505820155 12/13/2019

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
THOMAS RYAN SMITH	12/11/2019
BRADLEY MORGAN	12/11/2019
MARK WAYNE JARRETT	12/12/2019
SRIKANTH KATAKAM	12/11/2019

RECEIVING PARTY DATA

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Street Address:	100 NE ADAMS STREET
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State/Country:	ILLINOIS
Postal Code:	61629-9510

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16713595

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NAME OF SUBMITTER:	JANETTE ABERNATHY
SIGNATURE:	/Janette Abernathy/
DATE SIGNED:	12/13/2019

Total Attachments: 5 source=27R4250#page1.tif source=27R4250#page2.tif

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> PATENT REEL: 051276 FRAME: 0978

ASSIGNMENT

WHEREAS I/We, the below named inventor(s), [hereinafter referred to as Assignor(s)], have made an invention entitled:

SYSTEM AND METHOD FOR ESTIMATING RING-RELATED PARAMETERS

for which I/We will or have filed a patent application; and

WHEREAS, Caterpillar Inc., a corporation of Delaware, having a place of business at 100 NE Adams Street, Peoria, Illinois 61629-9510, United States of America (hereinafter referred to as Assignee), is desirous of securing the entire right, title, and interest in and to this invention, and in and to the patent application for this invention and any and all patents to be issued upon this application throughout the world;

NOW THEREFORE, be it known that for good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I/We, as Assignor(s), have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my/our entire right, title, and interest in and to this invention, and this application, and all divisions, and continuations thereof, and all patents which may be granted thereon, and all reissues thereof, as well as all rights to claim priority in any country or jurisdiction or patent office on the basis of this application, and all applications for patents which may hereafter be filed for this invention in any country or jurisdiction or patent office and all patents which may be granted on this invention in any country or jurisdiction or patent office, and all extensions, renewals, and reissues thereof; and I/We hereby authorize and request any official of any country or jurisdiction or patent office whose duty it is to issue patents on applications as described above, to issue all patents for this invention to Assignee, its successors and assigns, in accordance with the terms of this Assignment;

AND, I/WE HEREBY covenant that I/We have the full right to convey the interest assigned by this Assignment, and I/We have not executed and will not execute any agreement in conflict with this Assignment;

AND, IAVE HEREBY further covenant and agree that I/We will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to me/us respecting this invention, and testify in any legal proceeding, sign all lawful papers when called upon to do so, execute and deliver any and all papers that may be necessary or desirable to perfect the title to this invention in said Assignee, its successors or assigns, execute all divisional, continuation, and reissue applications, make all rightful oaths and generally do everything possible to aid Assignee, its successors and assigns, to obtain and enforce proper patent protection for this invention in any country or jurisdiction or patent office, it being understood that any expense incident to the execution of such papers shall be borne by the Assignee, its successors and assigns;

AND, I/	WE HERE	BY au	thorize the	attorneys	/representa	lives that	I/WE have	e empowere:	d to prosecute th	iis
application to in	isert here i	n pare	ntheses the	e country.	application	number,	and officia	al filing date (US Application	No.
16/713,5			December					,		

IN TESTIMONY WHEREOF, IWe have hereunto set our hands.

1. FULL NAME OF SOLE OR FIRST ASSIGNOR	ASSIGNOR'S SIGNATURE	DATE
Thomas Ryan Smith	Timple	12/11/19
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1		<u></u>
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JOINT INVENTION (Worldwide Rights) Attorney Docket No. C190-0085US Client Ref. No. 19-0892-73413

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PATENT REEL: 051276 FRAME: 0981

3. FULL NAME OF THIRD ASSIGNOR	ASSIGNOR'S SIGNATURE	DATE
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JOINT INVENTION (Worldwide Rights) Attorney Docket No. C190-0085US Client Ref. No. 19-0892-73413

2. Witness name	WITNESS SIGNATURE	DATE
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