

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT5857448

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
AHMED KHALIL	08/14/2019
JAMES THORNE	09/03/2019
JACKSON WAI	08/14/2019
AMARA ASHFAQ	08/14/2019
JESSE GERDES	08/14/2019
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	CATERPILLAR INC.
<b>Street Address:</b>	100 NE ADAMS STREET
<b>City:</b>	PEORIA
<b>State/Country:</b>	ILLINOIS
<b>Postal Code:</b>	61629-9510
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16594797
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<i>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.</i>	
<b>Phone:</b>	5714320800
<b>Email:</b>	kpaige@harrityllp.com
<b>Correspondent Name:</b>	HARRITY & HARRITY, LLP
<b>Address Line 1:</b>	11350 RANDOM HILLS ROAD
<b>Address Line 2:</b>	SUITE 600
<b>Address Line 4:</b>	FAIRFAX, VIRGINIA 22030
<b>ATTORNEY DOCKET NUMBER:</b>	19-0302-72075
<b>NAME OF SUBMITTER:</b>	SARA STESNEY
<b>SIGNATURE:</b>	/Sara Stesney/
<b>DATE SIGNED:</b>	12/09/2019
<b>Total Attachments: 6</b>	

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## ASSIGNMENT

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

### A MODIFIED FLUX OBSERVER FOR SWITCHED RELUCTANCE MACHINES

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

WHEREAS, **Caterpillar Inc.**, a corporation of **Delaware**, whose post office address is **100 NE Adams Street, Peoria, IL 61629-9510** (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;

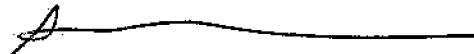
NOW THEREFORE, be it known that for good and valuable consideration the receipt of which from Assignee is hereby acknowledged, I/We, as Assignor(s), have sold, assigned, transferred, and set over, and do hereby sell, assign, transfer, and set over unto the Assignee, its lawful successors and assigns, my/our entire right, title, and interest in and to this invention, provisional application Serial No. \_\_\_\_\_, filed \_\_\_\_\_, 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, I/WE 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 HEREBY authorize the attorneys/representatives that I/WE have empowered to prosecute this application to insert here in parentheses the country, application number, and official filing date ( US  
Application No. 16/594,797, filed October 7, 2019).

IN TESTIMONY WHEREOF, I/We have hereunto set our hands.

FULL NAME OF ASSIGNOR Ahmed KHALIL	ASSIGNOR'S SIGNATURE 	DATE 8/14/19
ADDRESS 2920 W. School Street, Dunlap, 61525, US		CITIZENSHIP Egypt

1. WITNESS NAME Subhank Uppalapati	WITNESS SIGNATURE 	DATE 08/14/19
ADDRESS 2401 W. Alta Rd, Apt 202, Peoria, IL, 61615		CITIZENSHIP INDIA

2. WITNESS NAME Alexander Cosman	WITNESS SIGNATURE 	DATE 8/14/19
ADDRESS 316 W. Woodfield Ct, Dunlap, IL 61525		CITIZENSHIP USA

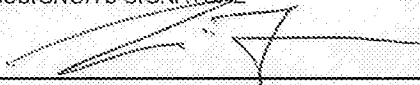
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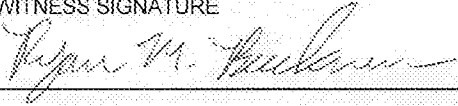
FULL NAME OF ASSIGNOR James THORNE	ASSIGNOR'S SIGNATURE <i>James Thorne</i>	DATE 9/3/2019
ADDRESS 2601 W Lake Ave, A6, Peoria, IL 61615, US	CITIZENSHIP US	

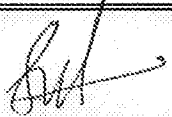
1. WITNESS NAME <i>James Siegle</i>	WITNESS SIGNATURE <i>James Siegle</i>	DATE 09/03/2019
ADDRESS <i>1911 Chestnut Ln, Washington, IL 61571</i>	CITIZENSHIP USA	

2. WITNESS NAME <i>Weston Taylor</i>	WITNESS SIGNATURE <i>Weston Taylor</i>	DATE 9/3/2019
ADDRESS <i>300 N Pleasant Hill Rd, East Peoria, IL 61611</i>	CITIZENSHIP USA	

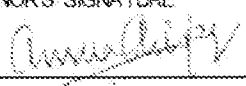
IN TESTIMONY WHEREOF, I/We have hereunto set our hands.


FULL NAME OF ASSIGNOR Jackson WAI	ASSIGNOR'S SIGNATURE 	DATE 8/14/19
ADDRESS 11521 N Dunmore, Dunlap, IL 61525, US		CITIZENSHIP Singapore

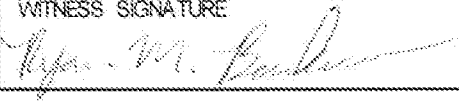
1. WITNESS NAME Ryan Backman	WITNESS SIGNATURE 	DATE 08/14/2019
ADDRESS 1001 W. Moss Ave, Apt. 2C		CITIZENSHIP United States

2. WITNESS NAME SASAN ARBOL	WITNESS SIGNATURE 	DATE 8/14/2019
ADDRESS 2900 W SCHOOL ST, DUNLAP IL 61525		CITIZENSHIP CANADA

IN TESTIMONY WHEREOF, I/We have hereunto set our hands.

FULL NAME OF ASSIGNOR Amara ASHFAQ	ASSIGNOR'S SIGNATURE 	DATE 08/14/2019
ADDRESS 10516 North Trail View Dr., Dunlap, IL 61525, US		CITIZENSHIP India

1. WITNESS NAME Subhank. Uppalapati	WITNESS SIGNATURE 	DATE 08/14/19
ADDRESS 2401 W Alta Rd, Apt 702 Peoria, IL, 61615		CITIZENSHIP INDIA

2. WITNESS NAME Ryna Backman	WITNESS SIGNATURE 	DATE 08/14/2019
ADDRESS 1001 W. Mass Ave. Apt. 2C		CITIZENSHIP United States

IN TESTIMONY WHEREOF, I/We have hereunto set our hands.

FULL NAME OF ASSIGNOR Jesse GERDES	ASSIGNOR'S SIGNATURE <i>Jesse Gerdes</i>	DATE 8/14/19
ADDRESS 11114 N Crestpoint Ln, Dunlap, IL 61525, US		CITIZENSHIP US

1. WITNESS NAME <i>Weston Taylor</i>	WITNESS SIGNATURE <i>Weston Taylor</i>	DATE 8/14/2019
ADDRESS <i>17050 Springfield Rd, Groveland, IL 61535, US</i>		CITIZENSHIP US

2. WITNESS NAME <i>James Siegle</i>	WITNESS SIGNATURE <i>James Siegle</i>	DATE 08/14/2019
ADDRESS <i>1911 Chestnut Ln, Washington, IL 61571</i>		CITIZENSHIP US