505970511 03/17/2020

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT6017219

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|-------------|----------------|
| Mark SPRUCE | 12/05/2019 |

RECEIVING PARTY DATA

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

PROPERTY NUMBERS Total: 1

| Property Type | Number | |
|---------------------|----------|--|
| Application Number: | 16820903 | |

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.

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Address Line 2: P.O. BOX 320850

Address Line 4: ALEXANDRIA, VIRGINIA 22320-4850

| ATTORNEY DOCKET NUMBER: | 191010.30 |
|--|-----------------|
| NAME OF SUBMITTER: | NAHOME MEKONNEN |
| SIGNATURE: /Nahome Mekonnen/ for James Oliff | |
| DATE SIGNED: | 03/17/2020 |
| This document serves as an Oath/Declaration (37 CFR 1.63). | |

Total Attachments: 2

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PATENT 505970511 REEL: 052135 FRAME: 0698

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) |) of | SPRUCE, Mark | n se Herenti i sesti se 14. Tirkus tirkesa, Svessa ki | |
|-------|---|--|---|--|--|
| | | | (\$1.00) and other good and valuable consideration paid to each of the edged, each undersigned agrees to assign, and hereby does assign, trans | | |
| (9) | Insert Name of Assig | mee | ROLLS-ROYCE plc | | |
| (10) | Insert Address of As | signee | Kings Place, 90 York Way, London N1 9FX, GB | | |
| | for the United States of Ameri- provisional, non-provisional, d | ca as defii livisional, | and Assignee's heirs, successors, assigns and legal representatives, the ned in 35 U.S.C. §100, in the invention, and in all applications for paten continuation, international, confirmation, substitute and reissue applicanation certificates that may be granted on the invention known as | it including any and all | |
| (11) | Insert Identification such as Title, Case Number, or Foreign Application Number | (11) | Geared Gas Turbine Engine | | |
| | | All as | 7298 MRH | | |
| | | (Attor | ney Docket No. |) | |
| (12) | Alternative | (12) | U.S. Application Number | | |
| | Identification for | | * ************************************ | | |
| | filed applications | filed | | | |
| | for the invention and a as the Assignee may d 2) Each undersigned ag be declared concernin every way possible in 3) Each undersigned ag necessary in connection and a constrial Property or | also to a leem ne- grees to grany ap obtainli- grees to on with similar | execute all papers necessary in connection with any inte- oplication or patents for the invention and to cooperate a ng evidence and going forward with such interference, execute all papers and documents and perform any act a claims or provisions of the International Convention for agreements. | plications and patents erference which may with the Assignee in which may be Protection of | |
| | 4) Each undersioned agrees to perform all affirmative acts which may be necessary to obtain, maintain or | | | | |

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.

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

confirm by reissue or reexamination a grant of a valid United States patent to the Assignee.

7298 MRH

(13) Declaration

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.

| Inven | tor | | | |
|--------|---|--------------------|---|--------|
| (Print | spruce, Mark | | .a^ | |
| Date | 574 Delember 2019 | Inventor Signature | | (SEAL) |
| Cons | This assignment should preferably but if outside the U.S.A. If neither, the | | a Notary Public if within the U.S.A. d before at least two witnesses who al | |
| Date | 5th OETEMBER 2019 | Witness | Adil | |
| Thoto | 5th December 2019 | Witness | MAD- | |

7298 MRH