#### 506910843 10/07/2021

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT6957678

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

## **CONVEYING PARTY DATA**

Name	Execution Date
Stephen J BRADBROOK	02/10/2021
Martin N GOODHAND	03/11/2021
Paul M HIELD	05/13/2021
Andrew PARSLEY	03/03/2021
Natalie C WONG	09/29/2021
Robert J CORIN	02/10/2021
Thomas S BINNINGTON	02/17/2021

## RECEIVING PARTY DATA

Name:	Rolls-royce Plc
Street Address:	Kings Place, 90 York Way
City:	London
State/Country:	United Kingdom
Postal Code:	N1 9FX,

## **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	17496193

## CORRESPONDENCE DATA

Fax Number: (703)836-2787

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: 703-836-6400 Email: email@oliff.com AARON L. WEBB Correspondent Name:

**OLIFF PLC** Address Line 1:

Address Line 2: P.O. BOX 320850

Address Line 4: ALEXANDRIA, VIRGINIA 22320-4850

ATTORNEY DOCKET NUMBER: 198006

NAME OF SUBMITTER: KARLI M. COLLINS /Karli M. Collins/ SIGNATURE:

**DATE SIGNED:** 10/07/2021

**REEL: 057748 FRAME: 0869** 506910843

PAIENI

	This document serves as an Oath/Declaration (37 CFR 1.63).
Total Attachments: 28	
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## ASSIGNMENT (BEING FILED FOR DUAL PURPOSE UNDER 37 CFR 1.63(e)). For Application with Filing Date on or after September 16, 2012

## ASSIGNMENT

(1-8)	3) Insert Legal Name(s) of Inventor(s)		Siephen J BRADBROOK	
(1-8)	insert Legal Name(s inventor(s)	) of	Martin N GOODHAND	
(1-8)	Insert Legal Name(s) of Inventor(s)		Paul M HIELD	
(1-8)	Insert Legal Name(s Inventor(s)	) of	Andrew PARSLEY	
(1-8)	Insert Legal Name(s Inventor(s)		Namic C WONG	
(1-8)	Insert Legal Name(s Inventor(s)	) of	Robert J CORIN	
(1-8)	insert Legal Name(s inventor(s)	) of	Thomas S BINNINGTON	
			er (\$1,00) and other good and valuable consideration paid to each of the undersigned, the reby acknowledged, each undersigned agrees to assign, and hereby does assign, transfer and	
(9)	Insert Name of Assig	\$808 8	Rolls-Royce plc	
(10)	Insert Address of As	signee	Kings Place, 90 York Way, London N1 9FX, United Kingdom	
	interest for the United States of any and all provisional, non-pe	f Americ rovisiona	i) and Assignee's heirs, successors, assigns and legal representatives, the entire right, title and may defined in 35 U.S.C. § 169, in the invention, and in all applications for patent including it, divisional, continuation, international, confirmation, substitute and missue application(s), uses and reasunination certificates that may be granted on the invention known as	
(11)	Insert Identification such as Title, Case	(11)	A Heat Exchanger	
	Number, or Foreign		2020P090332 GB	
	Application Number	(Atto	rney Docket No.	
(12)	Alternative Identification for filed applications	(12) filed	U.S. Application Number	
			execute all papers necessary in connection with any application and/or also to execute separate assignments in connection with such applications	

Industrial Property or similar agreements.

- 4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by reissue or reexamination a grant of a valid United States patent to the Assignee.
- 5) Each undersigned authorizes and requests the Commissioner of the U.S. Patent and Trademark Office and other issuing authorities to issue any and all patents resulting from said application(s) to the said Assignee, as Assignee of the entire interest, and covenants that he has full right to convey the entire interest herein assigned, and that he has not executed, and will not execute, any agreement(s) in conflict herewith, and agrees that this assignment is binding on Assignor and Assignor's heirs, successors, assigns and tegal representatives.

6) Each undersigned hereby grants the Assignce's agent the power to insert on this assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

As an above named inventor, I hereby declare that:

I believe I am the original inventor or an original joint inventor of a claimed invention (or claimed design) in the above-identified application for which this declaration is being submitted.

The application was made or authorized to be made by me.

I have reviewed and understand the contents of the above-identified application, including the claims, and am aware of the duty to disclose to the Office all information known to me to be material to patentability as defined in 37 CFR §1.56.

I hereby acknowledge 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 apposite the undersigned name.

survens		
(Frint name)		
Stephen J BRADBROOK		
	Inventor Signature:	
Martin N GOODHAND		
Se	Savara ta 200 mas ta care	78 E 83 A
Pad M HIELD	inventor Signature:	·····/96586)
ALIMES WAS ARRESTED		
Date:	Inventor Signature:	(SEAL)
Andrew PARSLEY		
Shehn	Inventor Signature;	700 83 3
Natalie C WONG	manufacture of the state of the	(Dietyr)
Manager wounds		
Date:	Inventor Signature:	(SEAL)
Robert I CORIN		
<b>S</b>		100.653
	lavestor Signature	(9EAE)
Thomas S BINNINGTON		
Date: 17th February 202	Linventor Signature:	(SEAL)
<i>f</i>		

Cons here:	ul if outside the U.S.A. If neither, then		a) a Notary Public if within the U.S.A. (b) a U.S. and before at least two witnesses who also sign
Date		Witness	
Dute		Witness	

# ASSIGNMENT (BEING FILED FOR DUAL PURPOSE UNDER 37 CFR 1.63(e)) For Application with Filing Date on or after September 16, 2012

## ASSIGNMENT

(1-%)	Insert Legal Name(s) of Inventor(s)	Stephen J BRADBROOK
(1-8)	Insert Legal Name(s) of Inventor(s)	Martis N GOODHAND
(1-8)	Insert Legal Name(s) of Inventor(s)	Paul M HIELD
(3-8)	insert Legal Name(s) of inventor(s)	Andrew PARSLEY
(3-%)	insert Legal Name(s) of inventor(s)	Natable C WONG
(1-8)	Insert Legal Name(s) of Inventor(s)	Robert J CORIN
(1-8)	insert Legal Name(s) of inventor(s)	Thomas S BINNINGTON

In consideration of the sum of one dollar (\$1.00) and other good and valuable consideration paid to each of the meleculated, the receipt and sofficiency of which are hereby acknowledged, each undersigned agrees to weigh, and hereby does weigh, transfer and set over to

(9) Insert Name of Assignee Rolls-Royce pic

(10) Insert Address of Kings Place, 90 York Way, London N1 9FX, United Kingdom

(hereinafter designated as the Assignee) and Assignee's heirs, successors, assigns and legal representatives, the entire right, title and interest for the United State; of America as defined in 39 U.S.C. §100, in the invention, and in all applications for patent inclinding any and all previsional, non-provisional, divisional, commutation, international, confirmation, substitute and reissue application(s), and all Letters Patent, extensions, reissues and resemblation certificates that may be granted on the invention known as

(II) Inseri

Identification such as Title, Case (11) A Heat Exchanger 2020P00332 GB

Number, or Foreign

(Attorney Docket

Application Number No.

and patents as the Assignee may deem necessary.

(12) Alternative

(12) U.S. Application

Number

Identification for

filed applications filed

1) Each undersigned agrees to execute all papers necessary in connection with any application and/or patent for the invention and also to execute separate assignments in connection with such applications.

- 2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning any application or patents for the invention and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.
- Each undersigned agrees to execute all papers and documents and perform any act which may be
  necessary in connection with claims or provisions of the International Convention for Protection of
  Industrial Property or similar agreements.
- 4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by reissue or reexamination a grant of a valid United States patent to the Assignee.
- 5) Each undersigned authorizes and requests the Commissioner of the U.S. Patent and Trademark Office and other issuing authorities to issue any and all patents resulting from said application(s) to the said Assignee, as Assignee of the entire interest, and covenants that he has full right to convey the entire interest herein assigned, and that he has not executed, and will not execute, any agreement(s) in conflict herewith, and agrees that this assignment is binding on Assignor and Assignor's heirs, successors, assigns and legal representatives.
- 6) Each undersigned hereby grants the Assignee's agent the power to insert on this assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

As an above named inventor, I hereby declare that:

I believe I am the original inventor or an original joint inventor of a channel invention (or channel design) in the above-identified application for which this declaration is being submitted.

The application was made or authorized to be made by me.

I have reviewed and understand the contents of the above-identified application, including the claims, and are aware of the duty to disclose to the Office all information known to me to be material to patentability as defined in 37 CFR \$1.56.

I hereby acknowledge that any willful fishe 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.

Enventor		
(Print name)		
Stephen I BRADBROOK		AC.
Date 10th February 2021 Signature:	In ventor	MALSEAN
Martin N GOODHAND		
Oute:	inventor	(SEAL)
Paul M HIELD		
Date: Signature:	Inventor	(SEAL)
Andrew PARSEEY		
Date: Signature:	Inventor	(SEAL)
Natalie C WONG		
Oute: Signature:	Inventor	(SEAL)
Robert J CORIN		
Date: Signature:	Inventor	(SEAL)

Thomas S BINNIN	GWN		
Date:	inventor	1505° 5 \$ 1	
218umms;		(SEAL)	
	ent should preferably be signed be U.S.A. If neither, then it should b		
Date	Witness		
Date	Witness		

## ASSIGNMENT (BEING FILED FOR DUAL PURPOSE UNDER 37 CFR 1.63(e)) For Application with Filing Date on or after September 16, 2012

## ASSIGNMENT

(1-8)	Insert Legal Name(s) of Inventor(s)		Stephen J BRADBROOK		
(1-8)	Insert Legal Name(s Inventor(s)	) of	Martin N GOODHAND		
(1-8)	Insert Legal Name(s Inventor(s)	) of	Paul M HIELD		
(1-8)	Insert Legal Name(s) of Inventor(s)		Andrew PARSLEY		
(1-8)	Insert Legal Name(s Inventor(s)	) of	Natalie C WONG		
(1-8)	Insert Legal Name(s Inventor(s)	) of	Robert J CORIN		
(1-8)	Insert Legal Name(s Inventor(s)	) of	Thomas S BINNINGTON		
			ir (\$1.00) and other good and valuable consideration paid to each of the undersigned, the eby acknowledged, each undersigned agrees to assign, and hereby does assign, transfer and		
(9)	Insert Name of Assi	gnec	Rolls-Royce plc		
(10)	Insert Address of As	signee	Kings Place, 90 York Way, London N1 9FX, United Kingdom		
	interest for the United States cany and all provisional, non-p	d'America rovisional	and Assignee's heirs, successors, assigns and legal representatives, the entire right, title and as defined in 35 U.S.C. §100, in the invention, and in all applications for patent including t, divisional, continuation, international, confirmation, substitute and reissue application(s), less and reexamination certificates that may be granted on the invention known as		
(11)	Insert Identification	(11)	A Heat Exchanger		
	such as Title, Case Number, or Foreign		2020P00332 GB		
	Application (Attor		ney Docket No.	Ì	
(12)	Alternative	(12)	U.S. Application Number		
	Identification for				
	filed applications	filed			
	1) Each undersigned as	grees to	execute all papers necessary in connection with any application and/or		

- Each undersigned agrees to execute all papers necessary in connection with any application and/or
  patent for the invention and also to execute separate assignments in connection with such applications
  and patents as the Assignee may deem necessary.
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- 3) Each undersigned agrees to execute all papers and documents and perform any act which may be necessary in connection with claims or provisions of the International Convention for Protection of Industrial Property or similar agreements.
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Inventor

As an above named inventor, I hereby declare that:

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

(rim name)			
Stephen J BRADBROOK			
Martin N GOODHAND			
Date:	_ Inventor Signature:		_(SEAL)
Paul M HIELD			
Date:	Inventor Signature:		_(SEAL)
Andrew PARSLEY			
Date:	_ Inventor Signature:		_(SEAL)
Natalie C WONG			
	Inventor Signature:		(SEAL)
Robert I CORIN		2 Digitally signed by Corin	
10 February 2021		Digitally signed by Corin, Robert Date: 2021.02.10 16:44:07 Z	
Date: 10 1 Columny 2021	_ Inventor Signature:	. Date: 2021.02.10 (OPHO) 2	_(SEAL)
Thomas S BINNINGTON			
Date:	Inventor Signature:		_(SEAL)

			a) a Notary Public if within the U.S.A. (b) a U.S. ed before at least two witnesses who also sign
here:			
Date		Witness	
Date	<u> </u>	Witness	<u> </u>

## ASSIGNMENT (BEING FILED FOR DUAL PURPOSE UNDER 37 CFR 1.63(e)) For Application with Filing Date on or after September 16, 2012

## ASSIGNMENT

(1-8)	Insert Legal Nume(s Inventor(s)	) of	Stephen J BRADBROOK		
(1-8)	Insert Legal Name(s Inventor(s)	) of	Martin N GOODHAND		
(1-8)	Insert Legal Name(s) of Inventor(s)		Paul M HIELD		
(1-8)	Insert Legal Name(s Inventor(s)	) of	Andrew PARSLEY		
(1-8)	Insert Legal Name(s Inventor(s)	) of	Natalie C WONG		
(1-8)	Insert Legal Name(s Inventor(s)	) of	Roben J CORIN		
(1-8)	Insert Legal Name(s Inventor(s)	) of	Thomas S BINNINGTON		
	In consideration of the sum of		or (\$1.00) and other good and valuable consideration paid to each of the undersigned, the object acknowledged, each undersigned agrees to assign, and hereby does assign, transfer and	*******	
(9)	Insert Name of Assig	žesce.	Rolls-Royce plc		
(10)	Insert Address of As	signee	Kings Place, 90 York Way, London N1 9FX, United Kingdom		
(11) lns	Insert Identification such as Title, Case	ns, reissa	ics and reexamination certificates that may be granted on the invention known as  A Heat Exchanger		
	Number, or Foreign Application Number		2020P00332 GB		
		(Attor	ney Docket No.	)	
(12)	Alternative	(12)	U.S. Application Number		
	Identification for				
	filed applications	filed			
		n and a	execute all papers necessary in connection with any application and/or lso to execute separate assignments in connection with such applications hay deem necessary.  execute all papers necessary in connection with any interference which		

entire interest herein assigned, and that he has not executed, and will not execute, any agreement(s) in conflict herewith, and agrees that this assignment is binding on Assignor and Assignor's heirs,

successors, assigns and legal representatives.

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isvessor

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

(Frm some)		
Stephen J BRADBROOK		
•		
Date:	Inventor Signature:	_(SEAL)
Martin N GOODHAND	2 8 8	
Date: 11 /MCH 2021	. Inventor Signature:	_(SEAL)
Paul M HIELD		
Date:	, Inventor Signature:	(SEAL)
Andrew PARSLEY		
Date:	Inventor Signature:	_(SEAL)
Natalie C WONG		
Date:	Inventor Signature:	_(SEAL)
Robert I CORIN		
Date:	Inventor Signature:	_(SEAL)
Thomas S BINNINGTON		
Date:	inventor Signature:	_(SEAL)

This assignment should preferably be signed before: (a) a Notary Public if within the U.S.A. (b) a U.S. Consul if outside the U.S.A. If neither, then it should be signed before at least two witnesses who also sign here:

Witness

DJONG DANIEL JONES

USUNGHONG GORDEN

## ASSIGNMENT (BEING FILED FOR DUAL PURPOSE UNDER 37 CFR 1.63(e)) For Application with Filing Date on or after September 16, 2012

## **ASSIGNMENT**

(1-8)	Insert Legal Name(s) Inventor(s)	) 01	Stephen J BRADBROOK				
(1-8)	Insert Legal Name(s) Inventor(s)	Insert Legal Name(s) of Inventor(s)  Martin N GOODHAND					
(1-8)	Insert Legal Name(s) Inventor(s)	) of	Paul M HIELD				
(1-8)	Insert Legal Name(s) Inventor(s)	of	Andrew PARSLEY				
(1-8)	Insert Legal Name(s) Inventor(s)	) of	Natalie C WONG				
(1-8)	Insert Legal Name(s) Inventor(s)	) of	Robert J CORIN				
(1-8)	Insert Legal Name(s) Inventor(s)	) of	Thomas S BINNINGTON				
			rr (\$1.00) and other good and valuable consideration paid to each of the undersigned, the eby acknowledged, each undersigned agrees to assign, and hereby does assign, transfer and				
(9)	Insert Name of Assig	nee	Rolls-Royce plc				
(10)	Insert Address of As	signee	Kings Place, 90 York Way, London N1 9FX, United Kingdom				
	interest for the United States of any and all provisional, non-pr	f Americ ovisiona	and Assignee's heirs, successors, assigns and legal representatives, the entire right, title and a as defined in 35 U.S.C. §100, in the invention, and in all applications for patent including l, divisional, continuation, international, confirmation, substitute and reissue application(s), are and reexamination certificates that may be granted on the invention known as				
(11)	Insert Identification such as Title, Case	(11)	A Heat Exchanger				
	Number, or Foreign		2020P00332 GB				
	Application Number	(Atto	rney Docket No.				
(12)	Alternative	(12)	U.S. Application Number				
	Identification for filed applications	filed					

- 1) Each undersigned agrees to execute all papers necessary in connection with any application and/or patent for the invention and also to execute separate assignments in connection with such applications and patents as the Assignee may deem necessary.
- 2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning any application or patents for the invention and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.
- 3) Each undersigned agrees to execute all papers and documents and perform any act which may be necessary in connection with claims or provisions of the International Convention for Protection of Industrial Property or similar agreements.
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(Print name)

As an above named inventor, I hereby declare that:

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

(Time name)		
Stephen J BRADBROOK		
_		
Date:		_(SEAL)
Martin N GOODHAND		
Date:	Inventor Signature:	_(SEAL)
Paul M HIELD	DocuSigned by:	
13-May-2021   18:12 B	ST / Paul Hield / Inventor Signature: // Paul Hield /	
Date:	Inventor Signature:BF3ECA8865504F6	_(SEAL)
Andrew PARSLEY		
Date:	Inventor Signature:	_(SEAL)
Natalie C WONG		
Date:	Inventor Signature:	_(SEAL)
Robert J CORIN		
Date:	Inventor Signature:	_(SEAL)
Thomas S BINNINGTON		
Date:	Inventor Signature:	_(SEAL)

		a Notary Public if within the U.S.A. (b) a U.S. d before at least two witnesses who also sign
Date	Witness	
Date	Witness	

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## **ASSIGNMENT**

(1-8)	Insert Legal Name(s Inventor(s)	) of	Stephen J BRADBROOK	
(1-8)	Insert Legal Name(s Inventor(s)	) of	Martin N GOODHAND	
(1-8)	Insert Legal Name(s) of Inventor(s)		Paul M HIELD	
(1-8)	Insert Legal Name(s Inventor(s)	) of	Andrew PARSLEY	
(1-8)	Insert Legal Name(s Inventor(s)	) of	Natalie C WONG	
(1-8)	Insert Legal Name(s Inventor(s)	) of	Robert J CORIN	
(1-8)	Insert Legal Name(s Inventor(s)	) of	Thomas S BINNINGTON	
			ur (\$1.00) and other good and valuable consideration paid to each of the undersigned, the eby acknowledged, each undersigned agrees to assign, and hereby does assign, transfer and	
(9)	Insert Name of Assig	gnee	Rolls-Royce plc	
<b>(10)</b>	Insert Address of As	ssignee	Kings Place, 90 York Way, London N1 9FX, United Kingdom	
	interest for the United States of any and all provisional, non-p	of Americ rovisiona	and Assignee's heirs, successors, assigns and legal representatives, the entire right, title and a as defined in 35 U.S.C. §100, in the invention, and in all applications for patent including l, divisional, continuation, international, confirmation, substitute and reissue application(s), test and reexamination certificates that may be granted on the invention known as	
(11)	Insert Identification	(11)	A Heat Exchanger	
	such as Title, Case Number, or Foreign			
	Number, or Foreign		2020P00332 GB	
		(Attor	2020P00332 GB  rney Docket No.	
(12)	Number, or Foreign Application	(Attor		)
(12)	Number, or Foreign Application Number	,	rney Docket No.	_ )
(12)	Number, or Foreign Application Number Alternative	,	rney Docket No.	

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- 3) Each undersigned agrees to execute all papers and documents and perform any act which may be necessary in connection with claims or provisions of the International Convention for Protection of Industrial Property or similar agreements.
- 4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by reissue or reexamination a grant of a valid United States patent to the Assignee.
- 5) Each undersigned authorizes and requests the Commissioner of the U.S. Patent and Trademark Office and other issuing authorities to issue any and all patents resulting from said application(s) to the said Assignee, as Assignee of the entire interest, and covenants that he has full right to convey the entire interest herein assigned, and that he has not executed, and will not execute, any agreement(s) in conflict herewith, and agrees that this assignment is binding on Assignor and Assignor's heirs, successors, assigns and legal representatives.

6) Each undersigned hereby grants the Assignee's agent the power to insert on this assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

Inventor

(Print name)

As an above named inventor, I hereby declare that:

I believe I am the original inventor or an original joint inventor of a claimed invention (or claimed design) in the above-identified application for which this declaration is being submitted.

The application was made or authorized to be made by me.

I have reviewed and understand the contents of the above-identified application, including the claims, and am aware of the duty to disclose to the Office all information known to me to be material to patentability as defined in 37 CFR §1.56.

I hereby acknowledge 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.

Stephen J BRADBROOK		
Date:	Inventor Signature:	(SEAL)
Date	mventor orginature.	_(5L/1L)
Martin N GOODHAND		
Date:	Inventor Signature:	(SEAL)
	mventor organiture.	(5E/1E)
Paul M HIELD		
Date:	Inventor Signature:	(SEAL)
Date		(SLAL)
Andrew PARSLEY		
	Inventor Signature:	
Date:03 MARCH 2021	Inventor Signature:	(SEAL)
Date:03 WARCH 2021	niventor signature	(SEAL)
Natalie C WONG		
Data	Inventor Signature:	(CEAI)
Date		(SEAL)
Robert J CORIN		
Data	Inventor Signature:	(CEAL)
Date	IIIventoi Signature	_(SEAL)
Thomas S BINNINGTON		
Data	Inventor Countries	(CEAL)
Date:	Inventor Signature:	_(SEAL)

		a Notary Public if within the U.S.A. (b) a U.S. d before at least two witnesses who also sign
here:		C
Date	Witness	
Date	Witness	

## ASSIGNMENT (BEING FILED FOR DUAL PURPOSE UNDER 37 CFR 1.63(e)) For Application with Filing Date on or after September 16, 2012

## **ASSIGNMENT**

(1-8)	Insert Legal Name(s, Inventor(s)	) 01	Stephen J BRADBROOK	
(1-8)	Insert Legal Name(s) Inventor(s)	) of	Martin N GOODHAND	
(1-8)	Insert Legal Name(s) Inventor(s)	) of	Paul M HIELD	
(1-8)	Insert Legal Name(s) Inventor(s)	) of	Andrew PARSLEY	
(1-8)	Insert Legal Name(s) Inventor(s)	) of	Natalie C WONG	
(1-8)	Insert Legal Name(s) Inventor(s)	) of	Robert J CORIN	
(1-8)	Insert Legal Name(s) Inventor(s)	) of	Thomas S BINNINGTON	
			r (\$1.00) and other good and valuable consideration paid to each of the undersigned, the eby acknowledged, each undersigned agrees to assign, and hereby does assign, transfer and	
(9)	Insert Name of Assig	nee	Rolls-Royce plc	
(10)	Insert Address of As	signee	Kings Place, 90 York Way, London N1 9FX, United Kingdom	
	interest for the United States of any and all provisional, non-pr	f America ovisional,	and Assignee's heirs, successors, assigns and legal representatives, the entire right, title and as defined in 35 U.S.C. §100, in the invention, and in all applications for patent including divisional, continuation, international, confirmation, substitute and reissue application(s), es and reexamination certificates that may be granted on the invention known as	
(11)	Insert Identification such as Title, Case	(11)	A Heat Exchanger	
	Number, or Foreign		2020P00332 GB	
	Application Number	(Attori	ney Docket No.	_ )
(12)	Alternative	(12)	U.S. Application Number	
	Identification for filed applications	filed		

- 1) Each undersigned agrees to execute all papers necessary in connection with any application and/or patent for the invention and also to execute separate assignments in connection with such applications and patents as the Assignee may deem necessary.
- 2) Each undersigned agrees to execute all papers necessary in connection with any interference which may be declared concerning any application or patents for the invention and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference.
- 3) Each undersigned agrees to execute all papers and documents and perform any act which may be necessary in connection with claims or provisions of the International Convention for Protection of Industrial Property or similar agreements.
- 4) Each undersigned agrees to perform all affirmative acts which may be necessary to obtain, maintain or confirm by reissue or reexamination a grant of a valid United States patent to the Assignee.
- 5) Each undersigned authorizes and requests the Commissioner of the U.S. Patent and Trademark Office and other issuing authorities to issue any and all patents resulting from said application(s) to the said Assignee, as Assignee of the entire interest, and covenants that he has full right to convey the entire interest herein assigned, and that he has not executed, and will not execute, any agreement(s) in conflict herewith, and agrees that this assignment is binding on Assignor and Assignor's heirs, successors, assigns and legal representatives.

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

Inventor		

(Print name)

Stephen J BRADBROOK				
Date:	Inventor Signature:	_(SEAL)		
Martin N GOODHAND				
Date:	Inventor Signature:	_(SEAL)		
Paul M HIELD				
T uui IVI IIIEEE				
Date:	Inventor Signature:	(SEAL)		
	inventor signature.	_(SEAL)		
Andrew PARSLEY				
Date:	Inventor Signature:	_(SEAL)		
Natalie C WONG				
Docusigned by:				
29-Sep-2021   12:09   Date:	BST / Natalie C Wmg / myorc3852B221454	_(SEAL)		
Robert J CORIN				
Robert's CORITY				
Doto	Inventor Cianatura	(CEAL)		
	Inventor Signature:	_(SEAL)		
Thomas S BINNINGTON				
Date:	Inventor Signature:	_(SEAL)		

**RECORDED: 10/07/2021** 

	 	a Notary Public if within the U.S.A. (b) a U.S. ded before at least two witnesses who also sign
Date	Witness	
Date	Witness	