#### 504738615 01/20/2018

#### PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4785343

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
JOACHIM WULF	11/06/2017
PHILIPP LANGHOLF	11/16/2017
MANUEL HEIN	11/14/2017

#### **RECEIVING PARTY DATA**

Name:	MTU AERO ENGINES AG
Street Address:	DACHAUER STRASSE 665
City:	MUNICH
State/Country:	GERMANY
Postal Code:	80995

#### **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	15793785

#### **CORRESPONDENCE DATA**

**Fax Number:** (401)273-4447

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.

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

 Phone:
 401-273-4446

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 drj@barjos.com

Correspondent Name: BARLOW, JOSEPHS & HOLMES, LTD. Address Line 1: 101 DYER STREET, 5TH FLOOR

Address Line 4: PROVIDENCE, RHODE ISLAND 02903

ATTORNEY DOCKET NUMBER:	M078 P03381-US
NAME OF SUBMITTER:	DAVID R. JOSEPHS
SIGNATURE:	/david r. josephs/
DATE SIGNED:	01/20/2018
	This document serves as an Oath/Declaration (37 CFR 1.63).

#### **Total Attachments: 3**

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PATENT 504738615 REEL: 044682 FRAME: 0716

Attorney Docket No. M078 P03381-US (U.S. Rights)

### ASSIGNMENT AND DECLARATION UNDER 37 C.F.R. § 1.63

(For Use with Signed Application Data Sheet)

Title of Invention:	ELLIPSOIDAL INNER CENTRAL BLADE STORAGE S	SPACE:
the attached	nd declaration are directed to (check one): I application;	
United State	ion identified by the attorney docket no. and title of invention gives Application or PCT International Application No. 15/793,785,	ven above; filed <u>October 25, 2017</u> .
	<u>ASSIGNMENT</u>	
For good and valua named inventor I ha	able consideration, the receipt and sufficiency of which are herebeave sold and assigned, and by these presents hereby sell and assigned.	y acknowledged, as a below- gn, unto:
Name of Assignee	: MTU Aero Engines AG	
Address of Assign	ee: Dachauer Strasse 665, 80995 Munich, Germany	
continuations there application or for sa said ASSIGNEE, it	innerments in the second states and interest for the United States, its tendentified invention and United States patent application, including of, and in and to any and all Letters Patent of the United States the aid invention, including any and all reissues or extensions thereof its successors, or assigns to the full end of the term or terms for what day and entirely as would have been held and enjoyed by	sany and all divisions or nat may issue on any such f, to be held and enjoyed by hich any and all such Letters
I hereby authorize a Letters Patent to sai	and request the Director of the U.S. Patent and Trademark Office id ASSIGNEE, its successors, or assigns in accordance herewith.	to issue any and all such
I warrant and coven assigned and that I I	nant that I have the full and unencumbered right to sell and assign have not executed and will not execute any document or instrume	the interests herein sold and ent in conflict herewith.
I further covenant and agree that I will communicate to said ASSIGNEE, its successors, legal representatives, or assigns all information known to me relating to said invention or patent application and that I will execute and deliver any papers, make all rightful oaths, testify in any legal proceedings, and perform all other lawful acts deemed necessary or desirable by said ASSIGNEE, its successors, legal representatives, or assigns to perfect title to said invention, to said application including divisions and continuations thereof and to any and all Letters Patent that may be granted therefor or thereon, including reissues or extensions, in said ASSIGNEE, its successors, or assigns, or to assist said ASSIGNEE, its successors, legal representatives, or assigns in obtaining, reissuing, or enforcing Letters Patent of the United States for said invention.		
	<b>DECLARATION</b>	
As a below-named i	inventor, I hereby declare that:	
	d application was made or authorized to be made by me.	
I believe that I am th	he original inventor or an original joint inventor of a claimed inve	ention in the application.
I hereby acknowledg § 1001 by fine or im	ge that any willful false statement made in this declaration is pun prisonment of not more than five (5) years, or both.	ishable under 18 U.S.C.
Signature: Joac Joac	Janet Muly chim WULF	06.11.2017 DATE

Attorney Docket No. M078 P03381-US (U.S. Rights)

## ASSIGNMENT AND DECLARATION UNDER 37 C.F.R. § 1.63

(For Use with Signed Application Data Sheet)

Title of Invention;	ELLIPSOIDAL INNER CENTRAL E	ILADE STORAGE SPACE
the attached app	dentified by the attorney docker on and	title of invention given above; tion No. <u>15/793,785</u> , filed <u>October 25, 2017</u> .
	ASSIGNME	
For good and valuable on named inventor I have s	***************************************	v of which are hereby acknowledged, as a helow-
Name of Assignce:	MTU Aero Engines AG	
Address of Assignee:	Dachauer Strasse 665, 80995 Mu	nich, Germany
and to the above-identifications thereof, a application or for said is said ASSIGNEE, its such Patent may be granted a been made.	fied invention and United States patent and in and to any and all Letters Patent on vention, including any and all reissues reessors, or assigns to the full end of the stully and entirely as would have been	United States, its territories, and possessions in application, including any and all divisions or of the United States that may issue on any such or extensions thereof, to be held and enjoyed by extern or terms for which any and all such Letters held and enjoyed by me had this Assignment not and Trademark Office to issue any and all such
Letters Patent to said AS	SSIGNEE, its successors, or assigns in	accordance herewith.
I warrant and covenant tassigned and that I have	hat I have the full and unencumbered ri not executed and will not execute any	ight to sell and assign the interests herein sold and document or instrument in conflict herewith.
assigns all information is deliver any papers, make deemed necessary or dea to said invention, to said Patent that may be grant successors, or assigns, o	cnown to me relating to said invention of all rightful oaths, testify in any legal pairable by said ASSIGNEE, its successed application including divisions and conted therefor or thereon, including reissues.	SIGNEE, its successors, legal representatives, or patent application and that I will execute and proceedings, and perform all other lawful acts are legal representatives, or assigns to perfect title intimuations thereof and to any and all Letters are or extensions, in said ASSIGNEE, its are, legal representatives, or assigns in obtaining, id invention.
	DECLARAT	<u>ION</u>
As a below-named inver	ntor, I hereby declare that:	
The above-identified app	plication was made or authorized to be a	made by me.
I believe that I am the or	iginal inventor or an original joint inven	ntor of a claimed invention in the application.
I hereby acknowledge th § 1001 by fine or imprise	at any willful false statement made in to comment of not more than five (5) years,	his declaration is punishable under 18 U.S.C. or both.
Signature: 7 Inventor: Philipp	: Kenf S	16. NOV. 2017

Attorney Docket No. M078 P03381-US (U.S. Rights)

# ASSIGNMENT AND DECLARATION UNDER 37 C.F.R. § 1.63 (For Use with Signed Application Data Sheet)

Title of Invention:	ELLIPSOIDAL INNER CENTRAL BI	LADE STORAGE SPACE
the attached ap the application	identified by the attorney docket no, and	title of invention given above:
United States A	Application or PCT International Applicat	ion No. 15/793,785, filed October 25, 2017.
	<u>ASSIGNME</u>	<u>NT</u>
For good and valuable named inventor I have	consideration, the receipt and sufficiency sold and assigned, and by these presents	of which are hereby acknowledged, as a below- hereby sell and assign, unto:
Name of Assignee:	MTU Aero Engines AG	
Address of Assignee:	Dachauer Strasse 665, 80995 Mun	ich, Germany
and to the above-identicontinuations thereof, application or for said said ASSIGNEE, its supplicant may be granted been made.	ified invention and United States patent at and in and to any and all Letters Patent of invention, including any and all reissues of accessors, or assigns to the full end of the as fully and entirely as would have been to	United States, its territories, and possessions in oplication, including any and all divisions or the United States that may issue on any such or extensions thereof, to be held and enjoyed by term or terms for which any and all such Letters nekl and enjoyed by me had this Assignment not
Letters Patent to said A	request the Director of the U.S. Patent and SSIGNEE, its successors, or assigns in accessors.	d Trademark Office to issue any and all such cordance herewith,
I warrant and covenant assigned and that I hav	that I have the full and unencumbered rig e not executed and will not execute any d	tht to sell and assign the interests herein sold and ocument or instrument in conflict herewith.
I further covenant and agree that I will communicate to said ASSIGNEE, its successors, legal representatives, or assigns all information known to me relating to said invention or patent application and that I will execute and deliver any papers, make all rightful oaths, testify in any legal proceedings, and perform all other lawful acts deemed necessary or desirable by said ASSIGNEE, its successors, legal representatives, or assigns to perfect title to said invention, to said application including divisions and continuations thereof and to any and all Letters Patent that may be granted therefor or thereon, including reissues or extensions, in said ASSIGNEE, its successors, or assigns, or to assist said ASSIGNEE, its successors, legal representatives, or assigns in obtaining, reissuing, or enforcing Letters Patent of the United States for said invention.		
	DECLARATION	<u>ON</u>
As a below-named inve	entor, I hereby declare that:	
	oplication was made or authorized to be m	
I believe that I am the o	original inventor or an original joint inven	or of a claimed invention in the application.
1 hereby acknowledge t § 1001 by fine or impri	hat any willful false statement made in the somment of not more than five (5) years, o	is declaration is punishable under 18 U.S.C. or both.
Signature: Manue	I HEIN	14. U. 2017 DATE

PATENT REEL: 044682 FRAME: 0719

**RECORDED: 01/20/2018**