

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT5746275

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST

CONVEYING PARTY DATA

Name	Execution Date
ASTROTECH TECHNOLOGIES, INC.	09/30/2019
1ST DETECT CORPORATION	09/30/2019

RECEIVING PARTY DATA

Name:	THOMAS B PICKENS III
Street Address:	201 W. 5TH STREET
Internal Address:	SUITE 1275
City:	AUSTIN
State/Country:	TEXAS
Postal Code:	78701

PROPERTY NUMBERS Total: 26

Property Type	Number
Patent Number:	9312112
Patent Number:	9451364
Patent Number:	8784737
Patent Number:	9599547
Patent Number:	7973277
Patent Number:	8334506
Patent Number:	8704168
Patent Number:	9196467
Patent Number:	8754361
Patent Number:	10229824
Patent Number:	8975573
Patent Number:	9299545
Patent Number:	8610055
Patent Number:	9082599
Patent Number:	9214321
Patent Number:	9804141
Patent Number:	9035244
Patent Number:	8946624

PATENT

Property Type	Number
Patent Number:	9214325
Patent Number:	9570282
Patent Number:	8969794
Patent Number:	9472388
Patent Number:	9870912
PCT Number:	US2018016157
PCT Number:	US2018025708
Application Number:	16277938

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.

Email: svpatents@sheppardmullin.com

Correspondent Name: SHEPPARD MULLIN RICHTER & HAMPTON LLP

Address Line 1: 379 LYTTON AVENUE

Address Line 4: PALO ALTO, CALIFORNIA 94301

ATTORNEY DOCKET NUMBER:	38RP-204791
NAME OF SUBMITTER:	JARED RICCI
SIGNATURE:	/Jared Ricci/
DATE SIGNED:	09/30/2019

Total Attachments: 15

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INTELLECTUAL PROPERTY SECURITY AGREEMENT

THIS INTELLECTUAL PROPERTY SECURITY AGREEMENT (as amended, restated, supplemented or otherwise modified from time to time, the "Agreement") dated as of September 30, 2019 by Astrotech Corporation, a Delaware corporation (the "Company") and 1st Detect Corporation, a Delaware corporation ("1st Detect"), and together with the Company, collectively, the "Grantor"), and Thomas B. Pickens III ("Lender");

W I T N E S S E T H

WHEREAS, the Company and Lender are parties to that certain Secured Promissory Note, dated as of September 5, 2019 (as the same may be amended, restated, supplemented or modified from time to time, the "Note") providing for the extensions of credit to be made to Grantor by Lender;

WHEREAS, each Grantor, Astrotech Technologies, Inc., a Delaware corporation and Lender are parties to that certain Security Agreement, dated as of September 5, 2019 (as the same may be amended, restated, supplemented or modified from time to time, the "Security Agreement") in order to induce the Lender to extend credit to the Company; and

WHEREAS, Grantor has granted to Lender a security interest in substantially all of the assets of Grantor including all right, title and interest of Grantor in, to and under all now owned and hereafter acquired trademarks, copyrights, and patents, together with the goodwill of the business symbolized by Grantor's trademarks, patents and copyrights and all products and proceeds thereof, to secure the payment of all amounts owing by Grantor under the Loan Agreement.

NOW, THEREFORE, in consideration of the premises set forth herein and for other good and valuable consideration, receipt and sufficiency of which are hereby acknowledged, Grantor agrees as follows:

1. Incorporation Security Agreement. The Security Agreement and the terms and provisions thereof are hereby incorporated in their entirety by this reference. All terms capitalized but not otherwise defined herein shall have the same meanings ascribed to them in the Security Agreement.

2. Grant of Security Interests. To secure the payment and performance of the Obligations, Grantor hereby grants to Lender a continuing security interest in Grantor's entire right, title and interest in and to the following whether now owned or existing or hereafter created, acquired or arising:

(i) each trademark, patent and copyright listed on Schedule 1 annexed hereto, (such trademarks, patents and copyrights, the "Trademarks", "Patents" and "Copyrights") together with any reissues, continuations or extensions thereof, and all of the goodwill of the business connected with the use of, and symbolized by, each Trademark, Patent and Copyright; and

(ii) all products and proceeds of the forgoing, including without limitation, any claim by Grantor against third parties for past, present or future (a) infringement or dilution of any trademark or patent, or (b) injury to the goodwill associated with any trademark.

3. Representations and Warranties. Grantor hereby represents and warrants that the Trademarks, Patents and Copyrights listed on Schedule I attached hereto constitute all trademarks, patents and copyrights owned or registered to Grantor as of the date hereof.

4. Right to Bring Suit. Grantor shall have the right, with the prior written consent of Lender, which consent shall not be unreasonably withheld, conditioned or delayed, to bring suit in its own name to enforce the Trademarks, Patents and Copyrights, in which case Lender may, at Lender's option, be joined as a nominal party to this suit if Lender shall be satisfied that the joinder is necessary and that Lender is not incurring any risk of liability by that joinder. Grantor shall promptly, upon demand, reimburse and indemnify, defend, and hold harmless Lender for all damages, costs and expenses, including reasonable attorneys' fees, incurred by Lender pursuant to this paragraph.

5. GOVERNING LAW. THIS AGREEMENT SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF TEXAS WITHOUT REFERENCE TO ITS CHOICE OF LAW PRINCIPLES. FURTHER, THE LAW OF THE STATE OF CALIFORNIA SHALL APPLY TO ALL DISPUTES OR CONTROVERSIES ARISING OUT OF OR CONNECTED TO OR WITH THIS AGREEMENT WITHOUT REGARD TO CONFLICT OF LAW PRINCIPLES.

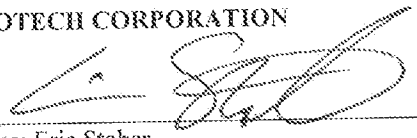
6. CONSENT TO JURISDICTION; WAIVER OF JURY TRIAL. ANY LEGAL ACTION, SUIT OR PROCEEDING WITH RESPECT TO THIS AGREEMENT SHALL BE BROUGHT EXCLUSIVELY IN THE STATE AND FEDERAL COURTS OF THE STATE OF TEXAS IN THE COUNTY OF TRAVIS, IN A CITY TO BE DESIGNATED BY LENDER, AND GRANTOR HEREBY ACCEPTS FOR ITSELF AND IN RESPECT OF ITS PROPERTY, GENERALLY AND UNCONDITIONALLY, THE JURISDICTION OF THE AFOREMENTIONED COURTS. GRANTOR HEREBY EXPRESSLY AND IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY OBJECTION, INCLUDING, WITHOUT LIMITATION, ANY OBJECTION TO THE LAYING OF VENUE OR BASED ON THE GROUNDS OF FORUM NON CONVENIENS, OR BASED ON UPON 28 U.S.C. § 1404, WHICH IT MAY NOW OR HEREAFTER HAVE TO THE BRINGING AND ADJUDICATION OF ANY SUCH ACTION, SUIT OR PROCEEDING IN ANY OF THE AFOREMENTIONED COURTS AND AMENDMENTS TO THE GRANTING OF SUCH LEGAL OR EQUITABLE RELIEF AS IS DEEMED APPROPRIATE BY THE COURT. GRANTOR HEREBY WAIVES ANY RIGHT TO A TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM CONCERNING ANY RIGHTS UNDER THIS AGREEMENT, AND AGREES THAT ANY SUCH ACTION, PROCEEDING OR COUNTERCLAIM SHALL BE TRIED BEFORE A COURT AND NOT BEFORE A JURY.

7. Notices. Any notice required or permitted to be given under this Security Agreement shall be sent in accordance with Section 16 of the Security Agreement.

[Remainder of Page Intentionally Blank]

IN WITNESS WHEREOF, Grantor has duly executed this Agreement as of the date first written above.

ASTROTECH CORPORATION

By: 
Name: Eric Stober
Title: CFO

1ST DETECT CORPORATION

By: 
Name: Eric Stober
Title: CFO

[Signature page to Intellectual Property Security Agreement]

Agreed and Accepted
as of the date first written above:

Thomas B. Pickens III

Signature: Thomas B. Pickens III

[Signature page to Intellectual Property Security Agreement]

SCHEDULE 1

(a) Patents and Patent Licenses

[Schedule 1 to Intellectual Property Security Agreement]

Patent	Country	Status	Registration Date	Patent No./Application No.	Owner Name
Evacuating a Sample Chamber	United States	Granted	12-Apr-16	9,312,112	Astrotech Technologies, Inc.
Evacuating a Sample Chamber	Canada	Granted	4-Jul-17	2,824,525	Astrotech Technologies, Inc.
Evacuating a Sample Chamber	China	Granted	1-Mar-17	ZL 201280012789.1	Astrotech Technologies, Inc.
Evacuating a Sample Chamber	European Community	Granted	3-Jul-19	12703912.1	Astrotech Technologies, Inc.
Evacuating a Sample Chamber	Japan	Granted	11-Nov-16	6039580	Astrotech Technologies, Inc.
Preconcentrating a Sample in a Preconcentrator Evacuated to Substantially the Same Pressure as an Analytical Device	United States	Granted	20-Sep-16	9,451,364	Astrotech Technologies, Inc.
Pre-concentration system of sample	Japan	Granted	11-Nov-16	JP6039580	Astrotech Technologies, Inc.
Preconcentrating a sample	Russia	Pending		RU2012111667A	1st Detect Corp.
Preconcentrating a sample	Taiwan	Granted	16-Jul-11	TW201124710	Astrotech Technologies, Inc.
Introducing An Analyte Into A Chemical Analyzer	United States	Granted	22-Jul-14	8,784,737	Astrotech Technologies, Inc.
Introducing An Analyte Into A Chemical Analyzer	Canada	Granted	2-Apr-19	2826873	Astrotech Technologies, Inc.
Introducing An Analyte Into A Chemical Analyzer	China	Granted	29-Jun-16	ZL 201280007973.7	1st Detect Corporation
Introducing An Analyte Into A Chemical Analyzer	European Community	Granted	1-Jul-15	EP2673616	Astrotech Technologies, Inc.
Introducing An Analyte Into A Chemical Analyzer	Japan	Granted	26-Aug-16	5991993	Astrotech Technologies, Inc.
Introducing An Analyte Into A Chemical Analyzer	United States	Granted	21-Mar-17	9,599,547	Astrotech Technologies, Inc.
Driving a Mass Spectrometer Ion Trap or Mass Filter	United States	Granted	5-Jul-11	7,973,277	Astrotech Technologies, Inc.
Driving a mass spectrometer ion trap or mass filter	China	Granted	2-Apr-14	102171783	Spacehab, Inc.

[Schedule 1 Intellectual Property Security Agreement]







Driving a Mass Spectrometer Ion Trap or Mass Filter	Japan	Granted	12-Sep-14	5612568	Astrotech Technologies, Inc.
End cap voltage control of ion traps	United States	Granted	18-Dec-12	8,334,506	Astrotech Technologies, Inc.
End cap voltage control of ion traps	Canada	Granted	12-Sep-17	2,708,594	Astrotech Technologies, Inc.
End cap voltage control of ion traps	European Community	Granted	24-Jan-18	EP2232522	Astrotech Corp.
End cap voltage control of ion traps	Japan	Granted	12-Sep-14	5613057	Astrotech Technologies, Inc.
End cap voltage control of ion traps	United States	Granted	22-Apr-14	8,704,168	Astrotech Technologies, Inc.
End cap voltage control of ion traps	Japan	Granted	4-Mar-16	5,895,034	Astrotech Technologies, Inc.
Mass Spectrum Noise Cancellation by Alternating Inverted Synchronous RF	United States	Granted	24-Nov-15	9,196,467	Astrotech Technologies, Inc.
Systems and Methods for Adjusting a Mass Spectrometer Output	United States	Granted	17-Jun-14	8,754,361	Astrotech Technologies, Inc.
Chemical Analysis Instrument with Multi-Purpose Pump	United States	Granted	12-Mar-19	10,229,824	Astrotech Technologies, Inc.
Systems and Methods for Calibrating Mass Spectrometers	United States	Granted	10-Mar-15	8,975,573	Astrotech Technologies, Inc.
Systems and Methods for Calibrating Mass Spectrometers	United States	Granted	29-Mar-16	9,299,545	Astrotech Technologies, Inc.
Mass Spectrometer Ion Trap Having Asymmetric End Cap Apertures	United States	Granted	17-Dec-13	8,610,055	Astrotech Technologies, Inc.
Mass Spectrometer Ion Trap Having Asymmetric End Cap Apertures	United States	Granted	14-Jul-15	9,082,599	Astrotech Technologies, Inc.
Methods and Systems for Applying End Cap DC Bias in Ion Traps	United States	Granted	15-Dec-15	9,214,321	Astrotech Technologies, Inc.
Method for Detecting Organic and Inorganic Explosives	United States	Granted	31-Oct-17	9,804,141	Astrotech Technologies, Inc.
Adding primary RF to end cap to modify higher order fields	United States	Draft	19-May-15	9,035,244	Astrotech Technologies, Inc.

[Schedule 1 Intellectual Property Security Agreement]





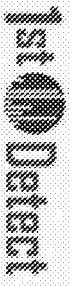
Automatic Gain Control with Defocusing Lens	United States	Granted	3-Feb-15	8,946,624	Astrotech Technologies, Inc.
Mass Spectrometer Having An External Detector	United States	Granted	15-Dec-15	9,214,325	Astrotech Technologies, Inc.
Ion Trap with Radial Opening in Ring Electrode	United States	Granted	14-Feb-17	9,570,282	Astrotech Technologies, Inc.
Ionization Within Ion Trap Using Photoionization and Electron Ionization	United States	Granted	3-Mar-15	8,969,794	Astrotech Technologies, Inc.
Mass Dependent Automatic Gain Control for Mass Spectrometer	United States	Granted	18-Oct-16	9,472,388	Astrotech Technologies, Inc.
Mass Dependent Automatic Gain Control for Mass Spectrometer	United States	Granted	16-Jan-18	9,870,912	Astrotech Technologies, Inc.
Mass Spectrometers Having Real Time Ion Isolation Signal	United States	Granted	19-May-15	9,035,244	Astrotech Technologies, Inc.
Mass Spectrometers Having Real Time Ion Isolation Signal	European Community	Pending		157/44842.4	Astrotech Technologies, Inc.
Mass Spectrometers Having Real Time Ion Isolation Signal	Canada	Pending		2,956,171	Astrotech Technologies, Inc.
System for Transferring Ions to a Mass Spectrometer	PCT	Pending		PCT/US2018/016157	Astrotech Technologies, Inc.
Systems and Methods for Ionizing a Surface	PCT	Pending		PCT/US2018/025708	Astrotech Technologies, Inc.
Focused ion inlet with controlled energy		Draft			Astrotech Technologies, Inc.
Non-toroidal transformer (gapped torroid)		Draft			Astrotech Technologies, Inc.
Particle Detection System and Swabs with Integral, Machine-Readable Identification Data		Pending		16277938	Astrotech Technologies, Inc.

(b) Trademarks and Trademark Licenses






[Schedule 1 Intellectual Property Security Agreement]

Trademark	Country	Status	Class	Registration Date	Registration No.	Owner Name
MMS-1000	United States	Registered	9	27-May-2014	4538267	1st Detect Corporation
1ST DETECT	United States	Registered	9	18-Sep-2012	4211033	1st Detect Corporation
1st Detect & design 	United States	Registered	9	31-Jul-2012	4184200	1st Detect Corporation
Circle design (color) 	United States	Registered	9	24-Jul-2012	4180600	1st Detect Corporation
1ST DETECT	Canada	Registered	9	12-Mar-2015	TMA898548	1st Detect Corporation
MMS-1000	Canada	Registered	9	26-Mar-2015	TMA899653	1st Detect Corporation
1st Detect & design 	Canada	Registered	9	04-May-2016	TMA936781	1st Detect Corporation
Circle Design (black & white) 	Canada	Registered	9	03-Apr-2014	TMA875020	1st Detect Corporation
1ST DETECT	Mexico	REGISTERED	9	14-Oct-2013	1403394	1st Detect Corporation
1st Detect & design 	Norway	REGISTERED	9 10 41	31-Oct-2013	272897	1st Detect Corporation
1st Detect & design 	Switzerland	REGISTERED	9 10 41	22-Oct-2013	650097	1st Detect Corporation





[Schedule 1 Intellectual Property Security Agreement]

Trademark	Country	Status	Class	Registration Date	Registration No.	Owner Name
1ST DETECT	European Union	REGISTERED	9 10 41	15-Oct-2013	11869393	1st Detect Corporation
MMS-1000	European Union	REGISTERED	9 10 41	28-Jan-2013	10663367	1st Detect Corporation
Circle design (color)	European Union	REGISTERED	9 10 41	29-Mar-2012	10375764	1st Detect Corporation
						
1st Detect & design	European Union	REGISTERED	9 10 41	29-Mar-2012	10375749	1st Detect Corporation
						
MINIATURE CHEMICAL DETECTOR & design	European Union	REGISTERED	9 10 41	29-Mar-2012	10375772	1st Detect Corporation
 MINIATURE CHEMICAL DETECTOR						
1st Detect & design	Israel	REGISTERED	9	23-Jan-2015	271704	1st Detect Corporation
						
1ST DETECT	Israel	PENDING	9			1st Detect Corporation
1st Detect & design	Japan	REGISTERED	9	16-Mar-2012	5479707	First Detect Corporation
						
1ST DETECT	Japan	REGISTERED	9	27-Sep-2013	5618975	First Detect Corporation
Circle design (color)	Japan	REGISTERED	9	16-Mar-2012	5479708	First Detect Corporation

[Schedule 1 Intellectual Property Security Agreement]

Trademark	Country	Status	Class	Registration Date	Registration No.	Owner Name
						
MINIATURE CHEMICAL DETECTOR & design  MINIATURE CHEMICAL DETECTOR	Japan	REGISTERED	9	16-Mar-2012	5479709	First Detect Corporation
MMS-1000	Japan	REGISTERED	9	13-Dec-2013	5636674	First Detect Corporation
1ST DETECT	United Arab Emirates	REGISTERED	9	15-Dec-2014	192708	1st Detect Corporation
MINIATURE CHEMICAL DETECTOR & design  MINIATURE CHEMICAL DETECTOR	China	REGISTERED	9	07-Mar-2013	10221547	1st Detect Corporation
1st Detect	Hong Kong	REGISTERED	9	08-Nov-2011	302078334	1st Detect Corporation
1st Detect & design  1st Detect	Hong Kong	REGISTERED	9	08-Nov-2011	302078352	1st Detect Corporation
MINIATURE CHEMICAL DETECTOR & design  MINIATURE CHEMICAL DETECTOR	Hong Kong	REGISTERED	9	08-Nov-2011	302078361	1st Detect Corporation
Circle design (color)	Hong Kong	REGISTERED	9	08-Nov-2011	302078343	1st Detect Corporation

[Schedule 1 Intellectual Property Security Agreement]

Trademark	Country	Status	Class	Registration Date	Registration No.	Owner Name
						
1ST DETECT	Australia	REGISTERED	9	20-May-2013	1557938	1st Detect Corporation
MMS-1000	Australia	REGISTERED	9	17-Feb-2012	1475267	1st Detect Corporation
1st Detect & design 	Australia	REGISTERED	9	18-Oct-2011	1454338	1st Detect Corporation
MINIATURE CHEMICAL DETECTOR & design 	Australia	REGISTERED	9	18-Oct-2011	1454339	1st Detect Corporation
Circle Design (black & white) 	Australia	REGISTERED	9	18-Oct-2011	1454340	1st Detect Corporation

(c) Copyrights and Copyright Licenses

None.

POWER OF ATTORNEY

Astrotech Corporation, a Delaware corporation (the "Company") and 1st Detect Corporation, a Delaware corporation ("1st Detect", and together with the Company, collectively, the "Grantor"), hereby authorizes Thomas B. Pickens III ("Lender") under that certain Security Agreement between Lender and Grantor dated as September 5, 2019 (as it may hereafter be amended, modified, restated or replaced from time to time, the "Security Agreement"), following the occurrence and during the continuance of an Event of Default (as defined in the Security Agreement) as the true and lawful attorney-in-fact of Grantor, with the power to endorse the name of Grantor on all applications, assignments, documents, papers and instruments necessary for Lender to enforce and effectuate its rights under that certain Intellectual Property Security Agreement among Grantor and Lender dated the date hereof (as it may hereafter be supplemented, restated, superseded, amended or replaced, the "Intellectual Property Agreement"), including, without limitation, the power to record its interest in any trademarks, patents and copyrights (as defined in the Intellectual Property Agreement) or additional trademarks, patents and copyrights in the United States Patent and Trademark Office and United States Copyright Office or other appropriate governmental office including, without limitation, the power to execute on behalf of Grantor a supplement to the Intellectual Property Agreement, to use the Trademarks, Patents and Copyrights or to grant or issue any exclusive or non-exclusive license under the Trademarks, Patents and Copyrights to anyone else, or to assign, pledge, convey or otherwise transfer title in or dispose of the Trademarks, Patents and Copyrights to anyone else including, without limitation, the power to execute on behalf of Grantor a trademark, patent, or copyright assignment, in each case subject to the terms of the Intellectual Property Agreement. Nothing herein contained shall obligate Lender to use or exercise any rights granted herein.

This Power of Attorney is given and any action taken pursuant hereto is intended to be so given or taken pursuant to and subject to the provisions of the Security Agreement.

Grantor hereby unconditionally ratifies all that such attorney shall lawfully do or cause to be done following the occurrence and during the continuance of an Event of Default by virtue hereof and in accordance with the terms of the Intellectual Property Agreement, the Loan Agreement and the Loan Documents other than any actions which constitute gross negligence or willful misconduct.

This Power of Attorney shall be irrevocable for the life of the Intellectual Property Agreement.

[SIGNATURES APPEAR ON FOLLOWING PAGE]

Acknowledgement to Intellectual Property Security Agreement

PATENT
REEL: 050569 FRAME: 0507

IN WITNESS WHEREOF, Grantor has executed this Power of Attorney as a deed, this 30th day of September, 2019

ASTROTECH CORPORATION

By: 

Name: Eric Stoiber
Title: CFO

1ST DETECT CORPORATION

By: 

Name: Eric Stoiber
Title: CFO

[Signature page to Power of Attorney to Intellectual Property Security Agreement]

COMPANY ACKNOWLEDGMENT

UNITED STATES OF AMERICA :

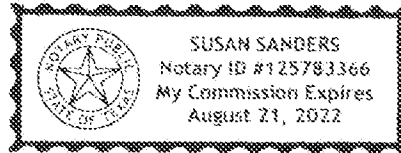
STATE OF Texas :
COUNTY OF TRAVIS :

SS

On this 30th day of September, 2019, before me personally appeared Eric Strober, to me known and being duly sworn, deposes and says that s/he is authorized to sign on behalf of Astrotech Corporation, a Delaware corporation and 1st Detect Corporation, a Delaware corporation, and that s/he signed the Agreement thereto pursuant to the authority vested in her/him by law; that the within Agreement is the voluntary act of such company; and s/he desires the same to be recorded as such.

Susan Sanders

Notary Public
My Commission Expires:



[Acknowledgment to Power of Attorney to Intellectual Property Security Agreement]