## 505371101 03/12/2019

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5417893

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
JENNIFER F. SCHUMACHER	01/23/2019
SABER TAGHVAEEYAN	01/23/2019
RONALD J. JESME	01/23/2019
ANDREW P. BONIFAS	03/12/2019
NICHOLAS G. AMELL	01/24/2019
BROCK A. HABLE	01/23/2019
GOLSHAN GOLNARI	01/23/2019

#### **RECEIVING PARTY DATA**

Name:	3M INNOVATIVE PROPERTIES COMPANY
Street Address:	P.O. BOX 33427
City:	ST. PAUL
State/Country:	MINNESOTA
Postal Code:	55133-3427

#### **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	16328767

#### **CORRESPONDENCE DATA**

**Fax Number:** (651)736-3833

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:** 651-733-1500

**Email:** jlanderson6@mmm.com

Correspondent Name: 3M INNOVATIVE PROPERTIES COMPANY

Address Line 1: P.O. BOX 33427

Address Line 4: ST. PAUL, MINNESOTA 55133-3427

ATTORNEY DOCKET NUMBER:	78464US006
NAME OF SUBMITTER:	JAMIE L. ANDERSON
SIGNATURE:	/Jamie L. Anderson/
DATE SIGNED:	03/12/2019

PATENT 505371101 REEL: 048577 FRAME: 0583

This document serves as an Oath/Declaration (37 CFR 1.63).

**Total Attachments: 7** 

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Case No:

78464US006

As a below named inventor, I believe I am an original inventor or an original joint inventor of a claimed invention in the application and for which a patent is sought on the invention entitled:

S		DELING, ANALYZING, DETECTING, AND FLUID NETWORKS
The specific	cation of which:	
is attac	ched hereto;	
☐ was file as Uni	ed on ted States Application No.	
is iden	tified as PCT International Application No.  July 31, 2017	PCT/US2017/044727
The above-i	identified application was made or authorize	ed to be made by me.
and do here 3M COMPA assigns, the continuation by me or ma termination all Letters P thereto (incl own name a continuation continuation art upon the thave been to do further a consideratio that may be and interest countries; a do hereby granted upo title, and interest countries, a	by assign and transfer unto the 3M INNOVA- INY, and a corporation of Delaware, having a entire right, title, and interest in and to the state of the	t of which is acknowledged, I have agreed to assign and transfer ATIVE PROPERTIES COMPANY, a wholly-owned subsidiary of its principal office at Saint Paul, Minnesota, its successors and said invention and application, and in and to any division or it in and to any and all improvements in the said invention made approvement is made during, or within one year after the lany of its existing or future subsidiaries), and in and to any and ons thereof, of the United States of America and countries foreign thilly Models, or Inventors' Certificates in foreign countries in its gn applications to which such applications are entitled under have been or may be granted thereon or on any divisional, and, reissue, or other or further application based in whole or in to be held and enjoyed as fully and exclusively as they would been made;  and administrators, to execute and deliver without further didocuments, and to perform such other acts as I lawfully may, uccessors, assigns, and nominees, fully to secure its right, title, are Patent, Utility Models, or Inventors' Certificates in any and all Patents to issue any and all Letters Patent which may be novative Properties Company, as the assignee of the entire right
Legal Nam	ne of Inventor:	
Jennifer	F. Schumacher	necession .
Inventor's	Signature:	Date:
	FSchool-	23/an7019

Case No:

78464US006

As a below named inventor, I believe I am an original inventor or an original joint inventor of a claimed invention in the application and for which a patent is sought on the invention entitled:

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	s attached hereto				
السا	s audured neretu				
	was filed on as United States	Application No.			
	s identified as PC iled on	T International Application No. July 31, 2017		PCT/US2017/044727	
he a	bove-identified a	oplication was made or authorized to	be made by	ne.	
		that any willful false statement made f not more than 5 years, or both.	in this declar	ation is punishable under 18 U.S.C. 1001	by
IM Crussign continuous me ermiruli Lei heretown rontern continuous mare un ermiruli ave	OMPANY, and a ns, the entire righ nuation (in whole a or made jointly values Patent, reex to (including the right ational conventionuation (in whole apon the said invested been by me had to the said invested to the said	corporation of Delaware, having its part, title, and interest in and to the said or in part) of said application, and in with others (provided any such improvided any such improvided any such improvided any such improving to apply for Letters Patent, Utility in any priority rights for such foreign ans, treaties, or otherwise), which have or in part), renewal, reexamination, rention or improvements thereon, to be this assignment and transfer not bee	principal office I invention and and to any and wement is mand y of its existing thereof, of the Models, or in applications to we been or mand e issue, or oth e held and en in made;	IES COMPANY, a wholly-owned subsidiar at Saint Paul, Minnesota, its successors at application, and in and to any division or drail improvements in the said invention made during, or within one year after the growing or future subsidiaries), and in and to any United States of America and countries for the such applications are entitled underly be granted thereon or on any divisional, are or further application based in whole or oyed as fully and exclusively as they would	and ade and preigr its r
onside hat matering in the contract of the con	deration any furth nay be deemed n	er applications, assignments, and de ecessary by said Company, its succ	ocuments, and essors, assigr	ors, to execute and deliver without further I to perform such other acts as I lawfully m s, and nominees, fully to secure its right, t Models, or Inventors' Certificates in any ar	itle,
<b>jrant</b> e	ereby authorize a ed upon any of th and interest therei	e said applications, to said 3M Innov	tents to issue ative Properti	any and all Letters Patent which may be es Company, as the assignee of the entire	right
Lega	al Name of Invent	or:	***************************************		source S
Sat	oer Taghvae	eyan			eroreno.
	ntor's Signature:		Date:		
3		7	1 1/1	7 3 1 2019	00000000

Case No:

78464US006

As a below named inventor, I believe I am an original inventor or an original joint inventor of a claimed invention in the application and for which a patent is sought on the invention entitled:

	SYSTEMS	AND METHODS FOR MOD MONITORING I		LYZING, DETECTING, AND ORKS	
The	specification of whi	ich:			
	is attached hereto	i.			
	was filed on as United States A	opplication No.			
Ø	is identified as PC filed on	T International Application No. July 31, 2017		PCT/US2017/044727	
The	above-identified ap	plication was made or authorized	I to be made by i	me.	
		hat any willful false statement ma not more than 5 years, or both.	ide in this declar	ation is punishable under 18 U.S.C. 1001 by	<b>y</b> :
and 3M assi cont by n term all L ther cont part hav	do hereby assign a COMPANY, and a congress, the entire right tinuation (in whole congress) and of made jointly with the congress of the congre	and transfer unto the 3M INNOVA corporation of Delaware, having it it, title, and interest in and to the sor in part) of said application, and with others (provided any such imployment with 3M COMPANY and aminations, reissues, or extension ght to apply for Letters Patent, Ut any priority rights for such foreigns, treaties, or otherwise), which I or in part), renewal, reexamination ntion or improvements thereon, to his assignment and transfer not be	TIVE PROPERT is principal office aid invention and in and to any an provement is matched and of its existing the state of the aid of the ility Models, or in applications to mave been or matched be held and enjoyed.	owledged, I have agreed to assign and trans IES COMPANY, a wholly-owned subsidiary at Saint Paul, Minnesota, its successors ar application, and in and to any division or d all improvements in the said invention ma de during, or within one year after the g or future subsidiaries), and in and to any a United States of America and countries for eventors' Certificates in foreign countries in it which such applications are entitled under y be granted thereon or on any divisional, er or further application based in whole or in oyed as fully and exclusively as they would	of nd ide and eign its
con that and	sideration any furtho may be deemed no	er applications, assignments, and ecessary by said Company, its su	I documents, and ccessors, assign	ors, to execute and deliver without further it to perform such other acts as I lawfully ma is, and nominees, fully to secure its right, titl Models, or Inventors' Certificates in any and	le,
grar	hereby authorize a nted upon any of the and interest therei	said applications, to said 3M Inr	Patents to issue novative Properti	any and all Letters Patent which may be es Company, as the assignee of the entire r	ight,
Le	gal Name of Invent	OC:			
R	onald D. Jesm	e			- Cooper
Inv	ventor's Signature:	201	Date:	5 Jan 2019	.demanderada.

Case No:

78464US006

As a below named inventor, I believe I am an original inventor or an original joint inventor of a claimed invention in the application and for which a patent is sought on the invention entitled:

SYSTEM	S AND METHODS FOR MODI MONITORING FI	ELING, ANA LUID NETW	ALYZING, DETECTING, AND FORKS
The specification of v	vhich:	•	
is attached here	to;		
was filed on as United States	Application No.		
is identified as F	PCT International Application No.  July 31, 2017		PCT/US2017/044727
The above-identified	application was made or authorized t	o be made by	me.
I hereby acknowledgi fine or imprisonment	e that any willful faise statement mad of not more than 5 years, or both.	e in this decla	ration is punishable under 18 U.S.C. 1001 by
and do nereby assign 3M COMPANY, and assigns, the entire rig continuation (in whole by me or made jointly termination of, my en all Letters Patent, recthereto (including the own name and to claimternational conventicontinuation (in whole part upon the said invalve been by me had I do further agree for consideration any funthat may be deemed and interest as afores countries; and	and transfer unto the 3M INNOVATI a corporation of Delaware, having its tht, title, and interest in and to the sail a or in part) of said application, and in with others (provided any such impropriet with 3M COMPANY and an examinations, reissues, or extensions right to apply for Letters Patent, Utilit im any priority rights for such foreign ons, treaties, or otherwise), which ha a or in part), renewal, reexamination, rention or improvements thereon, to be it this assignment and transfer not be myself and for my heirs, executors, a ther applications, assignments, and d necessary by said Company, its successid and to obtain or maintain Letters and request the Commissioner of Pa he said applications, to said 3M Inno-	VE PROPER' principal office d invention an and to any ar ovement is ma ny of its existir thereof, of the ty Models, or I applications to ve been or ma reissue, or oth the held and en en made; and administrat locuments, an tessors, assign Patent, Utility	owledged, I have agreed to assign and transfer ITES COMPANY, a wholly-owned subsidiary of at Saint Paul, Minnesota, its successors and d application, and in and to any division or and all improvements in the said invention made ade during, or within one year after the ag or future subsidiaries), and in and to any and a United States of America and countries foreign eventors' Certificates in foreign countries in its a which such applications are entitled under as be granted thereon or on any divisional, her or further application based in whole or in joyed as fully and exclusively as they would do perform such other acts as I lawfully may, as, and nominees, fully to secure its right, title, Models, or Inventors' Certificates in any and all any and all Letters Patent which may be see Company, as the assignee of the entire right
Legal Name of Inver	JĮQL.	**************************************	
Andrew P. Bor	ifas		zenacoco
Inventor's Signature		Date:	
an A	$\Delta A$	12.Mc	- 20) G

PATENT

**REEL: 048577 FRAME: 0588** 

Case No.

78464US006

As a below named inventor, I believe I am an original inventor or an original joint inventor of a claimed invention in the application and for which a patent is sought on the invention entitled:

SYSTE	MS AND METHODS FOR MC MONITORING	DELING, ANA FLUID NETW	LYZING, DETECTING, AND ORKS
The specification o	of which:	······································	
is attached he	ereto;		
was filed on as United Sta	les Application No.		
is identified a	s PCT International Application No. July 31, 2017		PCT/US2017/044727
The above-identifie	ed application was made or authorize	ad to be made by	me,
fine or imprisonme In addition, for goo and do hereby ass 3M COMPANY, an	nt of not more than 5 years, or both.  d and valuable consideration, receip ign and transfer unto the 3M INNOV, id a corporation of Delaware, having	t of which is ackno ATIVE PROPERT its principal office	ation is punishable under 18 U.S.C. 1001 by  bwledged, I have agreed to assign and transfer IES COMPANY, a wholly-owned subsidiary of at Saint Paul, Minnesota, its successors and
continuation (in when the property of the continuation of, my all Letters Patent, the country of the continuation (in when the continuation (in when the continuation (in whe part upon the said)	ole or in part) of said application, and the with others (provided any such in employment with 3M COMPANY and reexaminations, reissues, or extension he right to apply for Letters Patent, Localim any priority rights for such foreightions, treaties, or otherwise), which tole or in part), renewal, reexaminatical.	d in and to any an nprovement is mad any of its existing ons thereof, of the Itility Models, or Ir gn applications to have been or mad on, reissue, or oth to be held and en	d application, and in and to any division or dall improvements in the said invention made de during, or within one year after the g or future subsidiaries), and in and to any and United States of America and countries foreign eventors' Certificates in foreign countries in its which such applications are entitled under y be granted thereon or on any divisional, er or further application based in whole or in loyed as fully and exclusively as they would
consideration any t that may be deeme	further applications, assignments, an ed necessary by said Company, its s	d documents, and uccessors, assign	ors, to execute and deliver without further it to perform such other acts as I lawfully may, is, and nominees, fully to secure its right, title, Models, or Inventors' Certificates in any and all
I do hereby authori granted upon any c title, and interest th	of the said applications, to said 3M Ir	Patents to issue movative Properti	any and all Letters Patent which may be es Company, as the assignee of the entire right,
Legal Name of In	ventor:	······	
Nicholas G. /	Amell		and the second
Inventor's Signati	ire:	Date:	24.19

Case No:

78464US006

As a below named inventor, I believe I am an original inventor or an original joint inventor of a claimed invention in the application and for which a patent is sought on the invention entitled:

SYSTEMS	AND METHODS FOR MODI MONITORING FL	ELING, ANALYZING, DETECTING, AND LUID NETWORKS
The specification of w	······································	
☐ is attached heret		
was filed on as United States	Application No.	
is identified as Po	CT International Application No. July 31, 2017	PCT/US2017/044727
The above-identified a	application was made or authorized to	o be made by me.
n addition, for good and do hereby assign M COMPANY, and a assigns, the entire right continuation (in whole by me or made jointly ermination of, my empail Letters Patent, reconstruction (in whole boart upon the said investment of the part upon the said investment upon the said investm	and transfer unto the 3M INNOVATI' corporation of Delaware, having its at, title, and interest in and to the said or in part) of said application, and in with others (provided any such improblement with 3M COMPANY and artaminations, reissues, or extensions right to apply for Letters Patent, Utility any priority rights for such foreign any priority rights for such foreign and the part), renewal, reexamination, rention or improvements thereon, to be this assignment and transfer not been applications, assignments, and decessary by said Company, its succession and to obtain or maintain Letters	nd administrators, to execute and deliver without further ocuments, and to perform such other acts as I lawfully may, essors, assigns, and nominees, fully to secure its right, title, Patent, Utility Models, or Inventors' Certificates in any and all
do hereby authorize a granted upon any of the itle, and interest there	e said applications, to said 3M Innov	tents to issue any and all Letters Patent which may be  ative Properties Company, as the assignee of the entire right,
Legal Name of Invent	OF.	· ·
Brock A. Hable		
Inventor's Signature:		Date:
on Apr		01/23/19

Case No:

78464US006

As a below named inventor, I believe I am an original inventor or an original joint inventor of a claimed invention in the application and for which a patent is sought on the invention entitled:

SYSTEMS	AND METHODS FOR MODE MONITORING FL	-		
The specification of wh	ich:	***************************************		**
is attached hereto	$\Sigma_i^{\cdot \cdot}$			
was filed on as United States /	Application No.			
is identified as PC filed on	T International Application No. July 31, 2017		PCT/US2017/044727	
hereby acknowledge ine or imprisonment of addition, for good and do hereby assign a	f not more than 5 years, or both.  Id valuable consideration, receipt of and transfer unto the 3M INNOVATIVE.	in this declara which is ackno /E PROPERTI	ition is punishable under 18 U.S.C. 1001 by wledged, I have agreed to assign and transfer ES COMPANY, a wholly-owned subsidiary of	F.
assigns, the entire right continuation (in whole to made jointly we me or made jointly we mination of, my empail Letters Patent, reext hereto (including the ripown name and to claim nternational conventional upon the said invested.	t, title, and interest in and to the said or in part) of said application, and in with others (provided any such impro- sloyment with 3M COMPANY and an aminations, reissues, or extensions I ight to apply for Letters Patent, Utility any priority rights for such foreign a ns, treaties, or otherwise), which have or in part), renewal, reexamination, re	I invention and and to any and to any and overwent is made the recording of the polications to been or may elessue, or other held and enjet and en	at Saint Paul, Minnesota, its successors and application, and in and to any division or d all improvements in the said invention made the during, or within one year after the g or future subsidiaries), and in and to any and United States of America and countries foreign ventors' Certificates in foreign countries in its which such applications are entitled under to be granted thereon or on any divisional, or or further application based in whole or in byed as fully and exclusively as they would	Ì
consideration any furth hat may be deemed no	er applications, assignments, and do ecessary by said Company, its succe	ocuments, and essors, assign	ors, to execute and deliver without further to perform such other acts as I lawfully may, is, and nominees, fully to secure its right, title, fodels, or Inventors' Certificates in any and all	1
	e said applications, to said 3M Innov		any and all Letters Patent which may be as Company, as the assignee of the entire righ	ţ
Legal Name of Invent	Of:	***************************************		
Golshan Golnar	i			
Inventor's Signature:		Date:		
Gulshan G	where	1231	2019	

PATENT REEL: 048577 FRAME: 0591

**RECORDED: 03/12/2019**