503641316 01/08/2016

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3687949

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
JONATHAN STEEN	11/10/2015
MIKHAIL KOZLOV	11/10/2015
HERBERT LUTZ	10/13/2015
JOSEPH PARRELLA	12/16/2015
ELIZABETH M. GOODRICH	10/13/2015
BALA RAGHUNATH	10/05/2015

RECEIVING PARTY DATA

Name:	EMD MILLIPORE CORPORATION	
Street Address:	290 CONCORD ROAD	
City:	BILLERICA	
State/Country:	MASSACHUSETTS	
Postal Code:	01821	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	14839852

CORRESPONDENCE DATA

Fax Number: (978)341-0136

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: 978-341-0036

kellie.varno@hbsr.com Email: ALICE O. CARROLL, ESQ. **Correspondent Name:**

Address Line 1: 530 VIRGINIA ROAD, P.O. BOX 9133

Address Line 2: HAMILTON, BROOK, SMITH & REYNOLDS, P.C. CONCORD, MASSACHUSETTS 01742-9133 Address Line 4:

ATTORNEY DOCKET NUMBER:	0046.2048-001
NAME OF SUBMITTER:	KELLIE J. VARNO
SIGNATURE:	/Kellie J. Varno/
DATE SIGNED:	01/08/2016

PATENT REEL: 037441 FRAME: 0841 503641316

Total Attachments: 20 source=0046.2048-001 Assignment#page1.tif source=0046.2048-001 Assignment#page2.tif source=0046.2048-001 Assignment#page3.tif source=0046.2048-001 Assignment#page4.tif source=0046.2048-001 Assignment#page5.tif source=0046.2048-001 Assignment#page6.tif source=0046.2048-001 Assignment#page7.tif source=0046.2048-001 Assignment#page8.tif source=0046.2048-001 Assignment#page9.tif source=0046.2048-001 Assignment#page10.tif source=0046.2048-001 Assignment#page11.tif source=0046.2048-001 Assignment#page12.tif source=0046.2048-001 Assignment#page13.tif source=0046.2048-001 Assignment#page14.tif source=0046.2048-001 Assignment#page15.tif source=0046.2048-001 Assignment#page16.tif source=0046.2048-001 Assignment#page17.tif source=0046.2048-001 Assignment#page18.tif source=0046.2048-001 Assignment#page19.tif source=0046.2048-001 Assignment#page20.tif

PATENT REEL: 037441 FRAME: 0842

<u>ASSIGNMENT</u>

WHEREAS, we, Jonathan Steen, Mikhail Kozlov, Herbert Lutz, Joseph Parrella, Elizabeth M. Goodrich and Bala Raghunath, have invented a certain improvement in Processes for Filtering Liquids Using Single Pass Tangential Flow Filtration Systems And Tangential Flow Filtration Systems With Recirculation of Retentate described in an application for Patent,

	the specification of which is about to be filed in the United States Patent Office (use for utility (37 CFR § 1.53(b)) and design filings only);
	is about to be filed in the United States Patent Office as a Provisional Application
X	the specification of which is United States Application No. 14/839,852, filed August 28, 2015;
\boxtimes	the specification of which is a Patent Cooperation Treaty Application, International Application No. [], filed [], which designates the United States of America [and is assigned United States Application No.];
a de la companya de l	which was patented under United States Patent No. [].

WHEREAS, EMD Millipore Corporation (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the Commonwealth of Massachusetts, and having a usual place of business at 290 Concord Road, General, Massachusetts 01821 desires to confirm its interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue on said invention; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for any and all related provisional and nonprovisional, international and national phase applications, including any and all substitution, reissue, divisional, continuation, and continuation-in-part applications, and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of any future applications including substitution, reissue, divisional or continuation, continuation-in-part applications, and all related provisional and nonprovisional, international and national phase applications, and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved:

AND, we do hereby authorize and request each Patent Office and the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said invention to said ASSIGNEE, its successors, assigns, and legal representatives.

IN TESTIMONY WHEREOF, we	have hereunto set our hands and affixed	our seals the
date set forth below.		
Inventor's Signature:		
	onathan Steen	
State/Commonwealth		
of Mosachuuts,		
County of Misalley		
On this day of day of bullic, personally appeared Jonathan Steep	n, before me, the unders	igned notary
personally known to me, or		
	evidence of identification, which was	
Nostachuett In	18 L'Cluxe	
to be the person whose name was signed of	on the foregoing instrument in my present	ce, and
acknowledged that he/she signed the foreg	going instrument as misther free act and co	J. A.
(SEAL)	Notary Public Lutto M	Wachast
	Annette M. Marchant	(print name)
	My Commission expires // 12f	1249

Docket No. 0046.2048-001 (P 14/159)

Inventor's Signature:	1 1177
State/Commonwealth of Market Market County of Market Market	khail Kozlov
On this day of	before me, the undersigned notary,
personally known to me, or	
proved to me through satisfactory ev	
to be the person whose name was signed on acknowledged that he/she signed the forego (SEAL)	the foregoing instrument in my presence, and ing instrument as his/her free act and deed. Notary Public All Machant (print name) My Commission expires // Jef 130/9
Inventor's Signature:	Ierbert Lutz
State/Commonwealth of County of	
On this day of public, personally appeared Herbert Lutz,	20 , before me, the undersigned notary
personally known to me, or	
proved to me through satisfactory ev	vidence of identification, which was
to be the person whose name was signed on acknowledged that he/she signed the forego	the foregoing instrument in my presence, and ing instrument as his/her free act and deed.
(SEAL)	Notary Public
	(print name)
	My Commission expires/

- 3 -

Inventor	Date
Jose	ph Parrella
Witness Signature	
Print Witness Name	40
Address	
Witness Signature	
Print Witness Name	
Address	
Inventor's Signature:	
State/Commonwealth	Elizabeth M. Goodrich
of	
County of	
On this day of public, personally appeared Elizabeth	M. Goodrich, before me, the undersigned notary
personally known to me, or	
proved to me through satisfact	ory evidence of identification, which was
to be the person whose name was sign acknowledged that he/she signed the f	ned on the foregoing instrument in my presence, and foregoing instrument as his/her free act and deed.
(SEAL)	Notary Public
•	(print name
	My Commission expires //

. 4 -

Inventor	Date	
	Bala Raghunath	
Witness Signature		
Address		
and the second s		
Witness Signature		
Print Witness Name		
Address		

ASSIGNMENT

WHEREAS, we, Jonathan Steen, Mikhail Kozlov, Herbert Lutz, Joseph Parrella, Elizabeth M. Goodrich and Bala Raghunath, have invented a certain improvement in Processes for Filtering Liquids Using Single Pass Tangential Flow Filtration Systems And Tangential Flow Filtration Systems With Recirculation of Retentate described in an application for Patent,

	the specification of which is about to be filed in the United States Patent Office (use for utility (37 CFR § 1.53(b)) and design filings only);
	is about to be filed in the United States Patent Office as a Provisional Application
X	the specification of which is United States Application No. 14/839,852, filed August 28, 2015;
\boxtimes	the specification of which is a Patent Cooperation Treaty Application, International Application No. [], filed [], which designates the United States of America [and is assigned United States Application No.];
	which was patented under United States Patent No. [].

WHEREAS, EMD Millipore Corporation (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the Commonwealth of Massachusetts, and having a usual place of business at 290 Concord Road, Concord, Massachusetts 01821 desires to confirm its interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue on said invention; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for any and all related provisional and nonprovisional, international and national phase applications, including any and all substitution, reissue, divisional, continuation, and continuation-in-part applications, and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of any future applications including substitution, reissue, divisional or continuation, continuation-in-part applications, and all related provisional and nonprovisional, international and national phase applications, and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

AND, we do hereby authorize and request each Patent Office and the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said invention to said ASSIGNEE, its successors, assigns, and legal representatives.

IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the

Inventor's Signature:	
State/Commonwealth of Massachutt County of Mildlewa	ail Kozlov
On this 8 day of Spatus of public, personally appeared Mikhail Kozlov,	2015, before me, the undersigned notary
personally known to me, or	
proved to me through satisfactory evid	ence of identification, which was
Notary Public Commonwealth of Massachusetts Adv. Commission Express	
Inventor's Signature:	bert Dutz
State/Commonwealth of Massachustte County of Middlese	
On this 15 day of October public, personally appeared Herbert Lutz,	2015, before me, the undersigned notary
personally known to me, or	
proved to me through satisfactory evid	ence of identification, which was Employee identification
to be the person whose name was signed on the acknowledged that he/she signed the foregoing	e foregoing instrument in my presence, and g instrument as his/her free act and deed.
Notary Public Commonwealth of Massachusetts My Commission Expires	Notary Public THUS (print name) My Commission expires 09 / 19 / 2019

Inventor		Date
	Joseph Pa	rrella
Witness Signature		
Print Witness Name	MATERIAL MAT	
Address		
Witness Signature		
Print Witness Name		
Address	L-MANY -	
Inventor's Signature: State/Commonwealth of Massachusta County of Middlese	Елгао	éth M. Goodrich
On this 15 day of public, personally appeared	of <u>Cotober</u> Elizabeth M. G	20/5, before me, the undersigned notary oodrich,
personally known to	me, or	
proved to me throug		vidence of identification, which was
to be the person whose nam acknowledged that he/she s	e was signed on igned the forego	the foregoing instrument in my presence, and ing instrument as his/her free act and deed. Notary Public
Commonwealth My Comm	D. HUBBARD ry Public r of Massachusetts ilssion Expires ins 10, 2010	Plisa het D. Hobard (print name)

Docket No. 0046.2048-001 (P 14/159)

Inventor		Date	
•	Bala Raghunath		
Witness Signature			
Witness Signature			
Print Witness Name			
Address			

ASSIGNMENT

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NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue on said invention; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for any and all related provisional and nonprovisional, international and national phase applications, including any and all substitution, reissue, divisional, continuation, and continuation-in-part applications, and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest

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IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the

Inventor's Signature:	
_	Mikhail Kozlov
State/Commonwealth	
of County of	
On this day of public, personally appeared Mikhail Ko	
public, personally appeared withhall ix	J210 V,
personally known to me, or	
proved to me through satisfacto	ory evidence of identification, which was
to be the person whose name was signed acknowledged that he/she signed the fo	ed on the foregoing instrument in my presence, and oregoing instrument as his/her free act and deed.
(SEAL)	Notary Public
	(print name)
	My Commission expires//
Inventor's Signature:	
State/Commonwealth	Herbert Lutz
of	
County of	
On this day of public, personally appeared Herbert Lu	
personally known to me, or	
,	ory evidence of identification, which was
to be the person whose name was signed acknowledged that he/she signed the fo	ed on the foregoing instrument in my presence, and oregoing instrument as his/her free act and deed.
(SEAL)	Notary Public
()	(print name
	My Commission expires//

- 3 -

Inventor	Joseph Parrella	Date_	160562015
Witness Signature & Marie	ttl Durin		
Print Witness Name 911 zcu			
Address 200 Willou	· Aue Unia	-3 Somer	ine Ma
02144			
Witness Signature Grant Witness Name	ly a Kwong		
Address 195 Thomas Bo	gin Parkway /	9PT410, Quin	cy, MA 02169
Inventor's Signature: State/Commonwealth of County of On this day of _	Elizabeth M. G		he undersigned notary
public, personally appeared Eli		zo , ociore me, t	no undoisigned nowly
personally known to me	e, or		
proved to me through s	atisfactory evidence o	fidentification, whic	h was
to be the person whose name v acknowledged that he/she sign			
(SEAL)	Notary 2	Public	A PART -
			(print name)
	My Cor	nmission expires	

Inventor	Date
	Bala Raghunath
Witness Signature	
Address	
Witness Signature	
Print Witness Name	
Address	

<u>ASSIGNMENT</u>

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2226818.v1

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IN TESTIMONY WHEREOF, we have hereunto set our hands and affixed our seals the

date set forth below.	
Inventor's Signature:	
	Jonathan Steen
State/Commonwealth of County of	
On this day of public, personally appeared Jonatha	n Steen, before me, the undersigned notary
personally known to me, or	
proved to me through satisfa	ectory evidence of identification, which was
to be the person whose name was signed that he/she signed that	gned on the foregoing instrument in my presence, and e foregoing instrument as his/her free act and deed.
(SEAL)	Notary Public
	(print name)
	My Commission expires / /

- 2 -

date set forth helow

Inventor's Signature:	NOTE THE PARTY OF
State/Commonwealth of County of	Mikhail Kozlov
On this day of public, personally appeared Mikhail	20 , before me, the undersigned notary l Kozlov,
personally known to me, or	
proved to me through satisfa	actory evidence of identification, which was
	igned on the foregoing instrument in my presence, and e foregoing instrument as his/her free act and deed.
(SEAL)	Notary Public
	My Commission expires//
Inventor's Signature:	Herbert Lutz
State/Commonwealth of County of	
On this day of public, personally appeared Herber	
personally known to me, or	•
proved to me through satisfa	actory evidence of identification, which was
to be the person whose name was sacknowledged that he/she signed th	igned on the foregoing instrument in my presence, and ne foregoing instrument as his/her free act and deed.
(SEAL)	Notary Public
,	(print name)
-	My Commission expires//

- 3 -

Inventor	Date
Joseph	h Parrella
Witness Signature	
Print Witness Name	***
Address	
Witness Signature	
Print Witness Name	No. of the Control of
Address	
El	izabeth M. Goodrich
State/Commonwealth	
of County of	·
On this day of public, personally appeared Elizabeth N	20 , before me, the undersigned notary 1. Goodrich,
personally known to me, or	
proved to me through satisfactor	ry evidence of identification, which was
	· · · · · · · · · · · · · · · · · · ·
	d on the foregoing instrument in my presence, and regoing instrument as his/her free act and deed.
(SEAL)	Notary Public
	(print name
	My Commission expires//

- 4 -

Docket No. 0046.2048-001 (P 14/159)

Inventor B. Raghill Date Oct. 5 2015
Bala Raghunath
Witness Signature
Print Witness Name Jim Neville.
Address 900 Middlesex Turnpile Rd. FMD Millipme
Billerica MAO1821
~~~ ~~ ~~ ~~ ~~ ~~ ~~ ~~ ~~ ~~ ~~ ~~ ~~
Witness Signature / Ceq -
Print Witness Name Magan Tainer
Address 900 Middlegex Turnpine Rd. (MD Millipere Billenica)

- 5 -