504593011 10/13/2017

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2

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EPAS ID: PAT4639723

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

CONVEYING PARTY DATA

| Name | Execution Date |
|---------------|----------------|
| JIANQING XU | 10/03/2017 |
| JASBIR JAGLAN | 10/03/2017 |
| MARK G. SMITH | 10/04/2017 |
| YINHUA ZHENG | 10/03/2017 |

RECEIVING PARTY DATA

| Name: | FORD GLOBAL TECHNOLOGIES, LLC |
|-------------------|---------------------------------|
| Street Address: | FAIRLANE PLAZA SOUTH, SUITE 800 |
| Internal Address: | 330 TOWN CENTER DRIVE |
| City: | DEARBORN |
| State/Country: | MICHIGAN |
| Postal Code: | 48126 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 15782510 |

CORRESPONDENCE DATA

Fax Number: (248)358-3351

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: 248-358-4400

Email: svachon@brookskushman.com
Correspondent Name: BROOKS KUSHMAN P.C.

Address Line 1: 1000 TOWN CENTER, 22ND FLOOR Address Line 4: SOUTHFIELD, MICHIGAN 48075

| ATTORNEY DOCKET NUMBER: | 83871864 |
|-------------------------|--------------------|
| NAME OF SUBMITTER: | JAMES A. BERTINO |
| SIGNATURE: | /James A. Bertino/ |
| DATE SIGNED: | 10/13/2017 |

Total Attachments: 4

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PATENT REEL: 043859 FRAME: 0432

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> PATENT REEL: 043859 FRAME: 0433

| Attorney Docket Number | 83871864 |
|------------------------|----------|

ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY, PROVISIONAL OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

| Title of Invention | VEHICLE AND VEHICLE COOLING SYSTEM | | |
|---|--|--|--|
| This declaration is directed to: | | | |
| X The attached application, or United States application or PCT international application number filed on (I hereby authorize the insertion of the application filing date and number into this form when they become known.) | | | |
| The above-identified appl | lication was made or authorized to be made by me. | | |
| I hereby state that I hav including the claims. | e reviewed and understand the contents of the specification in the above-identified application, | | |
| I believe that I am the ori | ginal inventor or an original joint inventor of a claimed invention in the application. | | |
| I am aware of the duty to disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application. | | | |
| Pursuant to my employment agreement heretofore made or by contractual obligation, I do sell, assign and set over unto FORD GLOBAL TECHNOLOGIES, LLC, a Ford Motor Company subsidiary, organized and existing by virtue of the laws of the State of Delaware, having its principal place of business at Dearborn, County of Wayne, and State of Michigan, hereinafter referred to as the ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and interest, domestic and foreign, in and to the inventions and discoveries in the above-identified invention including the right of the ASSIGNEE, its successors, assigns or other legal representatives to make applications and to receive Letters Patent for the inventions and discoveries in any and all countries, entities and intergovernmental organizations, in its or their own name or names, or in my name, at its or their election (and I hereby authorize the ASSIGNEE or ASSIGNEE's attorney to insert the serial/application number and filing date of the application to receive Letters Patent herein: Serial No. 15/782,510, Filing Date October 12, 2017), and I hereby sell, assign and set over to the ASSIGNEE, its successors, assigns or other legal representatives, all rights of priority, including any provisional applications, in and to the inventions and discoveries in any and all countries, entities and intergovernmental organizations including all applications claiming benefit of the filing date hereof, continuations, continuations-in-part, divisionals, reexaminations and reissue applications. And I hereby agree for myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, including applications for Letters Patent of any and all kinds and in any and all countries, entities and intergovernmental organizations, and to perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives | | | |
| may deem necessary to secure thereto the rights herein sold, assigned and set over. | | | |
| And I hereby represent and warrant that I have not granted any rights inconsistent with the rights granted herein. | | | |
| 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. | | | |
| LEGAL NAME OF INV | | | |
| Inventor: <u>Jianqing</u> | | | |
| Signature: Zin | Na Gory | | |
| | Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. In form for each additional inventor. | | |

PATENT REEL: 043859 FRAME: 0434

| Attorney Docket Number | 83871864 |
|------------------------|----------|

ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY, PROVISIONAL OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

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| The above-identified application was made or authorized to be made by me. | | | |
| I hereby state that I have reviewed and understand the contents of the specification in the above-identified application, including the claims. | | | |
| I believe that I am the original inventor or an original joint inventor of a claimed invention in the application. | | | |
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| Pursuant to my employment agreement heretofore made or by contractual obligation, I do sell, assign and set over unto FORD GLOBAL TECHNOLOGIES, LLC, a Ford Motor Company subsidiary, organized and existing by virtue of the laws of the State of Delaware, having its principal place of business at Dearborn, County of Wayne, and State of Michigan, hereinafter referred to as the ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and interest, domestic and foreign, in and to the inventions and discoveries in the above-identified invention including the right of the ASSIGNEE, its successors, assigns or other legal representatives to make applications and to receive Letters Patent for the inventions and discoveries in any and all countries, entities and intergovernmental organizations, in its or their own name or names, or in my name, at its or their election (and I hereby authorize the ASSIGNEE or ASSIGNEE's attorney to insert the serial/application number and filling date of the application to receive Letters Patent herein: Serial No. 15/782,510 , Filling Date October 12, 2017 , and I hereby sell, assign and set over to the ASSIGNEE, its successors, assigns or other legal representatives, all rights of priority, including any provisional applications, in and to the inventions and discoveries in any and all countries, entities and intergovernmental organizations including all applications claiming benefit of the filling date hereof, continuations, continuations-in-part, divisionals, reexaminations and reissue applications. And I hereby agree for myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, including applications for Letters Patent of any and all kinds and in any and all countries, entities and intergovernmental | | | |
| organizations, and to perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives may deem necessary to secure thereto the rights herein sold, assigned and set over. | | | |
| And I hereby represent and warrant that I have not granted any rights inconsistent with the rights granted herein. | | | |
| 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. | | | |
| LEGAL NAME OF INVENTOR Inventor: Jasbir Jaglan Date: 10 -03-17 | | | |
| Signature: | | | |
| Note: An Application Data Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional declaration form for each additional inventor. | | | |

| Attorney Docket Number | 02071074 | | |
|------------------------|------------|--|-----|
| Attorney Docket Number | 1 838/1804 | | - 1 |
| | | | |

ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY, PROVISIONAL OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

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| The above-identified appl | lication was made or authorized to be made by me. | | |
| I hereby state that I have including the claims. | e reviewed and understand the contents of the specification in the above-identified application, | | |
| I believe that I am the ori | ginal inventor or an original joint inventor of a claimed invention in the application. | | |
| continuation-in-part appl | disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for lications, material information which became available between the filing date of the prior real or PCT international filing date of the continuation-in-part application. | | |
| FORD GLOBAL TECHN of the State of Delaware hereinafter referred to as interest, domestic and for of the ASSIGNEE, its su for the inventions and dis name or names, or in my insert the serial/applicat 15/782,510 ASSIGNEE, its success applications, in and to the including all application reexaminations and reissu And I hereby agree for m | nyself, my heirs, successors, assigns or other legal representatives to execute any and all papers, | | |
| including applications for Letters Patent of any and all kinds and in any and all countries, entities and intergovernmental organizations, and to perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives may deem necessary to secure thereto the rights herein sold, assigned and set over. | | | |
| And I hereby represent an | nd warrant that I have not granted any rights inconsistent with the rights granted herein. | | |
| or imprisonment of not m | at any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine ore than five (5) years or both. | | |
| LEGAL NAME OF INVI | | | |
| Signature: | allhotred h | | |
| | Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. In form for each additional inventor. | | |

PATENT REEL: 043859 FRAME: 0436 Please direct all correspondence to: 28395

| Attorney Docket Number | 83871864 | |
|------------------------|----------|--|

ASSIGNMENT AND DECLARATION (37 C.F.R. 1.63) FOR UTILITY, PROVISIONAL OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76)

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| Pursuant to my employment agreement heretofore made or by contractual obligation, I do sell, assign and set over unto FORD GLOBAL TECHNOLOGIES, LLC, a Ford Motor Company subsidiary, organized and existing by virtue of the laws of the State of Delaware, having its principal place of business at Dearborn, County of Wayne, and State of Michigan, hereinafter referred to as the ASSIGNEE, its successors, assigns or other legal representatives, the entire right, title and interest, domestic and foreign, in and to the inventions and discoveries in the above-identified invention including the right of the ASSIGNEE, its successors, assigns or other legal representatives to make applications and to receive Letters Patent for the inventions and discoveries in any and all countries, entities and intergovernmental organizations, in its or their own name or names, or in my name, at its or their election (and I hereby authorize the ASSIGNEE or ASSIGNEE's attorney to insert the serial/application number and filing date of the application to receive Letters Patent herein: Serial No. 15/782,510, Filing Date October 12, 2017), and I hereby sell, assign and set over to the ASSIGNEE, its successors, assigns or other legal representatives, all rights of priority, including any provisional applications, in and to the inventions and discoveries in any and all countries, entities and intergovernmental organizations including all applications claiming benefit of the filing date hereof, continuations, continuations-in-part, divisionals, reexaminations and reissue applications. And I hereby agree for myself, my heirs, successors, assigns or other legal representatives to execute any and all papers, | |
| including applications for Letters Patent of any and all kinds and in any and all countries, entities and intergovernmental organizations, and to perform any and all acts which the ASSIGNEE, its successors, assigns or other legal representatives may deem necessary to secure thereto the rights herein sold, assigned and set over. | |
| And I hereby represent and warrant that I have not granted any rights inconsistent with the rights granted herein. | |
| 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. | |
| LEGAL NAME OF INVI | _ 10/3/1-4 |
| Inventor: Yinhua Z | Date: (0/3//7 |
| Signature: Stuffenduck | |
| Note: An Application Data Sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. | |

PATENT REEL: 043859 FRAME: 0437

RECORDED: 10/13/2017