PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT6778068

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
XINYU GE	06/15/2021
BRIAN P. BRENNAN	06/15/2021
JAMES H. MUTTI JR.	06/15/2021

RECEIVING PARTY DATA

Name:	CATERPILLAR INC.
Street Address:	100 NE ADAMS STREET
City:	PEORIA
State/Country:	ILLINOIS
Postal Code:	61629-9510

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	17349720

CORRESPONDENCE DATA

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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: jbarfield@bomcip.com

Correspondent Name: BOOKOFF MCANDREWS PLLC

Address Line 1: 2020 K STREET NW

Address Line 4: WASHINGTON, D.C. 20006

ATTORNEY DOCKET NUMBER:	21-0038US01
NAME OF SUBMITTER:	MATTHEW J. SEWARD
SIGNATURE:	/Matthew J. Seward/
DATE SIGNED:	06/23/2021

Total Attachments: 3

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PATENT 506731252 REEL: 056642 FRAME: 0464

JOINT INVENTION (Worldwide Rights)

Attorney Docket No.: 00152-2118-00000

Client Ref. No.: 21-0038US01

ASSIGNMENT

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

METHOD AND SYSTEM FOR VALVE STICKING DETECTION, PREVENTION, OR CORRECTION

for which 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, Illinois 61629-9510, U.S.A. (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, 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, 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 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, WE HEREBY covenant that We have the full right to convey the interest assigned by this Assignment, and We have not executed and will not execute any agreement in conflict with this Assignment;

AND, WE HEREBY further covenant and agree that We will, without further consideration, communicate with Assignee, its successors and assigns, any facts known to 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, WE HEREBY authorize the attorneys/representatives that WE have empowered to prosecute this
application to insert here in parentheses the country, application number, and official filing date ($\underline{U.S.}$
Application No. <u>17/349.720</u> , filed <u>June 16, 2021</u>).

IN TESTIMONY WHEREOF, We have hereunto set our hands.

FULL NAME OF FIRST ASSIGNOR XINYU GE	ASSIGNOR'S SIGNATURE	6/15/202/
ADDRESS		CHIZENSHIP
2013 W. Forestglen Dr		
Peoria, IL 61615		

NOITH INVENTION

(Worldwide Rights) Attorney Docket No.: 00152-2118-00000 Client Ref. No.: 21-0038US01

	LANGUE OF NATION	DATE
Scott Brown	WITNESS SIGNATURE	6-15-202
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2 WITNESS NAME	WITNESS SIGNATURE	V 24.
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JOINT INVENTION

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2 FIX.L MANUE OF THIND ASSISSACION	ASSIGNOR'S SIGNATURE	DATE
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Germantown Hills, IL 61548		
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2. WITNESS NAME:	WITHESS SKNATTHE	CATE
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