504582444 10/05/2017

PATENT ASSIGNMENT COVER SHEET

EPAS ID: PAT4629156

Electronic Version v1.1
Stylesheet Version v1.2

SUBMISSION TYPE:NEW ASSIGNMENTNATURE OF CONVEYANCE:ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
WAYNE C. WESTERMAN	08/08/2017
BYRON B. HAN	09/21/2017
CRAIG A. MARCINIAK	09/20/2017

RECEIVING PARTY DATA

Name:	APPLE INC.
Street Address:	ONE INFINITE LOOP
City:	CUPERTINO
State/Country:	CALIFORNIA
Postal Code:	95014

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15669789

CORRESPONDENCE DATA

Fax Number: (303)223-1111

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: 303-223-1100

Email: vbrown@bhfs.com

Correspondent Name: S. CRAIG HEMENWAY

Address Line 1: 410 SEVENTEENTH STREET

Address Line 2: SUITE 2200

Address Line 4: DENVER, COLORADO 80202

ATTORNEY DOCKET NUMBER: P16216USX1

NAME OF SUBMITTER: VALERIE H. BROWN

SIGNATURE: /Valerie H. Brown/

DATE SIGNED: 10/05/2017

Total Attachments: 4

source=P16216USX1 Executed Assignment#page1.tif source=P16216USX1 Executed Assignment#page2.tif source=P16216USX1 Executed Assignment#page3.tif

PATENT 504582444 REEL: 043800 FRAME: 0873

source=P16216USX1 Executed Assignment#page4.tif

PATENT REEL: 043800 FRAME: 0874

ASSIGNMENT

WHEREAS, we, Wayne C. Westerman, whose address is One Infinite Loop, MS: 83-H, Cupertino, California 95014; Byron B. Han, whose address is 318 El Portal Way, San Jose, California 95119; and Craig A. Marciniak, whose address is 1481 Carrington Circle, San Jose, California 95125 (hereinafter, individually and collectively, the "Assignor"), have invented certain new and useful systems, devices, and methods disclosed and described in a utility application for Letters Patent in the United States ("U.S."), titled "Efficient Texture Comparison," which can be identified in the United States Patent and Trademark Office ("USPTO") by Application No. 15/669,789, filed on August 4, 2017, with attorney docket no. P16216USX1 (the "Utility Application"); and

WHEREAS, Assignor desires to assign any and all right, title and interest to said Utility Application, and any provisional, non-provisional, continuation, continuation-in-part, divisional, international, foreign, regional and convention applications corresponding thereto, and any and all Letters Patent of the United States and countries and regions foreign thereto which may grant or have granted thereto or be lodged in relation thereto, any reissue or reexamination thereof or to be obtained therefor, any renewals, or substitutes thereof, and any and all priority rights or priority claims, International Convention rights, any and all rights to collect past damages for infringement of any and all Letters Patent of the United States and countries and regions foreign thereto which may be published, which may grant, or have granted thereto or be lodged in relation thereto, and other benefits accruing to or to accrue to Assignor with respect to the filling of applications for patents or securing of patents in the United States and countries foreign thereto (the "Patent Rights");

WHEREAS, Apple Inc., a corporation organized and existing under the laws of the State of California, and having its principal place of business at One Infinite Loop, Cupertino, California 95014 (the "Assignee"), desires to acquire any and all, right, title, and interest of Assignor in and to the invention(s), the Patent Rights, and in, to, and under any and all Letters Patent to be obtained therefor;

NOW THEREFORE, for the sum of \$1.00 and other good and valuable consideration to Assignor in hand paid, the receipt and sufficiency of which are hereby acknowledged, Assignor has sold, assigned, and transfer and by these presents does hereby sell, assign and transfer to the said Assignee, and said Assignee's legal representatives, successors and assigns, any and all of the entire right, title and interest in and to the invention(s), Patent Rights, and any and all Letters Patent to be obtained therefor;

UPON SAID CONSIDERATION, the Assignor hereby covenants and agrees with the said Assignee that it will not execute any writing or do any act whatsoever conflicting with these presents, and that it will, at any time upon request, without further or additional consideration, but at the expense of the said Assignee, execute such additional assignments and other writings and do such additional acts as said Assignee may deem necessary or desirable to perfect the Assignee's enjoyment of this grant, and render all necessary assistance in making application for and obtaining original, provisionals, non-provisionals, continuations, continuations-in-part, continuing prosecutions, divisionals, renewals, reissues, reexamined or extended Letters Patent of the United States, or of any and all foreign countries, on said Patent Rights, and execute confirmatory assignments or acknowledgments of this assignment as necessary for full enjoyment of the Patent Rights and for recording in foreign patent offices, and in enforcing any rights or choses in action accruing as a result of such Patent Rights, by giving testimony in any proceedings or transactions involving such Patent Rights, and by executing

1 of 2

preliminary statements and other affidavits, it being understood that the foregoing covenant and agreement shall bind, and inure to the benefit of, the assigns and legal representatives of both parties;

UPON SAID CONSIDERATION, Assignor represents and warrants that Assignor has the right, title, and authority to execute this Assignment and to convey any and all right, title, and interest in the Patent Rights, and that Assignor has not conveyed nor will convey hereafter all or part of the Patent Rights to a third party;

ASSIGNOR HEREBY AUTHORIZES said Assignee, its successors, and assigns, or anyone it may properly designate, to apply for Letters Patent in the U.S. and any and all foreign countries and regions, in its own name if desired, and additionally to claim priority to the filing date of the Utility Application and otherwise take advantage of the provisions of any international conventions.

ASSIGNOR HEREBY AUTHORIZES Assignee, its successors and assigns, or anyone it may properly designate, to insert in this instrument the application number, filing date, and title of the Utility Application once known.

the date indi	icated below.	hereunto has executed this Assignment up By: Wayne C Westerman	
	<i>)</i>	Wayne C./Westerman	
	/ITNESS WHEREOF, the Assignor licated below.	hereunto has executed this Assignment u	pon
Date:		By:	
		By: Byron B. Han	***************************************
	VITNESS WHEREOF, the Assignor icated below.	hereunto has executed this Assignment u	ipon
Date:		By:	
		Craig A. Marciniak	

preliminary statements and other affidavits, it being understood that the foregoing covenant and agreement shall bind, and inure to the benefit of, the assigns and legal representatives of both parties;

UPON SAID CONSIDERATION, Assignor represents and warrants that Assignor has the right, title, and authority to execute this Assignment and to convey any and all right, title, and interest in the Patent Rights, and that Assignor has not conveyed nor will convey hereafter all or part of the Patent Rights to a third party;

ASSIGNOR HEREBY AUTHORIZES said Assignee, its successors, and assigns, or anyone it may properly designate, to apply for Letters Patent in the U.S. and any and all foreign countries and regions, in its own name if desired, and additionally to claim priority to the filling date of the Utility Application and otherwise take advantage of the provisions of any international conventions.

ASSIGNOR HEREBY AUTHORIZES Assignee, its successors and assigns, or anyone it may properly designate, to insert in this instrument the application number, filing date, and title of the Utility Application once known.

IN WITNESS WHEREOF, the Assignor hereunto has executed this Assignment upon the date indicated below.

Date:	By: Wayne C. Westerman
IN WITNESS WHEREOF, the Assignor the date indicated below. Date: 4/2/26/7	hereunto has executed this Assignment upon By: Byrøn B. Han
IN WITNESS WHEREOF, the Assignor the date indicated below.	hereunto has executed this Assignment upon
Date:	By: Craig A. Marciniak

preliminary statements and other affidavits, it being understood that the foregoing covenant and agreement shall bind, and inure to the benefit of, the assigns and legal representatives of both parties;

UPON SAID CONSIDERATION, Assignor represents and warrants that Assignor has the right, title, and authority to execute this Assignment and to convey any and all right, title, and interest in the Patent Rights, and that Assignor has not conveyed nor will convey hereafter all or part of the Patent Rights to a third party;

ASSIGNOR HEREBY AUTHORIZES said Assignee, its successors, and assigns, or anyone it may properly designate, to apply for Letters Patent in the U.S. and any and all foreign countries and regions, in its own name if desired, and additionally to claim priority to the filing date of the Utility Application and otherwise take advantage of the provisions of any international conventions.

ASSIGNOR HEREBY AUTHORIZES Assignee, its successors and assigns, or anyone it may properly designate, to insert in this instrument the application number, filing date, and title of the Utility Application once known.

IN WITNESS WHEREOF, the Assignor hereunto has executed this Assignment upon the date indicated below.

Date:	By:
	Wayne C. Westerman
IN WITNESS WHEREOF, the Assignor the date indicated below.	hereunto has executed this Assignment upon
Date:	Ву:
	Byron B. Han
IN WITNESS WHEREOF, the Assignor the date indicated below. Date:09/20/2017	r hereunto has executed this Assignment upon
	Oraig A Marciniak

2 of 2