503745861 03/21/2016

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3792506

on Reel 037924 Frame 0705. Assignor(s) hereby confirms the ADDRESS	SUBMISSION TYPE:	CORRECTIVE ASSIGNMENT
OF THE SECOND ASSIGNEE.		Corrective Assignment to correct the ADDRESS OF THE SECOND ASSIGNEE FROM "ICHENON-SI" TOICHEON-SI previously recorded on Reel 037924 Frame 0705. Assignor(s) hereby confirms the ADDRESS OF THE SECOND ASSIGNEE.

CONVEYING PARTY DATA

Name	Execution Date
MASAHIKO NAKAYAMA	03/19/2014
MASATOSHI YOSHIKAWA	02/25/2014
TADASHI KAI	02/25/2014
YUTAKA HASHIMOTO	02/25/2014
MASARU TOKO	02/27/2014
HIROAKI YODA	03/19/2014
JAE GEUN OH	05/23/2014
KEUM BUM LEE	05/23/2014
CHOON KUN RYU	05/23/2014
HYUNG SUK LEE	05/23/2014
SOOK JOO KIM	05/23/2014

RECEIVING PARTY DATA

Name:	KABUSHIKI KAISHA TOSHIBA
Street Address:	1-1, SHIBAURA 1-CHOME
Internal Address:	MINATO-KU
City:	TOKYO
State/Country:	JAPAN
Postal Code:	105-8001
Name:	SK HYNIX INC.
Street Address:	2091, GYEONGCHUNG-DAERO
Internal Address:	BUDAI-EUB
City:	ICHEON-SI, GYEONGGI-DO
State/Country:	KOREA, REPUBLIC OF
Postal Code:	467-701

PROPERTY NUMBERS Total: 1

Property Type	Number	
Application Number:	14202802	

PATENT REEL: 038188 FRAME: 0382

CORRESPONDENCE DATA

Fax Number:

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: 212-319-4900

Email: shimmelstein@hhpatent.com
Correspondent Name: HOLTZ HOLTZ & VOLEK

Address Line 1: 630 9TH AVE Address Line 2: SUITE 1010

Address Line 4: NEW YORK, NEW YORK 10036

ATTORNEY DOCKET NUMBER:	13691
NAME OF SUBMITTER:	STEVEN HIMMELSTEIN
SIGNATURE:	/Steven Himmelstein/
DATE SIGNED:	03/21/2016

Total Attachments: 9

source=Assignment#page1.tif

source=Assignment#page2.tif

source=Assignment#page3.tif

source=Assignment#page4.tif

source=Assignment#page5.tif

source=Assignment#page6.tif

source = CoverSheetShowingChanges#page1.tif

source=NORshowingChanges#page1.tif

source=NORshowingChanges#page2.tif

PATENT REEL: 038188 FRAME: 0383 In consideration of value received, I, having a residence as stated below above my name, the sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are listed below) of an invention described in an application for United States patent entitled:

MAGNETORESISTIVE ELEMENT AND METHOD OF MANUFACTURING THE SAME

have sold and assigned and do hereby sell and assign to

 KABUSHIKI KAISHA TOSHIBA, a Japanese corporation, having a business address at 1-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8001, Japan

 SK hynix Inc., a Korean corporation, having a business address at 2091, Gyeongchung-daero, Budai-eub, Ichelton-si, Gyeonggi-do, 467-701 Korea

-20/3/21/16

its successors, assigns or nominees, hereinafter referred to as "Assignee", my entire right, title and interest in and to said invention as disclosed, shown and described in said United States patent application:

(check one)	[X]	executed concurrently herewith	
		executed on	*
	[.]	Application No.	, filed

and in and to all applications for patent and patents for invention including all divisions, reissues, continuations, substitutes and extensions thereof and all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property, including rights of priority, resulting from the filing of any of said applications; and I authorize and request any official whose duty is to issue patents, to issue any patent on said invention or resulting therefrom to said Assignee, and I agree that on request and without further consideration, but at the expense of said Assignee, I will communicate to said Assignee or its representatives all facts known to me respecting said invention and testify in any legal proceedings, sign all lawful papers, execute all divisional, continuing, continued prosecution, reissue, or other applications, make all rightful oaths and declarations, and generally do everything possible to aid said Assignee to obtain and enforce proper patent protection for said invention.

I hereby grant the following law firm the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the Rules of the U.S. Patent and Trademark Office for recordation of this document.

Holtz, Holtz, Goodman & Chick PC, 220 Fifth Avenue - 16th Floor, New York, N.Y. 10001-7708

REEL: 038188 FRAME: 0384

parametrici	•
Residence Address: Seoul, Korea	A Company of the comp
Mailing Address: c/o IP Division, 35th floor, 1-1, Shiba	aura 1-chome, Minato-ku, Tokyo 105-8001, Japan
Citizenship: Japan	·
mosaled before	4 19 1015
morary only	Mar. 19. 2019
Masahiko Nakayama	Date:
introgriffe ingravania	LARUS.
and the state of t	
[2nd Inventor]	
Residence Address: Seoul, Korea	
Mailing Address: c/o IP Division, 35th floor, 1-1, Shiba	aura 1-chome, Minato-ku, Tokyo 105-8001, Japan
Citizenship: Japan	
· /h / l · / l ·	
Masdoch (land la	12/20 /2014
Masatoshi Yoshikawa John Kanu.	Dakas
imperiorii ioriiwams (. nace:
Pro N. C.	•
[3rd Inventor]	
Residence Address: Seoul, Korea	
Mailing Address: c/o IP Division, 35th floor, 1-1, Shiba	aura 1-chome, Minato-ku, Tokvo 105-8001, Japan
Citizenship: Japan	
ρ	
Tadeshi Kai	Zh 20. 2014
10 J. 3 17	Feb. 25, 2014
I SUBSIII ARI	Date:
[4th Inventor]	•
Residence Address; Seoul, Korea	
Mailing Address: c/o IP Division, 35th floor, 1-1, Shib-	aura I-chome Minato-ku Thkyo 105-2001 Janan
Citizenship: Japan	and a married reservois man waste and and the fathers.
Andrew drawn and a set to de	
Yutuka Hashimoto	Ti ar male
The state of the s	Teb, 25, 201/2
Yutaka Hashimoto	Date:
;	•
[5th Inventor]	
Residence Address: Seoul, Korea	
	1 -1 3 #1 4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
Mailing Address: c/o IP Division, 35th floor, 1-1, Shib	aura 1-chome, minato-ku, 10kyo 105-8001, Japan
Citizenship: Japan	
Same and a	7 1 70 - 11
mason Toko	Feb. 27, 2014
Macami Toko	Deter

REEL: 038188 FRAME: 0385

•	Residence Address: Seoul, Korea		• .				•
	Mailing Address: c/o IP Division, 35th floor, 1	_1 Shiha	urra T. ahama	Minoto Inc	Malaria 10	E 0004 T-	
	Citizenship: Japan	L-T'S MITTING	cua romana,	willaw-bu	, lokyo lo	o-ouur, Ja	pan
	Ornamin bahan				ſ		_
	Jan M.	•	\bigcap	NAMO	hia.	2014	
	Hiroaki Yoda	T THE PERSON NAMED IN	Date:	1000	***************************************		TOMBONO TOMBONO
	[7th Inventor]						
	Residence Address: Icheon-si, Gyeonggi-do, K						
010	Mailing Address: c/o Patent Development Tes		בום ממאו	- 0001 C-		3	*
/#//	Budai-eub,Iche Mon-si, Gyeonggi-do, 467-701	iii, 46ii i Toroo	oor, with blu	g., augl, cij	eougenun	g-aaero,	
21/1/4	Citizenship: Republic of Korea	EZENLEDEL .					
A. II.	Araborough, respectito or was as						
						1.8	
*							
		****************	the safe of books are as his for a reconstruction of the same and the				
	Jae Geun Oh		Date:				
	· · · · · · · · · · · · · · · · · · ·		•				
	[8th Inventor]				*		
	Residence Address: Icheon-si, Gyeonggi-do, K	Lorea					
2	Mailing Address: c/o Patent Development Tes	am, 4th f	oor, M7B Bld	g., 2091, Gy	eongchun/	g-daero,	
of hi	Budai-eub, Ichemon-si, Gyeonggi-do, 467-701	Korea				•	
3/2/11	Citizenship: Republic of Korea					-	
5 E			• •				
	•			•		*	
					. •	•	
	Keum Bum Lee	and the control of the balls of the control	Date:	Annalysis de colonistic differentiation in management (1990) and 4 months		Martinia and a second a second and a second	Land of the Astronomy of the Control
*							
	[9th Inventor]			-			
	Residence Address: Seoul, Korea						
and the same of th	Mailing Address: c/o Patent Development Tes	ım 4th fi	oor M7R Rid	e onat a	rommen haara	or daimes	
-001	Budai-eub, Iche on-si, Gyeonggi-do, 467-701	Korea	own are the way	8., 2002, 43	consonni	g-uaeru,	
3/21/16	Citizenship: Republic of Korea	ancom west					
<i>J</i> ,	The management of the state of						
•		***************************************			-		
	Choon Kun Ryu	, .	Date:	5 x			
	family T				2		
**	[10th Inventor]		•				
	Residence Address: Icheon-si, Gyeonggi-do, K	lorea					
-2-77	Mailing Address: c/o Patent Development Tes	am, 4th fl	oor, M7B Bld	g., 2091, Gy	reongchun	g-daero,	
0,9611	Budar-eub, Ichemon-si, Gyeonggi-do, 467-701	Korea					
3/21116	Citizenship: Republic of Korea						
ms. I						•	
				•			
			-			•	
•	Hyung Suk Lee	- The State Control of the Sta	Date:	 Отножение подпосывание и подпосывание подпосы 	TOTAL CONTROL CONTROL CONTROL CONTROL	Promise hand Citizens addition in the other sections	
			water sally 1673 or to			,	

ASSIGNMENT

ACG065818-USA-B

[6th Inventor] Residence Address: Seoul, Korea Mailing Address: c/o IP Division, 35th floor, 1-1, Shibaura 1-chome, Minato-ku, Tokyo 105-8001, Japan Citizenship: Japan

Hiroaki Yoda

[7th Inventor]

Residence Address: Ichson-si, Gyeonggi-do, Korea

Mailing Address: c/o Patent Development Team, 4th floor, M7B Bldg., 2091, Gyeongchung-daero,

Budai-eub, Icheron-si, Gyeonggi-do, 467-701 Kores

Citizenship: Republic of Korea

[8th Inventor]

Residence Address; Icheon-si, Gyeonggi-do, Korea Mailing Address; ove Patent Development Isam, 4th figor, M7B Bldg.,

Budai-eub,Ichekon-si, Gyeonggi-do, 467-701 Korea

Citizenship: Republic of Korea

Keum Bum Lee

Keum Bum Lee

2014 23,

[9th Inventor]

Residence Address: Secul, Korek

Mailing Address: c/o Patent Development Team, 4th floor, M7B Bldg., 2081, Gyeongchung-daero, Budai-eub Icheron-si, Gyeonggi-do, 467-701 Korea

Citizenship: Republic of Korea

Choon Kun Ryu

[10th Inventor]

Residence Address: Icheon-si, Gyeonggi-do, Korea

Mailing Address: c/o Patent Development Team, 4th floor, M7B Bldg., 2091, Gyeongchung-daero,

Budai-eub,Ichenon-si, Gyeonggi-do, 467-701 Korea

Citizenship: Republic of Korea

SK hynix immanimimmanimim

2009228/10.73.42.154/2014-05-21 15:58

ASSIGNMENT

ACG065818-USA-B (13S0592)

	[6th Inventor] Residence Address: Seoul, Korea Mailing Address: c/o IP Division, 35th floor, 1-1, Shib Citizenship: Japan	aura 1-chome, Minato-ku, Tokyo 105-8001, Japan
APPE	Hiroaki Yoda	Date:
3/21/16	[7th Inventor] Residence Address: Icheon-si, Gyeonggi-do, Korea Mailing Address: c/o Patent Development Team, 4th: Budai-eub,Ichekon-si, Gyeonggi-do, 467-701 Korea Citizenship: Republic of Korea	floor, M7B Bldg., 2091, Gyeongchung-daero,
	Jae Geun Oh	Date:
3/4/16	[8th Inventor] Residence Address: Icheon-si, Gyeonggi-do, Korea Mailing Address: c/o Patent Development Team, 4th Budai-eub,Iche)(on-si, Gyeonggi-do, 467-701 Korea Citizenship: Republic of Korea	fioor, M7B Bldg., 2091, Gyeongchung-daero,
,	Keum Bum Lee	Date:
3/2/11	[9th Inventor] Residence Address: Secul, Korea Mailing Address: c/o Patent Development Team, 4th Budai-eub,Iche Jon-ai, Gyeonggi-do, 467-701 Korea Citizenship: Republic of Korea	floor, M7B Bidg., 2091, Gyeongchung-daero,
	Choon Kun Ryu	Date: May 23, 2014
3/2/1	[10th Inventor] Residence Address: Icheon-si, Gyeonggi-do, Korea Mailing Address: c/o Patent Development Team, 4th Budai-eub,Ichehon-si, Gyeonggi-do, 467-701 Korea / Citizenship: Republic of Korea	floor, M7B Bldg., 2091, Gyeongchung-daero,
	Hyung Suk Lee	Date:

2ページ

ASSIGNMENT

ACG065818-USA-B (13S0592)

Re M. Bu // Ci

[11th Inventor].
Residence Address: Icheon-si, Gyeonggi-do, Korea
Mailing Address: c/o Patent Development Team, 4th floor, M7B Bldg., 2091, Gyeongchung-daero,
Budai-eub,Icheiton-si, Gyeonggi-do, 467-701 Korea
Citizenship: Republic of Korea

Sook Joo Kim

Sook Joo Kim

Date May 23, 2014

SKhynix muunnamunamun

오재근/M공정S당/주간통상/1857

2009226/10.73.42.154/2014-05-21 15:58

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3774117

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Execution Date
03/19/2014
02/25/2014
02/25/2014
02/25/2014
02/27/2014
03/19/2014
05/23/2014
05/23/2014
05/23/2014
05/23/2014
05/23/2014

RECEIVING PARTY DATA

Name:	KABUSHIKI KAISHA TOSHIBA
Street Address:	1-1, SHIBAURA 1-CHOME
Internal Address:	MINATO-KU
City:	TOKYO
State/Country:	JAPAN
Postal Code:	105-8001
Name:	SK HYNIX INC.
Street Address:	2091, GYEONGCHUNG-DAERO
Internal Address:	BUDAI-EUB
City: JCHEON-SI	ICHENON-SI, GYEONGGI-DO
State/Country:	KOREA, REPUBLIC OF
Postal Code:	467-701

PROPERTY NUMBERS Total: 1

Property Type	Number	The second second
Application Number:	14202802	Service Control

CORRESPONDENCE DATA

PATENT REEL: 038188 FRAME: 0390

RECORDED: 03/21/2016