505253955 12/27/2018

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 EPAS ID: PAT5300726 Stylesheet Version v1.2

 SUBMISSION TYPE:
 NEW ASSIGNMENT

 NATURE OF CONVEYANCE:
 ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
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MICHAEL J. WHITTLE	12/21/2018
ANTHONY RAZZELL	12/21/2018

RECEIVING PARTY DATA

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PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16229274

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using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

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ATTORNEY DOCKET NUMBER: 57502-286920/18593

NAME OF SUBMITTER: SAMUEL C. GIESTING

SIGNATURE: /SCG/

DATE SIGNED: 12/27/2018

Total Attachments: 3

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PATENT 505253955 REEL: 047859 FRAME: 0823

This doo	cument is directed to: the attached patent docum the below identified pater	ASSIGNMENT FOR SINGLE ASSIGNEE	
passag	the attached patent docum		
	DOCUMENT NUMBER	TITLE	FILED
	16/229,274	TURBINE BLADE WITH CERAMIC MATRIX COMPOSITE AEROFOIL AND METALLIC ROOT	12/21/2018
is desiro patent apabove-re PROPER NOW, Tassign, a (including Treaties Patent grontinual I hereby all foreignight, tit full end me had assigned Further, INTELL	pus of acquiring the entire pplication(s) related to the eferenced patent document RTY"), and further in and THEREFORE, for good and and set over to ASSIGNER and Arrangements from the ranted on the INTELLECT ations, substitutions, and relations, substitutions, and relations and interest in and to the of the term for which the this assignment and sale in and that the undersigned I agree to communicate to LECTUAL PROPERTY, a	(hereinafter "ASSIGNEE"), having a place of business and SWIE 6AT Great Britain right, title, and interest in and to the above-referenced patent document(s), and/or all subject matter of above-referenced patent document(s), and/or all subject matter of (s) and/or the related priority patent application(s) (hereinafter "It to any Letters Patent granted from the INTELLECTUAL PROPE of a valuable consideration, the sufficiency of which is acknowledged, the full and exclusive right to the INTELLECTUAL PROPER' ty under the terms of the International Convention and other release application) and the entire right, title, and interest in and to an TUAL PROPERTY worldwide and in and to any and all division enewals thereof. Patent Office officials in the United States and its territorial possend all of the Letters Patent, when granted, to ASSIGNEE as the are same, for the sole use and benefit of ASSIGNEE, its successor Letters Patent are granted, as fully and entirely as the same would be the made and hereby covenants that I have full right to convert the sole of the sole of the secure, any agreement in conflict of ASSIGNEE or its representatives any facts known to me regard and will testify in any legal proceeding regarding the INTELLEC'	ument(s), all priority disclosed in the INTELLECTUAL ERTY worldwide; ged, I hereby sell, TY worldwide want International y and all Letters hals, reissues, sessions and any and assignee of my entire and assigns, to the d have been held by ey the interest herein at herewith.
cooperate PROPEI execute rightful	te in every way possible in RTY. I agree to execute a all necessary assignment poaths, and generally do ev	nd will testify in any legal proceeding regarding the INTELLEC a obtaining evidence in support of rights associated with INTELL III papers for divisional, continuation, substitute, renewal, and reispapers to cause any and all of the Letters Patent to be issued to A erything possible to aid ASSIGNEE, its successors and assigns, the ECTUAL PROPERTY worldwide.	ECTUAL ssue applications, SSIGNEE, make all
necessar		rd the power to insert on this assignment any further identification comply with the rules of the United States Patent and Trademark	
LEGAI	L NAME OF INVENTO	R: Alexander Wong	
Signatu	ire:	Date:	

PATENT REEL: 047859 FRAME: 0824

		Attorney Docket No. <u>57502-2</u> Client Reference No. <u>1859</u>	
		ASSIGNMENT FOR SINGLE ASSIGNEE	
	ument is directed to: the attached patent docum the below identified paten		
	DOCUMENT NUMBER	TITLE	FILED
	16/229,274	TURBINE BLADE WITH CERAMIC MATRIX COMPOSITE AEROFOIL AND METALLIC ROOT	12/21/2018
is desiro patent ap above-re	us of acquiring the entire to polication(s) related to the ferenced patent document	(hereinafter "ASSIGNEE"), having a place of business adon SWIE 6AT Great Britain right, title, and interest in and to the above-referenced patent document(s), and/or all subject matter of s) and/or the related priority patent application(s) (hereinafter to any Letters Patent granted from the INTELLECTUAL PROP	cument(s), all priority disclosed in the INTELLECTUAL
assign, a (includir Treaties Patent gr	nd set over to ASSIGNEE ng the right to claim priority and Arrangements from the	d valuable consideration, the sufficiency of which is acknowled, the full and exclusive right to the INTELLECTUAL PROPER ty under the terms of the International Convention and other release application) and the entire right, title, and interest in and to an TUAL PROPERTY worldwide and in and to any and all division enewals thereof.	TY worldwide evant International and all Letters
all foreig right, titl full end me had t	gn countries to issue any a e, and interest in and to th of the term for which the I his assignment and sale no	Patent Office officials in the United States and its territorial posend all of the Letters Patent, when granted, to ASSIGNEE as the se same, for the sole use and benefit of ASSIGNEE, its successor Letters Patent are granted, as fully and entirely as the same would be been made and hereby covenants that I have full right to convenant has not executed, and will not execute, any agreement in conflict	assignee of my entire rs and assigns, to the d have been held by ey the interest herein
INTELL cooperat PROPEI execute a rightful of	ECTUAL PROPERTY, a e in every way possible in RTY. I agree to execute al all necessary assignment poaths, and generally do eve	ASSIGNEE or its representatives any facts known to me regard and will testify in any legal proceeding regarding the INTELLECT obtaining evidence in support of rights associated with INTELI III papers for divisional, continuation, substitute, renewal, and reignapers to cause any and all of the Letters Patent to be issued to A erything possible to aid ASSIGNEE, its successors and assigns, ECTUAL PROPERTY worldwide.	TUAL PROPERTY, LECTUAL ssue applications, SSIGNEE, make all
necessar		rd the power to insert on this assignment any further identification comply with the rules of the United States Patent and Trademark	
LEGAL	NAME OF INVENTOR	R: Michael J. Whittle	
Signatu	michael J Whitt	Le	
DMS 123680		PAT	

REEL: 047859 FRAME: 0825

		Attorney Docket No. <u>57502-</u> Client Reference No. <u>185</u>	
		ASSIGNMENT FOR SINGLE ASSIGNEE	
This do	cument is directed to: the attached patent docume the below identified patent	· ·	
	DOCUMENT NUMBER	TITLE	FILED
	16/229,274	TURBINE BLADE WITH CERAMIC MATRIX COMPOSITE AEROFOIL AND METALLIC ROOT	12/21/2018
is desired patent a above-reproper NOW, assign,	ous of acquiring the entire rapplication(s) related to the areferenced patent document(ERTY"), and further in and the THEREFORE, for good and and set over to ASSIGNEE.	(hereinafter "ASSIGNEE"), having a place of business don SWIE 6AT Great Britain light, title, and interest in and to the above-referenced patent document(s), and/or all subject matter of solution (s) (hereinafter "of any Letters Patent granted from the INTELLECTUAL PROPER valuable consideration, the sufficiency of which is acknowled, the full and exclusive right to the INTELLECTUAL PROPER y under the terms of the International Convention and other release	cument(s), all priority disclosed in the INTELLECTUAL ERTY worldwide; ged, I hereby sell, TY worldwide
Patent s continu I hereby all forei right, ti full end me had	granted on the INTELLECT ations, substitutions, and rest authorize and request the lign countries to issue any artle, and interest in and to the lof the term for which the L this assignment and sale no	e application) and the entire right, title, and interest in and to an TUAL PROPERTY worldwide and in and to any and all division newals thereof. Patent Office officials in the United States and its territorial posed all of the Letters Patent, when granted, to ASSIGNEE as the esame, for the sole use and benefit of ASSIGNEE, its successor etters Patent are granted, as fully and entirely as the same would be been made and hereby covenants that I have full right to convenant has not executed, and will not execute, any agreement in confliction.	sessions and any and assignee of my entire rs and assigns, to the d have been held by ey the interest herein
INTELL coopera PROPE execute rightful proper p	LECTUAL PROPERTY, are the in every way possible in ERTY. I agree to execute all all necessary assignment properties, and generally do every protection for the INTELLE by grant the attorney of record	ASSIGNEE or its representatives any facts known to me regard and will testify in any legal proceeding regarding the INTELLEC obtaining evidence in support of rights associated with INTELI I papers for divisional, continuation, substitute, renewal, and reigners to cause any and all of the Letters Patent to be issued to A crything possible to aid ASSIGNEE, its successors and assigns, ECTUAL PROPERTY worldwide. In the power to insert on this assignment any further identification omply with the rules of the United States Patent and Trademark	TTUAL PROPERTY, LECTUAL issue applications, SSIGNEE, make all to obtain and enforce on which may be
LEGA	L NAME OF INVENTOR	: Anthony Razzell	***************************************
Signatı	ire: _	L 12/21/2018 Date:	
DMS 1236	8025v1	PAT	FNT

RECORDED: 12/27/2018 REEL: 047859 FRAME: 0826