505511508 06/06/2019

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 EPAS ID: PAT5558312 Stylesheet Version v1.2

| SUBMISSION TYPE: | CORRECTIVE ASSIGNMENT |
|------------------|---|
| | Corrective Assignment to correct the SIGNATURE PAGE OF INVENTOR DAREN J. WEBER previously recorded on Reel 043069 Frame 0024. Assignor(s) hereby confirms the ASSIGNMENT. |

CONVEYING PARTY DATA

| Name | Execution Date |
|----------------------------|----------------|
| CHARLES F. LONG | 03/04/2015 |
| DARREN J. WEBER | 05/31/2019 |
| JOHN WILLIAM EDWARD FULLER | 12/18/2014 |
| STEPHEN MURRAY | 01/08/2015 |

RECEIVING PARTY DATA

| Name: | ALLISON TRANSMISSION, INC. |
|-----------------|----------------------------|
| Street Address: | ONE ALLISON WAY |
| City: | INDIANAPOLIS |
| State/Country: | INDIANA |
| Postal Code: | 46222 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14552135 |

CORRESPONDENCE DATA

Fax Number: (312)759-5646

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.

312-357-1313 Phone:

Email: msweetin@btlaw.com Correspondent Name: MARK J. NAHNSEN

Address Line 1: **BARNES & THORNBURG LLP**

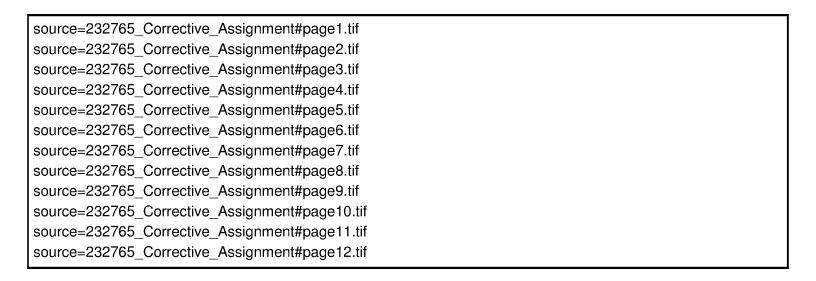
Address Line 2: P.O. BOX 2786

Address Line 4: CHICAGO, ILLINOIS 60690-2786

| ATTORNEY DOCKET NUMBER: | 46582-232765 |
|-------------------------|---------------------------------|
| NAME OF SUBMITTER: | MARK J. NAHNSEN, REG. NO. 51093 |
| SIGNATURE: | /Mark J. Nahnsen/ |
| DATE SIGNED: | 06/06/2019 |
| | |

Total Attachments: 12

PATENT REEL: 049389 FRAME: 0879



PATENT REEL: 049389 FRAME: 0880

504468904 07/21/2017

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4515606

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

CONVEYING PARTY DATA

| Name | Execution Date |
|----------------------------|----------------|
| CHARLES F. LONG | 03/04/2015 |
| DAREN J. WEBER | 08/08/2007 |
| JOHN WILLIAM EDWARD FULLER | 12/18/2014 |
| STEPHEN MURRAY | 01/08/2015 |

RECEIVING PARTY DATA

| Name: | ALLISON TRANSMISSION, INC. |
|-----------------|----------------------------|
| Street Address: | ONE ALLISON WAY |
| City: | INDIANAPOLIS |
| State/Country: | INDIANA |
| Postal Code: | 46204 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14552135 |

CORRESPONDENCE DATA

Fax Number:

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.

Email: stebo@btlaw.com

Correspondent Name: BARNES & THORNBURG LLP
Address Line 1: 11 S. MERIDIAN STREET

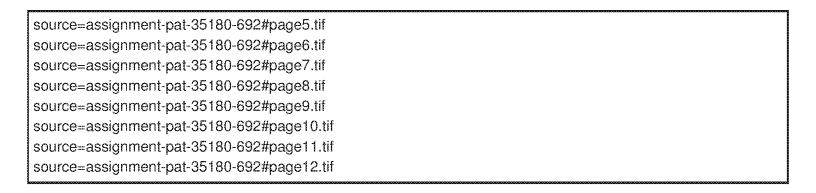
Address Line 4: INDIANAPOLIS, INDIANA 46204

| ATTORNEY DOCKET NUMBER: | 46582-232765 |
|-------------------------|-------------------|
| NAME OF SUBMITTER: | GLEN M. KELLETT |
| SIGNATURE: | /GLEN M. KELLETT/ |
| DATE SIGNED: | 07/21/2017 |

Total Attachments: 12

source=assignment-pat-35180-692#page1.tif source=assignment-pat-35180-692#page2.tif source=assignment-pat-35180-692#page3.tif source=assignment-pat-35180-692#page4.tif

PATENT 504468904 REEL: 049689 FRAME: 0884



PATENT REEL: 049689 FRAME: 0882

Attorney Docket No.: <u>46582-224328</u> Client Reference No.: <u>ATP-0060-USU2</u>

PATENT ASSIGNMENT

| | For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, |
|------------------------|--|
| Name(s) | Charles F. Long: |
| of Inventor(s) | Darren J. Weber; |
| ` ' | John William Edward Fuller; and |
| | Stephen Murray |
| | maker(s) of an invention which is the subject of an application for Letters Patent of the United States ("Application") entitled |
| Title of | MULTI-PLEXING CLUTCH LOGIC CONTROL OF A MULTI-MODE TRANSMISSION |
| Application | |
| Serial No/Filing Date: | 61/660, 666 filed June 15, 2012 |
| · | 13/828,093 filed March 14, 2013 |
| | the undersigned hereby sell(s), assign(s), and set(s) over to |
| Name of | Allison Transmission, Inc. |
| Assignee | |
| Address of | 4700 West 10th Street |
| principal | |
| place of | Indianapolis, IN 46222 |
| business | |
| Insert State of | |
| Incorporation | a corporation of Delaware |
| (if applicable) or | |
| "Not Applicable" | |

(hereinafter designated as the Assignee) their entire right, title, and interest in, to, and under the Application, including all priority rights for other countries arising therefrom, all inventions therein disclosed, and any and all Letters Patent of the United States and of all other countries, including Canada, which may be granted for such inventions, or any of them, all such inventions and all rights in such Application and Letters Patent to be held and enjoyed by Assignee for its own use and enjoyment to the full end of the term or terms for which such Letters Patent may be granted, as fully and entirely as the same would have been held and enjoyed by them had this assignment and sale not been made.

The undersigned agree(s) to execute all papers necessary in connection with the application(s) in the United States and foreign countries and any continuing, divisional, or reissue applications thereof, and any reexamination of any of such applications, and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agree(s) to execute all papers necessary in connection with any interference which may be declared or litigation concerning the application(s) or continuation, division, reissue, or reexamination thereof, and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference or litigation.

The undersigned agree(s) 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.

Attorney Docket No.: 46582-224328
Client Reference No.: ATP-0069-USU2

The undersigned agree(s) to do all other acts which, in the opinion of Assignee, may be necessary or desirable to secure the grant of Letters Patent to Assignee or its nominees, in the United States and in all other countries where Assignee may desire to have such inventions, or any of them, patented, with specifications and claims in such form as shall be approved by Assignee and to vest and confirm in Assignee or its nominees the full and complete legal and equitable title to all such Letters Patent.

The undersigned hereby authorize(s) and request(s) the Commissioner of Patents to issue any and all Letters Patent of the United States resulting from said application(s) or any division or divisions or continuing or reissue applications thereof, and any reexamination of any of such applications, to the said Assignee, as Assignee of the entire interest, and hereby covenants that the undersigned has full right to convey the interest herein assigned, and that the undersigned has not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby grant(s) the attorney of record the power to insert on this assignment any further identification which 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.

| IN WITT | NESS WHEREOF, I hav | ve executed this assignment at Indianapoli's (city and state or country if outside USA) |
|--|---|---|
| his 4777 | day of March | (city and state or country if outside USA) |
| | | MIFI |
| Witnesses are equired when eknowledgment | Witness | Inventor (Signature) |
| eefore a Notary Public is not casible. | Witness | Charles F. Long Inventor (Printed Name) |
| | | ACKNOWLEDGMENT |
| TATE OF | } | SS: |
| COUNTY OF |) | |
| his <u>S</u> | ledged before me, a Not day of <u>YYZOAG</u> | rary Public, within and for said County and State. Witness my hand and Notarial Seal |
| | | WINN LUO Notary Public WAN LUO Notary Public WOLANY PUBLIC Communication of Johnson County A Communication of Johnson County TE OF INDIVIDUAL County |
| | | S S S S S S S S S S S S S S S S S S S |
| vIy Commission | Expires: <u>09-2/</u> - | - 20 Programmed Registers of Johnson County |
| | | OF WALLIAM |

My Commission Expires:

Attorney Docket No.: <u>46582-224328</u> Client Reference No.: <u>ATP-0060-USU2</u> this ______ day of _______, Outside the USA: Witnesses are Witness Inventor (Signature) required when acknowledgment before a Notary __ Darren J. Weber Public is not Witness Inventor (Printed Name) feasible. ACKNOWLEDGMENT STATE OF SS: COUNTY OF Acknowledged before me, a Notary Public, within and for said County and State. Witness my hand and Notarial Scal this ______, ________ Notary Public Printed Name

Resident of _____ County

My Commission Expires:

| | | | Attorney Docket No.: 46582-224328 Client Reference No.: ATP-0060-USU2 |
|------------------------------|-------------------------|--------------------------|---|
| IN WITE | NESS WHEREOF, I hav | e executed this assignm | ent at |
| | day of | | (city and state or country if outside USA) |
| Outside the USA: | V. | | Inventor (Signature) |
| required when acknowledgment | | | |
| Public is not feasible. | Witness | | John William Edward Fuller Inventor (Printed Name) |
| | | ACKNOW | LEDGMENT |
| STATE OF COUNTY OF | } | SS: | |
| Acknow this | edged before me, a Note | ry Public, within and fo | or said County and State. Witness my hand and Notarial Seal |
| | | | |
| | | | Notary Public |
| | | | Printed Name |

Resident of _____ County

| 46582-224328 |
|--------------|
| TP-0060-USU2 |
| |
| |
| e USA) |
| |

| IN WIT | NESS WHEREOF, I h | ave executed this assi | gnment at | |
|------------------------------|----------------------------------|------------------------|--|--|
| | day of | | (city and state or coa | intry if outside USA) |
| Outside the USA: | : Witness | | anna | TEGERS |
| required when acknowledgment | | | | |
| | Witness | | Stephen Murray Inventor (Printed Name |) |
| feasible. | | | | |
| | | ACKI | NOWLEDGMENT | |
| STATE OF |) | SS: | | |
| COUNTY OF | Í | 56. | | |
| Acknow this | ledged before me, a No day of | otary Public, within a | nd for said County and State. Witness my l | and and Notarial Seal |
| | | | | |
| | | | | |
| | | | Notary Public | PRABA (A) 1 2 97 1197 distribution distribut |
| | | | Printed Name | TOTAL TERMINANA AND DOTAL SPRANAL LL UNANA |
| My Commission | Expires: | | Resident of | County |

8ND\$02 1271559v1

Attorney Docket No.: 46582-224328
Client Reference No.: ATP-0060-USU2

PATENT ASSIGNMENT

| | For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, |
|--|---|
| Name(s) of Inventor(s) | Charles F. Long; Darren J. Weber; John William Edward Fuller; and Stephen Murray |
| | maker(s) of an invention which is the subject of an application for Letters Patent of the United States ("Application") entitled |
| Title of Application | REDUNDANT CONTROLS FOR A MULTI-MODE TRANSMISSION |
| Serial No/Filing Date: | 61/660, 666 filed June 15, 2012 13/828,072 filed March 14, 2013 13/828,135 filed March 14, 2013 13/828,093 filed March 14, 2013 13/828,107 filed March 14, 2013 PCT/US2013/045580 filed June 13, 2013 |
| Name of Assignee | the undersigned hereby sell(s), assign(s), and set(s) over to ALLISON TRANSMISSION, INC. |
| Address of principal place of business | One Allison Way Indianapolis, IN 46222 |
| Insert State of Incorporation (if applicable) or "Not Applicable" | a corporation of <u>Delaware</u> |

(hereinafter designated as the Assignee) their entire right, title, and interest in, to, and under the Application, including all priority rights for other countries arising therefrom, all inventions therein disclosed, and any and all Letters Patent of the United States and of all other countries, including Canada, which may be granted for such inventions, or any of them, all such inventions and all rights in such Application and Letters Patent to be held and enjoyed by Assignee for its own use and enjoyment to the full end of the term or terms for which such Letters Patent may be granted, as fully and entirely as the same would have been held and enjoyed by them had this assignment and sale not been made.

The undersigned agree(s) to execute all papers necessary in connection with the application(s) in the United States and foreign countries and any continuing, divisional, or reissue applications thereof, and any reexamination of any of such applications, and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agree(s) to execute all papers necessary in connection with any interference which may be declared or litigation concerning the application(s) or continuation, division, reissue, or reexamination thereof, and to cooperate with the Assignee in every way possible in obtaining evidence and going forward with such interference or litigation.

The undersigned agree(s) 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.

Attorney Docket No.: 46582-224328
Client Reference No.: ATP-0060-USU2

The undersigned agree(s) to do all other acts which, in the opinion of Assignee, may be necessary or desirable to secure the grant of Letters Patent to Assignee or its nominees, in the United States and in all other countries where Assignee may desire to have such inventions, or any of them, patented, with specifications and claims in such form as shall be approved by Assignee and to vest and confirm in Assignee or its nominees the full and complete legal and equitable title to all such Letters Patent.

The undersigned hereby authorize(s) and request(s) the Commissioner of Patents to issue any and all Letters Patent of the United States resulting from said application(s) or any division or divisions or continuing or reissue applications thereof, and any reexamination of any of such applications, to the said Assignee, as Assignee of the entire interest, and hereby covenants that the undersigned has full right to convey the interest herein assigned, and that the undersigned has not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby grant(s) the attorney of record the power to insert on this assignment any further identification which 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.

| IN WIT | NESS WHEREOF, I h | ave executed this assi- | enment at | |
|--|-----------------------|-------------------------|---|---------------------------------------|
| | | | | country if outside USA) |
| this | _ day of | | Mark Buddhala Ary (144) why films yn mae generalaer araen y | |
| Outside the USA | ; | | | |
| Witnesses are required when acknowledgment | | | Inventor (Signature) | |
| | | | Charles F. Long | ************************************* |
| Public is not feasible. | | | Inventor (Printed Na | me) |
| | | ACKN | OWLEDGMENT | |
| STATE OF | } | | | |
| COUNTY OF | } | SS: | | |
| | ledged before me, a N | | d for said County and State. Witness m | y hand and Notarial Sea |
| | | | | ry hand and Notarial |
| | | | Notary Public | |
| | | | | |
| | | | Printed Name | |
| My Commission | | | Resident of | |

ASSIGNMENT TO BUSINESS CONCERN

| ASSIGNMENT 1 | O BUSINESS CONCERN | Attorney Docket No.: 46582-22432 Client Reference No.: ATP-0060-USU |
|------------------------------|---------------------------------------|--|
| IN WITH | day of MAY | cuted this assignment at SUNMAN (N (city and state or country if outside USA) |
| required when acknowledgment | Witness | |
| Public is not feasible. | Witness | myelasi (i inica vante) |
| | | ACKNOWLEDGMENT |
| STATE OF | } } SS | |
| Acknow | edged before me, a Netary P day of | blic, within and for said County and State. Witness my hand and Notarial Seal |
| | | |
| | | Notary Public |
| | | Printed Name |
| M. Camuladan | Zunivan. | Resident ofCounty |

ASSIGNMENT TO BUSINESS CONCERN

My Commission Expires:

Client Reference No.: ATP-0060-USU2 UK IN WITNESS WHEREOF, I have executed this assignment at (city and state or country if outside USA) Outside the USA: Witnesses are required when acknowledgment John William Edward Fuller before a Notary Inventor (Printed Name) Public is not feasible. ACKNOWLEDGMENT STATE OF SS: COUNTY OF Acknowledged before me, a Notary Public, within and for said County and State. Witness my hand and Notarial Seal this day of _____, Notary Public Printed Name

Resident of _____ County

Attorney Docket No.: 46582-224328

ASSIGNMENT TO BUSINESS CONCERN

| ASSIGNMENT TO BUSINESS CONCERN | Attorney Docket No.: 46582-224328 Client Reference No.: ATP-0060-USU2 |
|--|---|
| IN WITNESS WHEREOF, I have executed this assignment at this 87H day of Jaron ASM . 201 | ENGLAND (city and state or country if outside USA) . |
| Outside the USA: Witnesses are required when | Inventor (Signature) |
| acknowledgment before a Notary Public is not feasible. Witness | Stephen Murray Inventor (Printed Name) |
| ACKNOWLEDG | BMENT |
| STATE OF) SS: COUNTY OF) | |
| Acknowledged before me, a Notary Public, within and for said this, day of,, | |
| | Notary Public |
| | Printed Name |
| My Commission Expires: | Resident ofCounty |

INDS02 1271559v1

RECORDED: 06/06/2019

-5-