505084165 09/07/2018

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5130923

UBMISSION TYPE:		NEW ASSIGNMENT	
NATURE OF CONVEYANCE:		ASSIGNMENT	
CONVEYING PARTY D	ΑΤΑ		
		Name	Execution Date
YUHUA LIU			08/30/2018
ANDREW W. VOGAN			09/04/2018
MATTHEW J. BYOM			09/04/2018
ALEXANDER PALEY			08/30/2018
RECEIVING PARTY DA	ТА		
Name:	APPLE INC.		
Street Address:	ONE APPLE PARK WAY		
City:	CUPER	CUPERTINO	
State/Country:	CALIFORNIA		
Postal Code: 95014			
Property Type		Number	
Property Type			
Property Type Application Number:	1	Number 16124154	
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Application Number: CORRESPONDENCE D Fax Number: <i>Correspondence will be using a fax number, if p</i> Phone:	ATA (e sent to provided; (16124154 844)670-6009 <i>the e-mail address first; if that is unsucce</i> <i>; if that is unsuccessful, it will be sent via</i> 408) 701-6200	
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Whereas I, an undersigned inventor, have invented certain new and useful improvements as set forth in the patent application entitled:

TECHNIQUES FOR REDUCING WRITE AMPLIFICATION ON SOLID STATE STORAGE DEVICES (SSDS)

(Atty: Docket No. P37932US1/28140US.1)

for which I have executed an application on even date herewith.

X which bears application No. 16/124,154

which is a U.S. provisional application.

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I, an undersigned inventor, hereby:

1) Sell, assign and transfer to Apple Inc., a California corporation having a place of business at One Apple Park Way, Cupertino, CA 95014 ("ASSIGNEE"), the entire right, title and interest to the above-referenced application, any and all improvements and inventions disclosed therein, as well as concurrent applications, applications having priority claims to/from, any derivative applications thereof, foreign or Patent Cooperation Treaty ("PCT") applications based in whole or at least in part thereon, and any and all patents resulting from such applications (including foreign patents and the right to claim priority).

 Authorize and request the Commissioner of Patents to issue any and all United States Patents resulting from said application or any divisional, continuation, design application, substitute, renewal, re-examination or reissue thereof to the ASSIGNEE.

3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said application, as well as any derivative applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications.

4) Agree that the terms, covenants and conditions of this assignment shall inure to the benefit of the ASSIGNEE, its successors, assigns and other legal representatives, and shall be binding upon the inventor, as well as the inventor's heirs, legal representatives and assigns.

5) Warrant and represent that I have not entered and will not enter into any assignment, contract, or understanding that conflicts with this assignment.

6) Authorize and request my attorney/agent to insert above the application No. in order to assist with recordal of this assignment.

Signed on the date indicated beside my signature.

Signature: Typed Name: Yohua I

(Atty, Ducket No. P37932081/2814005.1) -

- Contract Co

PATENT REEL: 046819 FRAME: 0737

Whereas I, an undersigned inventor, have invented certain new and useful improvements as set forth in the patent application entitled:

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Signed on the date indicated beside my signature.

Indrew W. Voga Date: Sept 4, 2018 Signature:

Typed Name: Andrew W. VOGAN

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TECHNIQUES FOR REDUCING WRITE AMPLIFICATION ON SOLID STATE STORAGE DEVICES (SSDS)

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(2)Authorize and request the Commissioner of Patents to issue any and all United States Patents resulting from said application or any divisional, continuation, design application, substitute, renewal, re-examination or reissue thereof to the ASSIGNEE.

Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, 3) perform any acts which are reasonably necessary in connection with the prosecution of said application, as well as any derivative applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications.

Agree that the terms, covenants and conditions of this assignment shall inure to the benefit of 4) the ASSIGNEE, its successors, assigns and other legal representatives, and shall be binding upon the inventor, as well as the inventor's heirs, legal representatives and assigns.

Warrant and represent that I have not entered and will not enter into any assignment, 5} contract, or understanding that conflicts with this assignment.

Authorize and request my attorney/agent to insert above the application No. in order to assist 6) with recordal of this assignment.

Signed on the date indicated beside my signature.

Signature: <u>Matter Bygen</u> Date: <u>1/4/18</u> Typed Name: Matthew J. BYOM

(Any, Docket No, P37932U81/28140U5.1)

v1.1

PATENT REEL: 046819 FRAME: 0739

Whereas I, an undersigned inventor, have invented certain new and useful improvements as set forth in the patent application entitled:

TECHNIQUES FOR REDUCING WRITE AMPLIFICATION ON SOLID STATE STORAGE DEVICES (SSDS)

(Atty: Docket No. P37932US1/28140US.1)

for which I have executed an application on even date herewith.

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6) Authorize and request my attorney/agent to insert above the application No. in order to assist with recordal of this assignment.

Signed on the date indicated beside my signature.

Signature: Typed Name: Alexander PALE

Date:

(Atty, Docket No. P37932U81/28140U8.1)

PATENT REEL: 046819 FRAME: 0740

12.2

RECORDED: 09/07/2018