PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4907591

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

CONVEYING PARTY DATA

| Name | Execution Date |
|-------------------|----------------|
| NICLAS GUNNARSSON | 03/19/2018 |
| ANDERS LARSSON | 03/13/2018 |
| MICHAEL VALLINDER | 03/15/2018 |
| ERIK HÖCKERDAL | 03/13/2018 |

RECEIVING PARTY DATA

| Name: | SCANIA CV AB |
|-----------------|------------------|
| Street Address: | VAGNMAKARVÄGEN 1 |
| City: | SÖDERTÄLJE |
| State/Country: | SWEDEN |
| Postal Code: | S-151 87 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 15921984 |

CORRESPONDENCE DATA

Fax Number: (704)331-5800

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 lax number, ii provided, ii that is unsuccessiul, it will be sent via 03 ma

Phone: 7043312498

Email: barbarabrown@mvalaw.com
Correspondent Name: MOORE & VAN ALLEN PLLC

Address Line 1: 3015 CARRINGTON MILL BOULEVARD

Address Line 2: SUITE 400

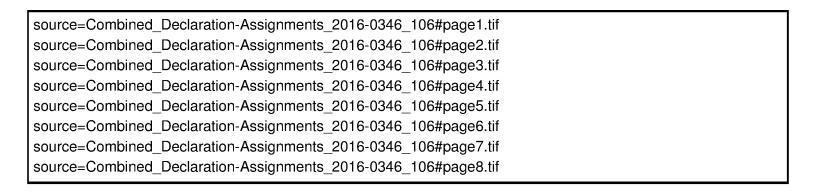
Address Line 4: RESEARCH TRIANGLE PA, NORTH CAROLINA 27709

| ATTORNEY DOCKET NUMBER: | 2016-0346.041340.000106 |
|-------------------------|--|
| NAME OF SUBMITTER: | W. KEVIN RANSOM |
| SIGNATURE: | /W. Kevin Ransom/ |
| DATE SIGNED: | 04/10/2018 |
| | This document serves as an Oath/Declaration (37 CFR 1.63). |
| | |

Total Attachments: 8

PATENT REEL: 045491 FRAME: 0049

504860852



PATENT REEL: 045491 FRAME: 0050

COMBINED DECLARATION (37 CFR 1.63) AND ASSIGNMENT FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

| Title of Invention | • | | STROKE INTERNAL COMBUSTION ENGINE THERETO RELATED LE AND METHOD |
|---|---------|-------------|---|
| As the below | name | d inve | entor, I hereby declare that: |
| This declarati | | | The attached application, or |
| | | \boxtimes | United States application or Swedish International application number <u>1750335-0</u> filed on <u>March 22, 2017</u> . |
| The above-ide | entifie | d app | lication was made or authorized to be made by me. |
| I believe that | l am ti | he ori | ginal inventor or an original joint inventor of a claimed invention in the application. |
| 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. | | | |

ASSIGNMENT

WHEREAS, I, Niclas GUNNARSSON ("Assignor"), a citizen of Sweden (Country), residing in Huddinge, Sweden (City, State/Province) have invented the above invention. If the following lines are blank, the above application was filed on even date herewith, otherwise, to comply with 37 C.F.R. §3.21 for recordal of this assignment, I, an assignor below, hereby authorize the attorneys for Scania CV AB to insert the filing date and application number below after they become known and prior to filing the recordation.

U.S. Application No. 15/921,984 filed 03/15/2018

WHEREAS, Scania CV AB having a principal place of business at SE-151 87 Södertälje, Sweden (hereinafter referred to as "Assignee"), is desirous of acquiring the entire right, title and interest in and to said Invention and said Application, and in and to any and all Letters Patent which shall be granted therefor in the United States of America and all foreign countries.

NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, reviews, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: NICLAS GUNNARSSON

Date: 19 March, 2018

COMBINED DECLARATION (37 CFR 1.63) AND ASSIGNMENT FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

| APPLICATION OSING AN APPLICATION DATA SHEET (37 CPR 1.76) | | |
|---|---|--|
| Title of Invention | FOUR-STROKE INTERNAL COMBUSTION ENGINE THERETO RELATED VEHICLE AND METHOD | |
| As the below | named inventor, I hereby declare that: | |
| This declarati | T' I ne attached application, or | |
| | United States application or Swedish international application number <u>1750335-0</u> filed on <u>March 22, 2017</u> . | |
| The above-id | entified 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 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. | | |
| ASSIGNMENT | | |

WHEREAS, I, Erik HÖCKERDAL ("Assignor"), a citizen of Sweden (Country), residing in Södertälje, Sweden (City, State/Province) have invented the above invention. If the following lines are blank, the above application was filed on even date herewith, otherwise, to comply with 37 C.F.R. §3.21 for recordal of this assignment, I, an assignor below, hereby authorize the attorneys for Scania CV AB to insert the filing date and application number below after they become known and prior to filing the recordation.

U.S. Application No. 15/921,984 filed 03/15/2018

WHEREAS, Scania CV AB having a principal place of business at SE-151 87 Södertälje, Sweden (hereinafter referred to as "Assignee"), is desirous of acquiring the entire right, title and interest in and to said invention and said Application, and in and to any and all Letters Patent which shall be granted therefor in the United States of America and all foreign countries.

NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, reviews, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identify theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

| LEGAL NAME OF INVENTOR | |
|--------------------------|----------------|
| Inventor: ERIK HÖCKERDAL | Date: <u> </u> |
| Signature: W. Man | |

COMBINED DECLARATION (37 CFR 1.63) AND ASSIGNMENT FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

FOUR-STROKE INTERNAL COMBUSTION ENGINE THERETO RELATED VEHICLE AND METHOD

Title of Invention As the below named inventor. I hereby declare that: This declaration The attached application, or is directed to: United States application or Swedish international application number 1750335-0 filed on March 22, 2017. 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 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.

ASSIGNMENT

WHEREAS, I, Michael VALLINDER ("Assignor"), a citizen of Sweden (Country), residing in Stockholm, Sweden (City, State/Province) have invented the above invention. If the following lines are blank, the above application was filed on even date herewith, otherwise, to comply with 37 C.F.R. §3.21 for recordal of this assignment, I, an assignor below, hereby authorize the attorneys for Scania CV AB to insert the filing date and application number below after they become known and prior to filing the recordation.

U.S. Application No. 15/921,984 filed 03/15/2018

WHEREAS, Scania CV AB having a principal place of business at SE-151 87 Södertälje, Sweden (hereinafter referred to as "Assignee"), is desirous of acquiring the entire right, title and interest in and to said Invention and said Application, and in and to any and all Letters Patent which shall be granted therefor in the United States of America and all foreign countries.

NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, reviews, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries

WARNING:

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LEGAL NAME OF INVENTOR

Inventor: MICHAEL VALLINDER

Date: 2018-03-15

Signature:

COMBINED DECLARATION (37 CFR 1.63) AND ASSIGNMENT FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

| Title of Invention | FOUR-STROKE INTERNAL COMBUSTION ENGINE THERETO RELATED VEHICLE AND METHOD |
|-----------------------|--|
| As the below | named inventor, I hereby declare that: |
| This declarati | I I The attached application, or |
| | United States application or Swedish international application number <u>1750335-0</u> filed on <u>March 22, 2017</u> . |
| The above-ide | entified application was made or authorized to be made by me. |
| I believe that | am the original inventor or an original joint inventor of a claimed invention in the application. |
| | owledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or tof not more than five (5) years, or both. |

ASSIGNMENT

WHEREAS, I, Anders LARSSON ("Assignor"), a citizen of Sweden (Country), residing in Tullinge, Sweden (City, State/Province) have invented the above invention. If the following lines are blank, the above application was filed on even date herewith, otherwise, to comply with 37 C.F.R. §3.21 for recordal of this assignment, I, an assignor below, hereby authorize the attorneys for Scania CV AB to insert the filing date and application number below after they become known and prior to filing the recordation.

U.S. Application No. 15/921,984 filed 03/15/2018

WHEREAS, Scania CV AB having a principal place of business at SE-151 87 Södertälje, Sweden (hereinafter referred to as "Assignee"), is desirous of acquiring the entire right, title and interest in and to said Invention and said Application, and in and to any and all Letters Patent which shall be granted therefor in the United States of America and all foreign countries.

NOW, THEREFORE, TO WHOM IT MAY CONCERN, be it known that, for good and valuable consideration, including salary or payment for the making of inventions, or employee benefits, the receipt and sufficiency of which is hereby acknowledged, I said Assignor, by these presents do sell, assign and transfer unto said Assignee, its successors, assigns and legal representatives, the full and exclusive right, title and interest for the territory of the United States of America and all countries foreign thereto, and throughout the world and in space, (including the right to apply for Letters Patent in foreign countries in its own name and to claim any priority rights for such foreign applications to which such applications are entitled under international conventions, treaties, or otherwise), in and to said inventions and in and to all applications and Letters Patent granted therefor, and all non-provisionals, divisionals, reissues, reexaminations, reviews, continuations, continuation-in-parts and extensions thereof, and in and to all copyrights, trademarks with their associated goodwill, trade secrets, confidential information, and compilations, necessary or useful to make, use, or sell the inventions. I hereby authorize and request the Commissioner of Patents, and any official whose duty it is to issue patents, to issue all Letters Patent on said inventions or resulting therefrom to said Assignee, or its successors and assigns, as assignee of the entire right, title and interest. I represent and warrant that I have full right to agree to, execute, and deliver this assignment. I agree that I will without further consideration, but at the expense of Assignee, communicate to said Assignee, or its successors, assigns, or nominees, any and all facts known to me regarding said inventions whenever requested, and that I will execute all non-provisional, divisional, reissue, reexamination, continuation and continuation-in-part applications, testify in any legal proceedings, sign all lawful papers, make all rightful oaths, and generally do everything reasonable for said Assignee, its successors, assigns, and nominees, to obtain and enforce proper patent protection for said inventions in all countries.

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LEGAL NAME OF INVENTOR

Inventor: ANDERS LARSSON

Date: 2018-03-13

Signature: