent protection for said improvements in all countries, the and paid by said assignee.  And I do hereby authorize my attorneys to insert on this deed the	s of America and all other countries in and to said signal, divisional, continuation, substitute or reissue united States of America and all other countries, for stents for said invention claiming priority or benefit of dincluding all claims for damages by reason of past own use and the use of its successors, assigns and ity or benefit and the Commissioner of Patents and ents on said improvements or resulting therefrom to be rein; and the undersigned for me and my legal to without further remuneration, to execute and deliver has for Letters Patent on said improvements and all ideas to said assignee or its representatives all facts over requested, to testify in any interferences or other ay become involved, to sign all lawful papers, make assignee, its successors, assigns and nominees to expenses incident to said applications to be borne
when known.	
2/13/2014	- Life
2/13/2014  Date Renji Thang  Witness	Feng Lin
Renji Zhang Typed Name of Witness	
x *Total of 7 forms are submitted.	

ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional)
	9TIP 3.3-030
Whereas, I, <u>Renji Zhang</u> <u>Qinghuayuan, Haidian District, Beijing 100084, People'</u> hereafter referred to as assignor, have with others invented cert	
ROTOR DEVICE, TURBINE ROTOR DEVICE, AND HAVING SAME  X for which an application for a United States Letters Pat	GAS TURBINE AND TURBINE ENGINE
Application Number 14/238,626 for which an application for a United States Letters Pater	
x for which an International Application was filed on	***************************************
PCT/CN2012/078518 , designating the United	States.
Whereas, <u>Tsinghua University</u>	
a corporation of <u>China</u> herein referred to as "assignee" whose m <u>Qinghuayuan, Haidian District, Belling</u> 100084, People's Re	
s desirous of acquiring the entire right, title and interest in the ea	
assignee my entire right, title and interest for the United State invention and the aforesaid utility patent application and all capplications and patents applied for or granted therefor in the said invention, including without ilmitation all applications and phe aforesaid utility application pursuant to any law or treaty, are infringement with the right to sue for and collect the same for its egal representatives, and including the right to claim such price frademarks is hereby authorized and requested to issue all patent assignee herein, as assignee of the entire interest the epresentatives, heirs and assignee of the entire interest the epresentatives, heirs and assignee of the entire interest the epresentatives, heirs and assignee or its assigns, to communication, divisional, continuation, reissue and other applications in the endersigned respecting said improvements, whenever a superior in the endersigned respecting said improvements, whenever it is assigned in which any of said applications or patents in all rightful oaths, and to do generally everything necessary to allotte the patent protection for said improvements in all countries, the and in the patent protection for said improvements in all countries, the and in the patent protection for said improvements in this deed the and in the patent protection for said improvements in this deed the and in the patent protection for said improvements in this deed the and in the patent protection for said improvements in this deed the and in the patent protection for said improvements in this deed the and in the patent protection for said improvements in this deed the and in the patent protection for said improvements in this deed the patent protection for said improvements in the patent protection for said improvements in the patent protection and the patent	original, divisional, continuation, substitute or release United States of America and all other countries, the stents for said invention claiming priority or benefit and including all claims for damages by reason of pass own use and the use of its successors, assigns all parity or benefit and the Commissioner of Patents and tents on said improvements or resulting therefrom the remaining the said and may be an erely; and the undersigned for me and my legal that further remuneration, to execute and delivious for Letters Patent on said improvements and an incate to said assignee or its representatives all factorized the said assignee or its representatives all factorized the said assignee, its successors, assigns and nominees the expenses incident to said applications to be born.
when known.	· · · · · · · · · · · · · · · · · · ·
A	Kenin Shane
Feb. 13, 2014	
Feb. 13, 2014  Date	Renji Zhang  Renji Zhang
Date	Renji Zhang
	Renji Zhang

REEL: 032341 FRAME: 0148

are to an analysis and a second secon	Docket Number (Optional)	
ASSIGNMENT OF UTILITY APPLICATION	9TIP 3.3-030	
Whereas, I, Qianming Gong	of	
Qinghuayuan, Haidian District, Beijing 100084, People's	s Republic of China	
hereafter referred to as assignor, have with others invented certs ROTOR DEVICE, TURBINE ROTOR DEVICE, AND C HAVING SAME		
for which an application for a United States Letters Pate Application Number 14/238,626	ent was filed on February 12, 2014	
* 1	at upo averated by me an	
for which an application for a United States Letters Patent was executed by me on  X for which an International Application was filed on July 11, 2012 as		
PCT/CN2012/078518 , designating the United And		
Whereas, Tsinghua University		
a corporation of China herein referred to as "assignee" whose m	ailing address is	
Qinghuayuan, Haidian District, Beijing 100084, People's Re	_	
Is desirous of acquiring the entire right, title and interest in the sa	· · · · · · · · · · · · · · · · · · ·	
Is acknowledged, and other good and valuable consideration, I assignee my entire right, title and Interest for the United State invention and the aforesaid utility petent application and all o applications and patents applied for or granted therefor in the said invention, including without limitation all applications and patents applied for or granted therefor in the said Invention, including without limitation all applications and patents aforesaid utility application pursuant to any law or treaty, an infingement with the right to sue for and collect the same for its legal representatives, and including the right to claim such prior Trademarks is hereby authorized and requested to issue all passignee herein, as assignee of the entire interest the representatives, helrs and assigns do hereby agree and covenar all original, divisional, continuation, relssue and other application assignments thereof to said assignee or its assigns, to communication to the undersigned respecting said improvements, whene legal proceedings in which any of said applications or patents in all rightful oaths, and to do generally everything necessary to ail obtain patent protection for said improvements in all countries, the and paid by said assignee.	as of America and all other countries in and to said riginal, divisional, continuation, substitute or reissue United States of America and all other countries, for atents for said invention claiming priority or benefit of including all claims for damages by reason of past own use and the use of its successors, assigns and ority or benefit and the Commissioner of Patents and tents on said improvements or resulting therefrom to terein; and the undersigned for me and my legal at without further remuneration, to execute and deliverons for Letters Patent on said improvements and all incite to said assignee or its representatives all facts ever requested, to testify in any interferences or other may become involved, to sign all lawful papers, make d assignee, its successors, assigns and nominees to the expenses incident to said applications to be borne	
And I do heraby authorize my attorneys to Insert on this deed the when known.	۷,	
2014.2.13	dianming Godg	
Date	(danming Godg	
hi A		
Witness		
Feng Lin		
Typed Name of Witness		
x *Total of 7 forms are submitted.	<u> </u>	

<u> </u>	TO THE A NUMBER OF A STATE OF THE STATE OF T
ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional) 9TIP 3.3-030
Whereas, I, Lei Zhang	of
Qinghuayuan, Haidian District, Beljing 100084, People's	Republic of China
hereafter referred to as assignor, have with others invented certa ROTOR DEVICE, TURBINE ROTOR DEVICE, AND O HAVING SAME	ain new and useful improvements in GAS TURBINE AND TURBINE ENGINE
X for which an application for a United States Letters Pate	ent was filed on February 12, 2014
Application Number 14/238,626	
for which an application for a United States Letters Pater	nt was executed by me on,
x for which an International Application was filed on	July 11, 201 <u>2</u> , as
PCT/CN2012/078518 , designating the United	States.
	·
Whereas, Tsinghua University a corporation of China herein referred to as "assignee" whose m	ailing address is
Qinghuayuan, Haldlan District, Beijing 100084, People's Re	
is desirous of acquiring the entire right, title and interest in the sa	
is acknowledged, and other good and valuable consideration, I assignee my entire right, title and Interest for the United State Invention and the aforesald utility patent application and all of applications and patents applied for or granted therefor in the said invention, including without limitation all applications and patents application pursuant to any law or treaty, an infringement with the right to sue for and collect the same for its legal representatives, and including the right to claim such price Trademarks is hereby authorized and requested to issue all passald assignee herein, as assignee of the entire interest the representatives, heirs and assignee of the entire interest the representatives, heirs and assignee or its assigns, to communicately including the right to claim such price and other applications assignments thereof to said assignee or its assigns, to communicate the undersigned respecting said improvements, where legal proceedings in which any of said applications or patents in all rightful oaths, and to do generally everything necessary to all obtain patent protection for said improvements in all countries, the and paid by said assignee.	es of America and all other countries in and to said original, divisional, continuation, substitute or reissue. United States of America and all other countries, for atents for said invention claiming priority or benefit of ad including all claims for damages by reason of past sown use and the use of its successors, assigns and ority or benefit and the Commissioner of Patents and tents on said improvements or resulting therefrom to herein; and the undersigned for me and my legal to twithout further remuneration, to execute and deliver ons for Letters Patent on said improvements and all inicale to said assignee or its representatives all facts ever requested, to testify in any interferences or other may become involved, to sign all lawful papers, make id assignee, its successors, assigns and nominees to the expenses incident to said applications to be borne
And I do hereby authorize my attorneys to insert on this deed the when known.	e filing date and application number of said application
2014102.13	Ash Lei Zhang
Date	Lei Zhang
1 - 1	
Witness	
Feng Lin	
Typed Name of Witness	
v *Total of 7 forms are submitted	

	tormer PTO/SB/15 (8-00) Modified LDLK8	
ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional) 9TIP 3.3-030	
Whereas, I, Ting Zhang	of	
Qinghuayuan, Haldlan District, Beijing 100084, People's	s Republic of China	
hereafter referred to as assignor, have with others invented certs ROTOR DEVICE, TURBINE ROTOR DEVICE, AND O HAVING SAME	aln new and useful improvements in  GAS TURBINE AND TURBINE ENGINE	
x for which an application for a United States Letters Pate	ent was filed on February 12, 2014	
Application Number 14/238,626		
for which an application for a United States Letters Pater	nt was executed by me on ,	
ifor which an International Application was filed on	July 11, 2012 , as	
PCT/CN2012/078518 , designating the United	States.	
Whereas, Tsinghua University a corporation of Chine herein referred to as "assignee" whose m	nalling address is	
Qinghuayuan, Haidlan District, Beijing 100084, People's Re		
is desirous of acquiring the entire right, title and interest in the sa		
NOW, THEREFORE, in consideration of the sum of one dollar (\$ 1.00 ), the receipt whereof is acknowledged, and other good and valuable consideration, I as assignor hereby sell, assign and set over to said assignee my entire right, title and interest for the United States of America and all other countries in and to sald invention and the aforesaid utility patent application and all original, divisional, continuation, substitute or release applications and patents applied for or granted therefor in the United States of America and all other countries, for said invention, including without limitation all applications and patents for said invention claiming priority or benefit of the aforesaid utility application pursuant to any law or treaty, and including all claims for damages by reason of past infringement with the right to sue for and collect the same for its own use and the use of its successors, assigns and legal representatives, and including the right to claim such priority or benefit and the Commissioner of Patents and Trademarks is hereby authorized and requested to issue all patents on said improvements or resulting therefrom to said assignee herein, as assignee of the entire interest therein; and the undersigned for me and my legal representatives, heirs and assigns do hereby agree and covenant without further remuneration, to execute and deliver all original, divisional, continuation, relssue and other applications for Letters Patent on said improvements and all assignments thereof to said assignee or its assigns, to communicate to said assignee or its representatives all facts known to the undersigned respecting said Improvements, whenever requested, to testify in any interferences or other legal proceedings in which any of said applications or patents may become involved, to sign all lawful papers, make all rightful oaths, and to do generally everything necessary to aid assignee, its successors, assigns and nominees to obtain patent protection for said improvements in all countries, the expenses inc		
when known,	2 L 3库	
2/13/2014.		
Date	Ting Zhang	
Withess  Feng Lin  Typed Name of Witness		
x Total of 7 forms are submitted.		

<u> </u>	Docket Number (Optional)	
ASSIGNMENT OF UTILITY APPLICATION	9TIP 3.3-030	
Whereas, I, Xiao Yuan	of	
Qinghuayuan, Haidian District, Beijing 100084, People's	Republic of China	
hereafter referred to as assignor, have with others invented certain new and useful improvements in ROTOR DEVICE, TURBINE ROTOR DEVICE, AND GAS TURBINE AND TURBINE ENGINE HAVING SAME		
x for which an application for a United States Letters Patent was filed on February 12, 2014		
Application Number <u>14/238,626</u>		
for which an application for a United States Letters Pater	it was executed by me on ,	
x for which an International Application was filed on	July 11, 2012 , as	
PCT/CN2012/078518 , designating the United And	States.	
Whereas, Tsinghua University		
a corporation of China herein referred to as "assignee" whose m	ailing address is	
Qinghuayuan, Haidian District, Beijing 100084, People's Re		
Is desirous of acquiring the entire right, title and interest in the sa	me;	
NOW, THEREFORE, in consideration of the sum of one dollar (\$ 1.00 ), the receipt whereof is acknowledged, and other good and valuable consideration, I as assigner hereby sell, assign and set over to said assignee my entire right, title and interest for the United States of America and all other countries in and to said invention and the aforesaid utility patent application and all original, divisional, continuation, substitute or reissue applications and patents applied for or granted therefor in the United States of America and all other countries, for said invention, including without limitation all applications and patents for said invention claiming priority or benefit of the aforesaid utility application pursuant to any law or treaty, and including all claims for damages by reason of past infringement with the right to sue for and collect the same for its own use and the use of its successors, assigns and legal representatives, and including the right to claim such priority or benefit and the Commissioner of Patents and Trademarks is hereby authorized and requested to issue all patents on said improvements or resulting therefrom to said assignee herein, as assignee of the entire interest therein; and the undersigned for me and my legal representatives, helrs and assigns do hereby agree and covenant without further remuneration, to execute and deliver all original, divisional, continuation, reissue and other applications for Letters Patent on said improvements and all assignments thereof to said assignee or its assigns, to communicate to said assignee or its representatives all facts known to the undersigned respecting sald improvements, whenever requested, to testify in any interferences or other legal proceedings in which any of sald applications or patents may become involved, to sign all lawful papers, make all rightful oaths, and to do generally everything necessary to all assignee, its successors, assigns and nominees to obtain patent protection for said improvements in all countries, the expenses inc		
when known.	V. Y	
2014.2.13	Xiao Yuan Xiao Yuan	
Date	Xiao Yuan	
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	former PTO/SB/15 (8-00) Modified LDLKS
ASSIGNMENT OF UTILITY APPLICATION	Docket Number (Optional)
	9TIP 3.3-030
Whereas, I, Wentac Yan	of
Qinghuayuan, Haidian District, Beijing 100084, People's	000000000000000000000000000000000000000
hereafter referred to as assignor, have with others invented certal ROTOR DEVICE, TURBINE ROTOR DEVICE, AND GHAVING SAME	ain new and useful improvements in GAS TURBINE AND TURBINE ENGINE
X for which an application for a United States Letters Pate	nt was filed on February 12, 2014
Application Number 14/238,626	
for which an application for a United States Letters Paten	l was executed by me on
x for which an International Application was filed on	July 11, 2012 , as
PCT/CN2012/078518 , designating the United And	States.
Whereas, Tsinghua University	
a corporation of Chine herein referred to as "assignee" whose ma	ailing address is
Qinghuayuan, Haidian District, Beijing 100084, People's Re	
is desirous of acquiring the entire right, title and interest in the sar	ne;
Is acknowledged, and other good and valuable consideration, I assignee my entire right, title and Interest for the United State invention and the aforesaid utility patent application and all or applications and patents applied for or granted therefor in the U said invention, including without limitation all applications and patents application pursuant to any law or treaty, and infringement with the right to sue for and collect the same for its legal representatives, and including the right to claim such prior Trademarks is hereby authorized and requested to issue all patents as assignee of the entire interest the representatives, heirs and assigns do hereby agree and covenant all original, divisional, continuation, reissue and other application assignments thereof to said assignee or its assigns, to community known to the undersigned respecting said improvements, whenever all rightful oaths, and to do generally everything necessary to alcoholic patent protection for said improvements in all countries, the and paid by said assignee.  And I do hereby authorize my attorneys to insert on this deed the patent in a state of the same to the authorize my attorneys to insert on this deed the patents.	s of America and all other countries in and to said iginal, divisional, continuation, substitute or reissue united States of America and all other countries, for tents for said invention claiming priority or benefit of dincluding all claims for damages by reason of past own use and the use of its successors, assigns and ity or banefit and the Commissioner of Patents and ents on said improvements or resulting therefrom to crein; and the undersigned for me and my legal twithout further remuneration, to execute and deliver his for Letters Patent on said improvements and all leate to said assignee or its representatives all facts over requested, to testify in any interferences or other ay become involved, to sign all lawful papers, make assignee, its successors, assigns and nominees to expenses incident to said applications to be borne
when known.	. 7 . 4 .
2014. 2. 13	1引文档
Date	Wentao Yan
Li da	
Witness	
Feng Lin	
Typed Name of Witness	
x *Total of 7 forms are submitted.	



600 SOUTH AVENUE WEST - WESTFIELD, NEW JERSEY 07090 908.654.5000 - FAX 908.654.7866 - WWW.LDLKM.COM

PALENTS, TRADEMARKS, COPARIGHES & UNFAIR COMPETITION

## Facsimile Transmittal

To: Fax Number From

USPTO Assignment Division 571-273-0140 Phyllis Kelly 908-518-6456

**Date:** February 14, 2014

No. Pages: 10

File Name.: 9TIP 3.3-030
Client/Matter No: 9TIP/31
Attorney/Secretary: RLB/EAG

## MESSAGE:

Please record the attached assignment and fax the Notice of Recordation to Phyllis Kelly at 908-654-7866.

NOTICE: The information contained herein is intended only for the addressee identified above. It may be or may include material that is confidential, attorney-client privileged, attorney work product, copyrighted, and/or inside information. If you are not the intended recipient, or a person responsible for delivering this message to the intended recipient, you are hereby notified that the unauthorized use, disclosure, distribution or copying is strictly prohibited and may be in violation of court order or otherwise unlawful. If you have received this transmission in error, please immediately notify us at 908 654 5000 (collect, if necessary) and return this document to us by mail.

PATENT REEL: 032341 FRAME: 0154

RECORDED: 02/15/2014