506423999 12/28/2020

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
GIUSEPPE ALESSIO VERNI	11/06/2020
QI XIE	10/27/2020
HENRI JUSSILA	11/04/2020
CHARLES DEZELAH	11/19/2020
JIYEON KIM	11/06/2020
ERIC JAMES SHERO	11/20/2020
PAUL MA	10/28/2020

RECEIVING PARTY DATA

Name:	ASM IP HOLDING B.V.
Street Address:	VERSTERKERSTRAAT 8
City:	ALMERE
State/Country:	NETHERLANDS
Postal Code:	1322 AP

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	17113242

CORRESPONDENCE DATA

Fax Number: (602)470-2434

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: 6024705707

Email: michelle.sympson@asm.com

Correspondent Name: PATRICK LEE

Address Line 1:3440 E. UNIVERSITY DRIVEAddress Line 4:PHOENIX, ARIZONA 85034

ATTORNEY DOCKET NUMBER:	PAT-MC-0634-US-NP
NAME OF SUBMITTER:	MICHELLE SYMPSON
SIGNATURE:	/Michelle Sympson/
DATE SIGNED:	12/28/2020

PATENT 506423999 REEL: 054758 FRAME: 0677

Total Attachments: 8 source=PAT-MC-0634-US-NP Assignment Executed#page1.tif source=PAT-MC-0634-US-NP Assignment Executed#page2.tif source=PAT-MC-0634-US-NP Assignment Executed#page3.tif source=PAT-MC-0634-US-NP Assignment Executed#page4.tif source=PAT-MC-0634-US-NP Assignment Executed#page5.tif source=PAT-MC-0634-US-NP Assignment Executed#page6.tif source=PAT-MC-0634-US-NP Assignment Executed#page7.tif source=PAT-MC-0634-US-NP Assignment Executed#page8.tif

PATENT REEL: 054758 FRAME: 0678 Application Serial No.: 17/113,242 Docket No.: PAT-MC-0634-US-NP

Filing Date: December 7, 2020

Title: METHOD OF FORMING VANADIUM NITRIDE LAYER AND STRUCTURE

INCLUDING THE VANADIUM NITRIDE LAYER

ASSIGNMENT

WHEREAS, GIUSEPPE ALESSIO VERNI, a citizen of Italy and a resident of Antwerp, Belgium; QI XIE, a citizen of Belgium and a resident of Leuven, Belgium; HENRI JUSSILA, a citizen of Finland and a resident of Espoo, Finland; CHARLES DEZELAH, a citizen of the United States of America and a resident of Helsinki, Finland; JIYEON KIM, a citizen of South Korea and a resident of Tempe, Arizona, ERIC JAMES SHERO, a citizen of the United States of America and a resident of Phoenix, Arizona; and PAUL MA, a citizen of the United States of America and a resident of Scottsdale, Arizona,

(collectively, "WE" or "ASSIGNOR") have conceived of one or more processes, methods, machines, articles of manufacture, designs, compositions of matter, inventions, discoveries or new or useful improvements relating to METHOD OF FORMING VANADIUM NITRIDE LAYER AND STRUCTURE INCLUDING THE VANADIUM NITRIDE LAYER (collectively, the "INVENTIONS") for which WE have executed and/or may execute one or more patent applications therefore; and

WHEREAS, ASM IP HOLDING B.V. (hereinafter "ASSIGNEE"), a corporation having a place of business at Versterkerstraat 8, Almere, 1322 AP, Netherlands, desires to acquire or otherwise obtain the entire right, title, and interest in and to said INVENTIONS, including all patent applications therefore, and all patents that have granted or may be granted hereafter thereon, including, but not limited to, those identified below.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, WE do hereby acknowledge that WE have sold, assigned, conveyed and transferred, and by these presents do hereby sell, assign, convey and transfer, unto ASSIGNEE, its successors, its legal representatives and its assigns, the entire right, title, and interest throughout the world in and to said INVENTIONS, including all patent applications therefore that may have been filed or may be filed hereafter for said INVENTIONS (including but not limited Application No(s). 17/113,242, filed on December 7, 2020, as Docket No. PAT-MC-0634-US-NP (and do hereby authorize ASSIGNEE and its representative to hereafter add herein such application number(s) and/or filing date(s) when known)) and all rights of priority under International Conventions, Treaties, and Agreements, all utility applications, national phase applications, utility model applications, divisional applications, renewal applications, continuation applications, validation applications and design applications thereof, and all issued patents which may have granted or may be granted hereafter thereon and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon;

Application Serial No.:	Docket No.: PAT-MC-0634-US-NP
Filing Date: Title: METHOD OF FORMING VANADIUM N INCLUDING THE VANADIUM NITRIDE LA'	NETRIDE LAYER AND STRUCTURE YER
it is to issue patents on applications or registration	ry Official of any country or countries whose duty ons, to issue all patents for said INVENTIONS to yes, and its assigns, in accordance with the terms
legal representatives, and its assigns all claims relating to any violation(s) of any of the rights prior to the date of assignment to said ASSIGN limited to the right to sue for, seek, obtain, colle	nd convey to said ASSIGNEE, its successors, its for damages and all remedies arising out of or assigned hereby that have or may have accrued IEE, or may accrue hereafter, including, but not ect, recover and retain damages and any ongoing itled, or form any settlement or agreement related
its successors, its legal representatives, and its INVENTIONS, and will testify in any legal applications and certificates, make all rightful	Ewill communicate promptly to said ASSIGNEE, assigns, any facts known to us respecting said proceeding, sign all lawful papers, execute all declarations and/or ouths, and provide all lawful to legal representatives, and its assigns, to obtain ONS in all countries.
EXECUTED as of the date(s) below by ASSIGI	NOR:
GIUSEPPE ALESSIC VERN	6/11/2020
Signatus	Date
QI XIE	
Signature	Date
HENRIJUSSILA	
Signature	Date
CHARLES DEZELAH	
Sionature	Date

Signature

Application Serial No.:	Docket No.: PAT-MC-0634-US-NP
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legal representatives, and its assigns all claims relating to any violation(s) of any of the rights prior to the date of assignment to said ASSIGN limited to the right to sue for, seek, obtain, coll	and convey to said ASSIGNEE, its successors, its for damages and all remedies arising out of or assigned hereby that have or may have accrued NEE, or may accrue hereafter, including, but not ect, recover and retain damages and any ongoing titled, or form any settlement or agreement related
its successors, its legal representatives, and its INVENTIONS, and will testify in any legal applications and certificates, make all rightful	E will communicate promptly to said ASSIGNEE, assigns, any facts known to us respecting said proceeding, sign all lawful papers, execute all declarations and/or oaths, and provide all lawful ts legal representatives, and its assigns, to obtain ONS in all countries.
EXECUTED as of the date(s) below by ASSIG	NOR:
GIUSEPPE ALESSIO VERNI	
Signature	Date
QI XIE	
Or xle	Oct 27. 2020
Signature	Date
HENRI JUSSILA	
Signature CHARLES DEZELAN	Date
CHARLES DEZELAH	
Signature	Date

W

Application Serial No.:	Docket No.: PAT-MC-0634-US-NP
Filing Date: Title: METHOD OF FORMING VANADIUM NI INCLUDING THE VANADIUM NITRIDE LAY	
AND WE DO HEREBY authorize and request any it is to issue patents on applications or registration ASSIGNEE, its successors, its legal representative of this instrument;	is, to issue all patents for said INVENTIONS to
AND WE DO HEREBY sell, assign, transfer, and legal representatives, and its assigns all claims f relating to any violation(s) of any of the rights a prior to the date of assignment to said ASSIGNE limited to the right to sue for, seek, obtain, collect or prospective royalties to which WE may be entit to any of said patents before or after issuance;	for damages and all remedies arising out of or ssigned hereby that have or may have accrued EE, or may accrue hereafter, including, but not at, recover and retain damages and any ongoing
AND WE HEREBY covenant and agree that WE vits successors, its legal representatives, and its a INVENTIONS, and will testify in any legal prapplications and certificates, make all rightful deassistance to said ASSIGNEE, its successors, its and enforce patent protection for said INVENTIO	assigns, any facts known to us respecting said roceeding, sign all lawful papers, execute all celarations and/or oaths, and provide all lawful legal representatives, and its assigns, to obtain
EXECUTED as of the date(s) below by ASSIGNO	OR:
GIUSEPPE ALESSIO VERNI	
Signature	Date
QI XIE	
Signature	Date
HENRI JUSSILA Signature	4. ((, 2028) Date
CHARLES DEZELAH	
Signature	Date

Application Serial No.:	Docket No.: PAT-MC-0634-US-NP
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AND WE DO HEREBY sell, assign, transfer, and legal representatives, and its assigns all claims to relating to any violation(s) of any of the rights a prior to the date of assignment to said ASSIGNI limited to the right to sue for, seek, obtain, collector prospective royalties to which WE may be entit to any of said patents before or after issuance;	for damages and all remedies arising out of or assigned hereby that have or may have accrued EE, or may accrue hereafter, including, but not at, recover and retain damages and any ongoing
AND WE HEREBY covenant and agree that WE its successors, its legal representatives, and its a INVENTIONS, and will testify in any legal p applications and certificates, make all rightful deassistance to said ASSIGNEE, its successors, its and enforce patent protection for said INVENTION.	assigns, any facts known to us respecting said rocceding, sign all fawful papers, execute all eclarations and/or oaths, and provide all lawful legal representatives, and its assigns, to obtain
EXECUTED as of the date(s) below by ASSIGNO	OR:
GIUSEPPE ALESSIO VERNI	
Signature	Date
QI XIE	
Signature	Date
HENRI JUSSILA	
Signature	Date
CHARLES DEZELAH	ç
Committee of the control of the cont	November 19 2020

Date

Signature

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JIYEON KIM		
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ERIC JAMES SHERO		
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PAUL MA		
Signature	Date	

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JIYEON KIM		
Signature	Date	
ERIC TAMES SHERO Signature Signature	11/20/2020 Date	
PAUL MA		
Signature	Date	

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JIYEON KIM	
Signature	Date
ERIC JAMES SHERO	
Signature	Date
PAUL MA	10/28/2020
Signature	Date