503954026 08/10/2016

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4000682

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
TAKAO YOKOYAMA	06/28/2016
SEIICHI IBARAKI	06/28/2016
RICARDO MARTINEZ-BOTAS	07/12/2016
MINGYANG YANG	07/12/2016

RECEIVING PARTY DATA

Name:	MITSUBISHI HEAVY INDUSTRIES, LTD.
Street Address:	16-5, KONAN 2-CHOME, MINATO-KU
City:	TOKYO
State/Country:	JAPAN
Postal Code:	108-8215
Name:	IMPERIAL INNOVATIONS LTD
Street Address:	52 PRINCES GATE, EXHIBITION ROAD
City:	LONDON
State/Country:	UNITED KINGDOM
Postal Code:	SW72PG

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15107657

CORRESPONDENCE DATA

Fax Number: (703)205-8050

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: 703-205-8000

Email: tu.t.tan@bskb.com, mailroom@bskb.com

Correspondent Name: BIRCH, STEWART, KOLASCH & BIRCH, LLP

Address Line 1: P.O. BOX 747

Address Line 4: FALLS CHURCH, VIRGINIA 22040-0747

ATTORNEY DOCKET NUMBER:	4898-0261PUS1
NAME OF SUBMITTER:	TAN T. TU

PATENT 503954026 REEL: 039393 FRAME: 0429

SIGNATURE:	/Tan T. Tu/
DATE SIGNED:	08/10/2016
Total Attachments: 9	
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PATENT REEL: 039393 FRAME: 0430

BIRCH, STEWART, KOLASCH & BIRCH, LLP

P.O. Box 747 • Falls Church, Virginia 22040-0747 Telephone: (703) 205-8000 • Facsimile: (703) 205-8050 • Email: mailroom@bskb.com

DECLARATION AND ASSIGNMENT FOR PATENT AND DESIGN APPLICATIONS

UNITED STATES PATENT RIGHTS, OR UNITED STATES PLUS ALL FOREIGN PATENT RIGHTS

Title of Invention

⇒ TURBINE As a below named inventor (hereinafter designated as the undersigned), I hereby declare that: This declaration is directed to the application attached hereto. ⇒ If the application is not attached hereto, the application is as identified by the attorney docket number as Attached set forth above and/or the following: Enter Appln. No. ⇒ United States Application Number or PCT International Appln. No. PCT/JP2015/050050 Enter Filing Date → filed on January 5, 2015 The above-identified 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. I have reviewed and understand the contents of the above-identified application, including the claims. I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations § 1.56. WHEREAS, the undersigned has invented certain new and useful improvements described in the application identified. Insert Name WHEREAS, MITSUBISHI HEAVY INDUSTRIES, LTD., and Imperial Innovations Ltd of Assignee Insert Address 🖻 of 16-5, Konan 2-chome, Minato-ku, Tokyo 108-8215, Japan, and of 52 Princes Gate, Exhibition Road, of Assignee London SW72PG, United Kingdom, its heirs, successors, legal representatives and assigns (hereinafter designated as the Assignee) is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent(s) that may be granted therefor in the United States of America and

Check Box if in any foreign countries. Appropriate

> NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, the undersigned has sold, assigned and transferred, and by these presents does (do) sell, assign and transfer unto said Assignee the full and exclusive right to the said invention in the United States of America, its territories, dependencies and possessions and the entire right, title and interest in and to any and all Letters Patent(s) which may be granted therefor in the United States of America, its territories, dependencies and possessions, and if the box above is designated, in any and all foreign countries; and to any and all divisions, reissues, continuations, conversions and extensions thereof for the full term or terms for which the same may be granted.

> > Page 1 BSKB-DECASSIGN(09-12)

The undersigned agrees to execute all papers necessary in connection with this application and any continuing, divisional, conversion or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division, conversion or reissue thereof or Letters Patent(s) or reissue patent issued thereon and to cooperate with the Assignee in every way possible in obtaining and producing evidence and proceeding with such interference.

The undersigned agrees to execute all papers and documents and to perform any act which may be necessary in connection with claims or provisions of the International Convention for the Protection of Industrial Property or similar agreements.

The undersigned agrees to perform all affirmative acts which may be necessary to obtain a grant of (a) valid United States of America patent(s) or a grant of (a) valid United States of America and any foreign patent(s) to the Assignee and to vest all rights therein hereby conveyed to said Assignee as fully and entirely as the same would have been held by the undersigned if this Assignment and sale had not been made.

The undersigned hereby authorizes and requests the Patent and Trademark Office Officials in the United States of America and in any foreign countries to issue any and all Letters Patent(s) resulting from said application or any continuing, divisional conversion or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has the full right to convey the entire interest herein assigned, and that he has not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby grants the law firm of Birch, Stewart, Kolasch & Birch, LLP the power to insert any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office.

The undersigned hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment.

The undersigned hereby acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

In witness whereof, executed by the undersigned on the date opposite the undersigned name.

LEGAL N.	AME OF INVENTOR		
Inventor's Name	Takao YOKOYAMA	Date:	June 28, 2016
Inventor's Signature ⇒ Signature:	Takore Zologama		0

An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use a separate form for each inventor; or check the box below and complete the attached page(s) to list additional inventors.

 \boxtimes Additional inventors are being named on the $\underline{1}$ supplemental sheet(s) attached hereto.

Page 2

BSKB-DECASSIGN-SINGLE (09-12)

SUPPLEMENTAL SHEET FOR DECLARATION AND ASSIGNMENT

ADDITIONAL INVENTOR(S) Supplemental Sheet Page $\underline{1}$ of $\underline{1}$

LEGAL NAME OF JOINT INVENTOR, IF ANY

Inventor's Name	⇔ Inventor: Seiichi IBARAKI	Date:	June 28, 2016
Inventor's Signature	⇒ Signature: Seiichi Ibaraki		**************************************
	LEGAL NAME OF JOINT INVENTOR, IF ANY		
Inventor's Name	⇒ Inventor: Ricardo MARTINEZ-BOTAS	Date:	
Inventor's Signature	⇒ Signature:		
	LEGAL NAME OF JOINT INVENTOR, IF ANY		
Inventor's Name	⇔Inventor: Mingyang YANG	_ Date:	****
Inventor's Signature	⇔Signature:		
	LEGAL NAME OF JOINT INVENTOR, IF ANY		
Inventor's Name	⇒Inventor:	_ Date:	
Inventor's Signature	⇒Signature:		
	LEGAL NAME OF JOINT INVENTOR, IF ANY		
Inventor's Name	⇒Inventor:	_ Date:	
Inventor's Signature	⇒Signature:		
	LEGAL NAME OF JOINT INVENTOR, IF ANY		
Inventor's Name	⇒Inventor:	Date:	
Inventor's Signature	⇒Signature:		
	LEGAL NAME OF JOINT INVENTOR, IF ANY		
Inventor's Name	⇒Inventor:	Date:	
nventor's Signature	⇒Signature:		
	LEGAL NAME OF JOINT INVENTOR, IF ANY		
nventor's Name	⇔Inventor:	Date:	No.
nventor's Signature	⇔Signature:		

BSKB-DECASSIGN\(09-12)

PATENT REEL: 039393 FRAME: 0433

BIRCH, STEWART, KOLASCH & BIRCH, LLP

P.O. Box 747 • Falls Church, Virginia 22040-0747

Telephone: (703) 205-8000 • Facsimile: (703) 205-8050 • Email: mailroom@bskb.com

DECLARATION AND ASSIGNMENT FOR PATENT AND DESIGN APPLICATIONS

UNITED STATES PATENT RIGHTS, OR UNITED STATES PLUS ALL FOREIGN PATENT RIGHTS

Title of Invention \Rightarrow TURBINE

As a below named inventor (hereinafter designated as the undersigned), I hereby declare that:

This declaration is directed to the application attached hereto.

Application not Attached

⇒ If the application is not attached hereto, the application is as identified by the attorney docket number as set forth above and/or the following:

Enter Appln. No. ⇒ United States Application Number or PCT International Appln. No. PCT/JP2015/050050

Enter Filing Date ⇒ filed on January 5, 2015

The above-identified 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.

I have reviewed and understand the contents of the above-identified application, including the claims.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations § 1.56.

WHEREAS, the undersigned has invented certain new and useful improvements described in the application identified.

Insert Name of Assignee

⇒ WHEREAS, MITSUBISHI HEAVY INDUSTRIES, LTD., and Imperial Innovations Ltd

Insert Address of Assignee

of 16-5, Konan 2-chome, Minato-ku, Tokyo 108-8215, Japan, and of 52 Princes Gate, Exhibition Road, London SW72PG, United Kingdom,

its heirs, successors, legal representatives and assigns (hereinafter designated as the Assignee) is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent(s) that may be granted therefor in the United States of America and

Check Box if Appropriate

in any foreign countries.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, the undersigned has sold, assigned and transferred, and by these presents does (do) sell, assign and transfer unto said Assignee the full and exclusive right to the said invention in the United States of America, its territories, dependencies and possessions and the entire right, title and interest in and to any and all Letters Patent(s) which may be granted therefor in the United States of America, its territories, dependencies and possessions, and if the box above is designated, in any and all foreign countries; and to any and all divisions, reissues, continuations, conversions and extensions thereof for the full term or terms for which the same may be granted.

> BSKB-DECASSIGN(09-12) Page 1

The undersigned agrees to execute all papers necessary in connection with this application and any continuing, divisional, conversion or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division, conversion or reissue thereof or Letters Patent(s) or reissue patent issued thereon and to cooperate with the Assignee in every way possible in obtaining and producing evidence and proceeding with such interference.

The undersigned agrees to execute all papers and documents and to perform any act which may be necessary in connection with claims or provisions of the International Convention for the Protection of Industrial Property or similar agreements.

The undersigned agrees to perform all affirmative acts which may be necessary to obtain a grant of (a) valid United States of America patent(s) or a grant of (a) valid United States of America and any foreign patent(s) to the Assignee and to vest all rights therein hereby conveyed to said Assignee as fully and entirely as the same would have been held by the undersigned if this Assignment and sale had not been made.

The undersigned hereby authorizes and requests the Patent and Trademark Office Officials in the United States of America and in any foreign countries to issue any and all Letters Patent(s) resulting from said application or any continuing, divisional conversion or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has the full right to convey the entire interest herein assigned, and that he has not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby grants the law firm of Birch, Stewart, Kolasch & Birch, LLP the power to insert any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office.

The undersigned hereby covenants that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment.

The undersigned hereby acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

In witness whereof, executed by the undersigned on the date opposite the undersigned name.

LEGAL NAME OF INVENTOR

Inventor's Name	⇒	Inventor:	Takao YOKOYAMA	Date:
Inventor's Signature	• ⇒	Signature:		

An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use a separate form for each inventor; or check the box below and complete the attached page(s) to list additional inventors.

 \square Additional inventors are being named on the <u>1</u> supplemental sheet(s) attached hereto.

Page 2

BSKB-DECASSIGN-SINGLE (09-12)

SUPPLEMENTAL SHEET FOR DECLARATION AND ASSIGNMENT

ADDITIONAL INVENTOR(S) Supplemental Sheet Page 1 of 1

LEGAL NAME OF JOINT INVENTOR, IF ANY

Inventor's Name	⇒ Inventor: Seiichi IBARAKI	Date:
Inventor's Signature	⇒ Signature:	
	LEGAL NAME OF JOINT INVENTOR, IF ANY	
Inventor's Name	→ Inventor: Ricardo MARTE IEZ-BOTAS	Date: 12/7/16
Inventor's Signature	⇒ Signature:	· · · · · · · · · · · · · · · · · · ·
	LEGAL NAME OF JOINT INVENTOR, IF ANY	
Inventor's Name	⇒Inventor: Mingyang YANG	Date:
Inventor's Signature	⇒Signature:	
	LEGAL NAME OF JOINT INVENTOR, IF ANY	
Inventor's Name	⇒Inventor:	Date:
Inventor's Signature	⇒Signature:	
	LEGAL NAME OF JOINT INVENTOR, IF ANY	
Inventor's Name	⇒Inventor:	Date:
Inventor's Signature	⇒Signature:	
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	LEGAL NAME OF JOINT INVENTOR, IF ANY	
Inventor's Name	⇒Inventor:	Date:
Inventor's Signature	⇒Signature:	
	LEGAL NAME OF JOINT INVENTOR, IF ANY	
Inventor's Name	⇒Inventor:	Date:
Inventor's Signature	⇒Signature:	

BSKB-DECASSIGN\(09-12)

PATENT REEL: 039393 FRAME: 0436

BIRCH, STEWART, KOLASCH & BIRCH, LLP

P.O. Box 747 • Falls Church, Virginia 22040-0747

Telephone: (703) 205-8000 • Facsimile: (703) 205-8050 • Email: mailroom@bskb.com

DECLARATION AND ASSIGNMENT FOR PATENT AND DESIGN APPLICATIONS

UNITED STATES PATENT RICHIS, OR United States Plus all Foreign Patent Rights

Title of invention . TURBINE

As a below named inventor (hereinafter designated as the undersigned), I hereby declare that

This declaration is directed to the application attached hereto.

Applicationnot

* If the application is not attached hereto, the application is as identified by the attorney docket number as set forth above and/or the following:

Emer Apple, No. 🗢 United States Application Number or PCT International Apple. No. PCT/JP2015/050050

Brise Filing Date : filed on January 5, 2015

The above-identified 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

I have reviewed and understand the contents of the above-identified application, including the claims

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37. Code of Federal Regulations § 1.56.

WHEREAS, the undersigned has invented certain new and useful improvements described in the application identified.

Insert Name of Assigner

* WHEREAS, MITSUBISHI HEAVY INDUSTRIES, LTD., and Imperial Innovations Ltd

Insert Address of Assignment

of 16-5, Konan 2-chome, Minato-ku, Tokyo 108-8215, Japan, and of 52 Princes Gate, Exhibition Road, London SW72PG, United Kingdom,

its heirs, successors, legal representatives and assigns (hereinafter designated as the Assignee) is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent(s) that may be granted therefor in the United States of America and

Check Box if Αρφουρειαίο

in any foreign countries.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, the undersigned has sold, assigned and transferred, and by these presents does (do) sell, assign and transfer unto said Assignee the full and exclusive right to the said invention in the United States of America, its territories, dependencies and possessions and the entire right, title and interest in and to any and all Letters Patent(s) which may be granted therefor in the United States of America, its territories. dependencies and possessions, and if the box above is designated, in any and all foreign countries; and to any and all divisions, reissues, continuations, conversions and extensions thereof for the full term or terms for which the same may be granted.

BSKE-DECASSIGN(69-12)

Page 1

The undersigned agrees to execute all papers necessary in connection with this application and any continuing, divisional, conversion or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assigner may deem necessary or expedient.

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In witness whereof, executed by the undersigned on the date opposite the undersigned name.

LEGAL NAME OF INVENTOR

inconducts Sisone 🌣	Inventor	Takao YOKOYAMA		Dates	***************************************
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An application di Use a separate fo	sta sheet (i°T) rm for each i	O/SB/14 or equivalent), including na aventor; or check the box below and c	ming the entire inventive omplete the attached pa	e entity, must accompan ge(s) to list additional in	y this form, eentors.
Additional in	ventors are b	eing named on the 1 supplemental sh	eet(s) attached hereto.		

BSKB-D8CA980CH-SINCLE (09-12)

Page 2

SUPPLEMENTAL SHEET FOR DECLARATION AND ASSIGNMENT

ADDITIONAL INVENTOR(S) Supplemental Shoot Page 1 of 1

	LEGAL N	AME OF JOINT INVENTOR, IF ANY	
Insentor's None	> Inventor:	Serichi IBARAKI	Tate:
Javestur's Signabuth	» Signature:		
	LEGAL N	AME OF JOINT INVENTOR, IF ANY	
inventor's None	^{>} Inventor:	Bicardo MARTINEZ-BOTAS	Date:
Inventor's Signalates	> Signature:		
	LEGAL N	AME OF JOINT INVENTOR, IF ANY	
hiemon's time	⇒inventor:	Mingyang YANG	Date 2016, 7, 12
kvorotné Signatov	[©] Signature:	Annylas Pay	
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PATENT REEL: 039393 FRAME: 0439

RECORDED: 08/10/2016