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PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
JOSEPH ANDREW HUDSON	08/13/2018
THOMAS R. NELSON	08/13/2018
PAUL M. HAUSER	08/13/2018
SANDEEP SARABUDLA	08/13/2018
BRIAN JAMES WITSAMAN	08/13/2018
ATUL S. ABHYANKAR	08/13/2018

RECEIVING PARTY DATA

Name:	CUMMINS EMISSION SOLUTIONS INC.
Street Address:	500 JACKSON STREET
City:	COLUMBUS
State/Country:	INDIANA
Postal Code:	47201

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16524858

CORRESPONDENCE DATA

Fax Number: (312)832-4700

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: 312-832-4500

Email: rfernandez@foley.com,jolsen@foley.com

ROBERTO J. FERNANDEZ/FOLEY & LARDNER LLP **Correspondent Name:**

321 NORTH CLARK STREET, SUITE 2800 Address Line 1:

Address Line 4: CHICAGO, ILLINOIS 60654

ATTORNEY DOCKET NUMBER:	106389-5663
NAME OF SUBMITTER:	ROBERTO J. FERNANDEZ
SIGNATURE:	/ Roberto J. Fernandez /
DATE SIGNED:	07/29/2019

Total Attachments: 8

PATENT REEL: 049891 FRAME: 0488

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PATENT REEL: 049891 FRAME: 0489

ASSIGNMENT - WORLDWIDE

For good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, each undersigned inventor (hereinafter referred to singly and collectively as "ASSIGNOR") has sold, assigned, and transferred, and by these presents hereby sells, assigns, and transfers, unto

CUMMINS EMISSION SOLUTIONS INC. 500 Jackson Street Columbus, Indiana 47201

(hereinafter referred to as "ASSIGNEE") its successors and assigns, the full and exclusive right, title and interest for the United States, its territories and possessions, and all foreign countries in and to this invention relating to

SYSTEMS AND METHODS FOR CONTROLLING A SHUT-OFF VALVE OF A DOSING CONTROL SYSTEM

as set forth in this United States Patent Application

check one	Ĭ.] executed concurrently herewith,	
	•	executed on	
	13	C] Serial No. 62/713,100 Filed 8/1/2018	

as well as in and to (a) all improvements and modifications of the above-identified invention or inventions, (b) the above-identified application and all other applications for Letters Patent of the United States and countries foreign thereto for above-identified invention or inventions and all improvements and modifications thereof, (c) all Letters Patent which may issue from said applications in the United States and countries foreign thereto, (d) all divisions, continuations, reissues, and extensions of said applications and Letters Patent, and (e) the right to claim for any of said applications the full benefits and priority rights under the Patent Cooperation Treaty, the Paris Convention and any other international agreement; such right, title, and interest to be held and enjoyed by ASSIGNEE, its successors and assigns, to the full end of the term or terms for which any and all such Letters Patent may be granted as fully and entirely as would have been held and enjoyed by ASSIGNOR had this Assignment not been made.

ASSIGNOR HEREBY AUTHORIZES ASSIGNEE to file patent applications in any or all countries on the above-identified invention or inventions in the name of the undersigned or in the name of ASSIGNEE or otherwise as ASSIGNEE may deem advisable under the International Convention or otherwise.

ASSIGNOR HEREBY AUTHORIZES AND REQUESTS the Commissioner of Patents and Trademarks to issue said Letters Patent to ASSIGNEE as assignee of the entire interest, for the sole use and benefit of ASSIGNEE, its successors and assigns.

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4812-8223-3199.1

ASSIGNOR HEREBY AGREES (a) to communicate to ASSIGNEE, its successors and assigns, or their representative or agents, all facts and information known or available to ASSIGNOR respecting said invention or inventions, improvements, and modifications including evidence for interference, reexamination, reissue, opposition, revocation, extension, or infringement purposes or other legal, judicial, or administrative proceedings, whenever requested by ASSIGNEE; (b) to testify in person or by affidavit as required by ASSIGNEE, its successors and assigns, in any such proceeding in the United States or a country foreign thereto; (c) to execute and deliver, upon request by ASSIGNEE, all lawful papers including, but not limited to, original, divisional, continuation, and reissue applications, renewals, assignments, powers of attorney, oaths, affidavits, and declarations, depositions; and (d) to provide all reasonable assistance to ASSIGNEE, its successors and assigns, in obtaining and enforcing proper title in and protection for said invention or inventions, improvements, and modifications under the intellectual property laws of the United States and countries foreign thereto.

ASSIGNOR HEREBY REPRESENTS AND WARRANTS that ASSIGNOR has the full and unencumbered right to sell, assign, and transfer the interests sold, assigned, and transferred herein, and that ASSIGNOR has not executed and will not execute any document or instrument in conflict herewith.

ASSIGNOR HEREBY GRANTS to the law firm of Foley & Lardner LLP the power and authority to insert in this Assignment any further identification which may be necessary or desirable to comply with the rules of the U.S. Patent and Trademark Office for recordation of this Assignment.

ASSIGNOR UNDERSTANDS AND AGREES that the attorneys and agents of the law firm of Foley & Lardner LLP do not personally represent ASSIGNOR OR ASSIGNOR's legal interests, but instead represent the interests of ASSIGNEE; since said attorneys and agents cannot provide legal advice to ASSIGNOR with respect to this Assignment, ASSIGNOR acknowledges its right to seek its own independent legal counsel.

Executed this 13 day of August, 2018.

Joseph andrew hudson

State of Indiana)

County of Bartholomew)

On Aug. 13, 2018 before me, Carmellia Kny Kohl-Smith /Notary Public_ Here Insert Name and Title of the Officer (Notary Public)

personally appeared <u>IOSEPH ANDREW HUDSON</u>
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/their executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY that the foregoing paragraph is true and correct.

WITNESS my pand and official seal.

Signature

Signature of Notacy Label

CARIMELITA KAY KORL SMITH Banholossen Goory My Conscission Expires June 17, 2023

Executed this 13 day of August, 2018,

State of Indiana)

County of Bartholomew)

On <u>Aug. 13, 2013</u>, before me, <u>Carmelita Kay Kohl-Smith (Notacy Public</u> Bers Insert Name and Title of the Officer (Notary Public)

personally appeared THOMAS R. NELSON Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/their executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

(Jisnalely Kery Korld Site. Signature of Nothy Public Signature (MMQ)

CASHAELITA KAY KOHLISMITH Batholomew County My Commission Expires Juno 17, 2023

Place Notary Scal Above

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Executed this 13 day of August, 20/8.

PAUL M. HAUSER

State of Indiana)

County of Bartholomew)

On Aug. 13, 2018, before me, Carmelita Kay Kolil-Smith /Notary Public.

Here insert Name and Title of the Officer (Notary Public)

personally appeared FAUL M. HAUSER Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/their executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

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WITNESS my hand and official sept.

Simmatora

Signature of Notary Public

CARMELITA KAY KOHL-SMITH Barthdoniew County My Commission Expires June 17, 2023

Executed this 13 day of August, 2019.

SANDEEP SARABUDLA

State of Indiana)

County of Bartholomew)

On Miss 13, 2018, before me, Carinelita Kay Kold-Smith /Notary Public_ Here insert Name and Title of the Officer (Notary Public)

personally appeared <u>SANDEEP SAKABUDLA</u>
Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/their executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY that the foregoing paragraph is true and correct.

WITNESS my hand and official scale

Signature J

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Signature of Notary Publis

CARMELITA KAY KOHL-SMITH
Batholomew County
My Commission Explass
June 17, 2023

Executed this 13 day of AUG-UTT , 2016.

State of Indiana)

County of Bartholomew)

Up. 13, 2018 before me, Carmelita Kay Kohl-Smith Notacy Public.

Here Insert Name and Title of the Officer (Notary Public)

personally appeared BRIAN JAMES WITSAMAN Name(s) of Signer(s)

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/their executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY that the foregoing paragraph is true and correct.

WITNESS my hand and official scul.

Signature (4.484445 /47/04) Signature of Notal/ Public

CARMELITA KAY KOHL-SMITH Bartholomow County My Commission Espires

Jane 17, 2023

Executed this 13" day of August	, 20 <u>13</u> .
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	ATUL S. ABHYANKAR
State of <u>Indiana</u>)	
County of Bartholomew)	
On Aug. 13, 2018, before me,	Carmelita Kay Kold-Smith /Notary Public Here inseri Name and Tule of the Officer (Notary Public)
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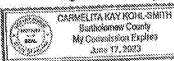
personally appeared ATULS ABHYANKAR Name(s) of Signer(s)

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Signature of Notary Public



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