

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT4283386

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	SECURITY INTEREST
CONVEYING PARTY DATA	
Name	Execution Date
VASCULAR SOLUTIONS, INC.	02/17/2017
RECEIVING PARTY DATA	
Name:	JPMORGAN CHASE BANK, N.A., AS ADMINISTRATIVE AGENT
Street Address:	IL1-1145/54/63, P.O. BOX 6026
City:	CHICAGO
State/Country:	ILLINOIS
Postal Code:	60680-6026
PROPERTY NUMBERS Total: 6	
Property Type	Number
Patent Number:	9522253
Patent Number:	9561893
Application Number:	62431911
Application Number:	62440438
Application Number:	62436750
Application Number:	15399643
CORRESPONDENCE DATA	
Fax Number:	(312)993-9767
<i>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.</i>	
Phone:	3129932647
Email:	zeynep.gieseke@lw.com
Correspondent Name:	ZEYNEP GIESEKE
Address Line 1:	330 N. WABASH AVENUE, SUITE 2800
Address Line 2:	LATHAM & WATKINS LLP
Address Line 4:	CHICAGO, ILLINOIS 60611
ATTORNEY DOCKET NUMBER:	049067-0087
NAME OF SUBMITTER:	ZEYNEP GIESEKE
SIGNATURE:	/zg/
DATE SIGNED:	02/21/2017

Total Attachments: 26

source=Grant of Security Interest in U.S. Patents#page1.tif

source=Grant of Security Interest in U.S. Patents#page2.tif

source=Grant of Security Interest in U.S. Patents#page3.tif

source=Grant of Security Interest in U.S. Patents#page4.tif

source=Grant of Security Interest in U.S. Patents#page5.tif

source=Grant of Security Interest in U.S. Patents#page6.tif

source=Grant of Security Interest in U.S. Patents#page7.tif

source=Grant of Security Interest in U.S. Patents#page8.tif

source=Grant of Security Interest in U.S. Patents#page9.tif

source=Grant of Security Interest in U.S. Patents#page10.tif

source=Grant of Security Interest in U.S. Patents#page11.tif

source=Grant of Security Interest in U.S. Patents#page12.tif

source=Grant of Security Interest in U.S. Patents#page13.tif

source=Grant of Security Interest in U.S. Patents#page14.tif

source=Grant of Security Interest in U.S. Patents#page15.tif

source=Grant of Security Interest in U.S. Patents#page16.tif

source=Grant of Security Interest in U.S. Patents#page17.tif

source=Grant of Security Interest in U.S. Patents#page18.tif

source=Grant of Security Interest in U.S. Patents#page19.tif

source=Grant of Security Interest in U.S. Patents#page20.tif

source=Grant of Security Interest in U.S. Patents#page21.tif

source=Grant of Security Interest in U.S. Patents#page22.tif

source=Grant of Security Interest in U.S. Patents#page23.tif

source=Grant of Security Interest in U.S. Patents#page24.tif

source=Grant of Security Interest in U.S. Patents#page25.tif

source=Grant of Security Interest in U.S. Patents#page26.tif

**GRANT OF SECURITY INTEREST
IN UNITED STATES PATENTS**

THIS GRANT OF SECURITY INTEREST IN UNITED STATES PATENTS (as the same may be amended, restated, supplemented or otherwise modified from time to time, the "Grant") is made effective as of February 17, 2017, by and from TELEFLEX INCORPORATED, a Delaware corporation, ARROW INTERNATIONAL INVESTMENT CORP., a Delaware corporation, ARROW INTERNATIONAL, INC., a Pennsylvania corporation, TECHNOLOGY HOLDING COMPANY II, a Delaware corporation, TELEFLEX MEDICAL INCORPORATED, a California corporation, VASCULAR SOLUTIONS, INC., a Minnesota corporation and WOLFE-TORY MEDICAL, INC., a Utah corporation (each a "Grantor" and collectively the "Grantors"), to and in favor of JPMORGAN CHASE BANK, N.A. for itself and as Administrative Agent for the Secured Parties (as defined in the Credit Agreement referenced below) (in such capacities, the "Grantee").

WHEREAS, TELEFLEX INCORPORATED (the "Company"), the other Loan Parties, the Lenders, and the Grantee have entered into that certain Amended and Restated Credit Agreement, dated as of January 20, 2017 (as may be further amended, restated, supplemented or otherwise modified from time to time, the "Credit Agreement");

WHEREAS, certain Subsidiaries of the Company have guaranteed the repayment of the Obligations pursuant to the Credit Agreement;

WHEREAS, the Company and certain of its Subsidiaries, including the Grantors, have entered into that certain Security Agreement, dated as of February 17, 2017 (as may be further amended, restated, supplemented or otherwise modified from time to time, the "Security Agreement"); and

WHEREAS, the Grantors own certain Patents which are applied for or registered with the United States Patent and Trademark Office.

NOW, THEREFORE, in consideration of the mutual covenants and agreements set forth herein and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, it is hereby agreed that:

1) Definitions. All capitalized terms used and not otherwise defined herein shall have the respective meaning given to them in the Credit Agreement, or if not defined therein, in the Security Agreement.

2) The Security Interest.

(a) This Grant is made to secure the satisfactory performance and payment of all the Obligations. Upon the satisfaction of the Final Release Conditions (as defined in the Subsidiary Guaranty), this Grant shall automatically terminate and all rights to the Patents shall revert to the Grantors. Upon such termination, the Grantee shall promptly, upon such satisfaction, execute, acknowledge, and deliver to the Grantors all reasonably requested instruments in writing releasing (and/or evidencing of record the release of) the lien and security interest in the Patents acquired under the Security Agreement and this Grant.

(b) The Grantors hereby pledge and grant to the Grantee, on behalf of and for the benefit of the Secured Parties, a security interest in all of the Grantors' right, title and interest, whether now owned or hereafter acquired, in and to (i) any and all United States Patents, including the foregoing listed on Exhibit A; (ii) all reissues, divisions, continuations, renewals, extensions and continuations-in-

part thereof; (iii) all income, royalties, damages, claims, and payments now or hereafter due or payable under and with respect thereto, including, without limitation, damages and payments for past, present and future infringements thereof; (iii) all rights to sue for past, present and future infringements thereof; and (iv) all rights corresponding to any of the foregoing throughout the world.

(c) Notwithstanding anything to the contrary contained above, the security interest created by this Grant shall not extend to Excluded Assets.

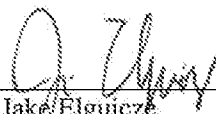
3) Grants, Rights, Remedies. This Grant has been executed in conjunction with the security interest granted under the Security Agreement to the Grantee for the benefit of the Secured Parties. The rights and remedies of the Grantee with respect to the security interest granted herein are without prejudice to and are in addition to those set forth in the Security Agreement and the other Loan Documents, all terms and provisions of which are incorporated herein by reference. In the event that any provisions of this Grant are deemed to conflict with the Security Agreement, the provisions of the Security Agreement shall govern and control.

4) Governing Law. **THIS GRANT SHALL BE CONSTRUED IN ACCORDANCE WITH AND GOVERNED BY THE LAW OF THE STATE OF NEW YORK.**

5) COUNTERPARTS. **THIS GRANT MAY BE EXECUTED IN COUNTERPARTS (AND BY DIFFERENT PARTIES HERETO IN DIFFERENT COUNTERPARTS), EACH OF WHICH SHALL CONSTITUTE AN ORIGINAL, BUT ALL OF WHICH WHEN TAKEN TOGETHER SHALL CONSTITUTE A SINGLE CONTRACT. DELIVERY OF AN EXECUTED COUNTERPART OF A SIGNATURE PAGE OF THIS GRANT BY TELECOPY, E-MAILED .PDF OR ANY OTHER ELECTRONIC MEANS THAT REPRODUCES AN IMAGE OF THE ACTUAL EXECUTED SIGNATURE PAGE SHALL BE EFFECTIVE AS DELIVERY OF A MANUALLY EXECUTED COUNTERPART OF THIS GRANT.**

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

TELEFLEX INCORPORATED,
as Grantor

By:  _____
Name: Jake Elguicze
Title: Treasurer and Vice President, Investor Relations

IN WITNESS WHEREOF, each Grantor has executed this Grant effective as of the date first written above.

ARROW INTERNATIONAL, INC.
ARROW INTERNATIONAL INVESTMENT CORP.
TECHNOLOGY HOLDING COMPANY II
TELEFLEX MEDICAL INCORPORATED
VASCULAR SOLUTIONS, INC.
WOLFE-TORY MEDICAL, INC.

By 

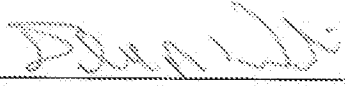
Name: Jake Elguioze

Title: (1) Vice President and Treasurer (other than for Arrow International Investment Corp., Technology Holding Company II and Vascular Solutions, Inc.)

(2) President (in the case of Arrow International Investment Corp. and Technology Holding Company II)

(3) Vice President (in the case of Vascular Solutions, Inc.)

JPMORGAN CHASE BANK, N.A.,
as Administrative Agent

By: 
Name: Deborah R. Winkler
Title: Executive Director

GRANT OF SECURITY INTEREST
IN UNITED STATES PATENTS

Exhibit A
Patents

Title	Application No.	Registration No.	Owner(s)
DEVICE AND SYSTEM FOR DRAINING A BODY CAVITY AND METHODS RELATED THERETO	08/783,177	5,989,234	TECHNOLOGY HOLDING COMPANY II
METHOD AND APPARATUS FOR DEFLATION OF AN INTRA-AORTIC BALLOON	08/922,149	5,913,814	Arrow International Investment Corp.
WOUND IRRIGATION APPARATUS	08/925,866	6,293,929	Wolfe Tory Medical, Inc.
INTRODUCING DEVICE WITH FLARED SHEATH END	08/961,971	5,951,518	TELEFLEX INCORPORATED
ADJUSTABLE SUPPORTING BRACKET HAVING PLURAL BALL AND SOCKET JOINTS	09/071,701	5,899,425	TECHNOLOGY HOLDING COMPANY II
ILLUMINATED SAPHENOUS VEIN RETRACTOR	09/071,786	6,228,025	TECHNOLOGY HOLDING COMPANY II
CONVERTIBLE RONGEUR	09/078,587	5,961,531	Teleflex Medical Incorporated
HUMIDIFIER ASSEMBLY	09/088,553	6,050,552	TECHNOLOGY HOLDING COMPANY II
DEVICE FOR DETERMINING A CHARACTERISTIC POINT IN THE CARDIAC CYCLE	09/091,325	6,258,035	Arrow International Investment Corp.
CONNECTOR FOR SYRINGE AND ATOMIZER AND THE LIKE	09/148,927	6,112,743	Wolfe Tory Medical, Inc.
PATIENT MONITORING SYSTEM AND METHOD	09/157,762	6,117,076	Arrow International Investment Corp.

Title	Application No.	Registration No.	Owner(s)
WOUND IRRIGATION SHIELD	09/260,626	6,402,724	Wolfe Tory Medical, Inc.
VENTRICULAR ASSIST DEVICE	09/325,334	6,146,325	Arrow International Investment Corp.
ROLLING SEAL SUCTION PRESSURE REGULATOR, APPARATUS AND SYSTEM FOR DRAINING A BODY CAVITY AND METHODS RELATED THERETO	09/336,471	6,447,491	TECHNOLOGY HOLDING COMPANY II
SURGICAL RETRACTOR, TISSUE STABILIZATION DEVICE AND METHODS RELATED THERETO	09/345,859	6,348,036	TECHNOLOGY HOLDING COMPANY II
HYPODERMIC NEEDLE GUARD	09/369,866	6,280,419	Arrow International Investment Corp.
SURGICAL KNOT PUSHER AND METHOD OF USE	09/397,907	6,258,106	TECHNOLOGY HOLDING COMPANY II
SURGICAL RETRACTOR AND METHOD OF USE	09/410,982	6,458,079	Teleflex Medical Incorporated; Beth Israel Deaconess Medical Center
SHARPS CONTAINER	09/414,217	6,123,193	Arrow International Investment Corp.
PEELABLE PTFE SHEATHS AND METHODS FOR MANUFACTURE OF SAME	09/470,693	6,454,744	TECHNOLOGY HOLDING COMPANY II
IRRIGATOR FOR USE WITH SURGICAL RETRACTOR AND TISSUE STABILIZATION DEVICE AND METHODS RELATED THERETO	09/481,645	6,364,833	TECHNOLOGY HOLDING COMPANY II
BALL AND SOCKET CORONARY STABILIZER	09/489,725	6,379,297	TECHNOLOGY HOLDING COMPANY II
PIVOTAL AND ILLUMINATED SAPHENOUS VEIN RETRACTOR	09/490,130	6,322,499	TECHNOLOGY HOLDING COMPANY II

Title	Application No.	Registration No.	Owner(s)
LIFTING RIB RETRACTOR	09/495,466	6,159,231	TECHNOLOGY HOLDING COMPANY II
ILLUMINATED SURGICAL RETRACTOR	09/496,148	6,350,236	TECHNOLOGY HOLDING COMPANY II
HUMAN SPINE FIXATION TEMPLATE AND METHOD OF MAKING THE SAME	09/514,913	6,221,077	TECHNOLOGY HOLDING COMPANY II
METHOD AND APPARATUS FOR IMPROVING THE ACCURACY WITH WHICH THE SPEED OF A FLUID IS MEASURED	09/522,089	6,287,260	Arrow International Investment Corp.
INSTRUMENT FOR DELIVERY OF ANAESTHETIC DRUG	09/524,467	6,456,874	Arrow International, Inc.
APPARATUS AND METHOD PROVIDING AN INSERTION MEDICAL DEVICE	09/532,701	6,334,863	Teleflex Medical Incorporated
HEMOSTATIC CLIP REMOVAL INSTRUMENT	09/534,684	6,391,035	TECHNOLOGY HOLDING COMPANY II
SUTURE PACKAGE	09/542,215	6,260,696	TECHNOLOGY HOLDING COMPANY II
CHEST DRAINAGE DEVICE HAVING MULTIPLE OPERATION INDICATORS	09/571,570	6,338,728	TECHNOLOGY HOLDING COMPANY II
DEVICE FOR DELIVERY OF SURGICAL MATERIALS	09/574,811	6,478,803	TECHNOLOGY HOLDING COMPANY II
SURGICAL RETRACTOR	09/635,543	6,371,911	TECHNOLOGY HOLDING COMPANY II
SHARPS CONTAINER	09/670,163	6,276,527	Arrow International Investment Corp.
SURGICAL GRASPING DEVICE AND COMPONENTS THEREOF	09/680,641	6,406,485	TECHNOLOGY HOLDING COMPANY II

Title	Application No.	Registration No.	Owner(s)
SURGICAL INSTRUMENT LIGHT SOURCE AND SURGICAL ILLUMINATION METHOD	09/691,902	6,585,727	Teleflex Medical Incorporated
DEVICES AND METHOD FOR MANIPULATION OF ORGAN TISSUE	09/692,524	6,558,314	Teleflex Medical Incorporated
SEGMENTED ARM ASSEMBLY FOR USE WITH A SURGICAL RETRACTOR AND INSTRUMENTS AND METHODS RELATED THERETO	09/746,310	6,599,240	Teleflex Medical Incorporated
VALVED AEROSOL TEE ADAPTER ASSEMBLY	09/850,870	6,725,858	TECHNOLOGY HOLDING COMPANY II
PENETRATING TIP FOR TROCAR ASSEMBLY	09/859,009	6,478,806	Teleflex Medical Incorporated
DEVICE FOR DETERMINING A CHARACTERISTIC POINT IN THE CARDIAC CYCLE	09/863,075	6,569,103	Arrow International Investment Corp.
TROCAR ASSEMBLY	09/870,112	6,692,467	Teleflex Medical Incorporated
HYPODERMIC NEEDLE GUARD	09/878,012	6,485,468	Arrow International Investment Corp.
HYPODERMIC NEEDLE GUARD	09/878,013	6,916,311	Arrow International Investment Corp.
ENDOSCOPIC CLIP APPLIER AND METHOD	09/905,679	6,824,547	TECHNOLOGY HOLDING COMPANY II
METHOD AND APPARATUS FOR IMPROVING THE ACCURACY WITH WHICH THE SPEED OF A FLUID IS MEASURED	09/922,603	6,506,159	Arrow International Investment Corp.
ENDOSCOPIC SUCTION-IRRIGATION INSTRUMENT FOR SURGERY	09/955,918	6,679,834	TECHNOLOGY HOLDING COMPANY II

Title	Application No.	Registration No.	Owner(s)
SURGICAL PUNCH DEVICE	09/971,421	6,776,787	TECHNOLOGY HOLDING COMPANY II
JAW ASSEMBLY FOR ENDOSCOPIC INSTRUMENTS	09/971,913	6,733,514	TECHNOLOGY HOLDING COMPANY II
RATCHETING MECHANISM FOR ENDOSCOPIC INSTRUMENTS	09/972,170	6,679,874	TECHNOLOGY HOLDING COMPANY II
STERILIZATION CASE FOR SURGICAL INSTRUMENTS	10/076,873	6,866,147	TECHNOLOGY HOLDING COMPANY II
MULTI-LUMEN CATHETER WITH ATTACHABLE HUB	10/086,033	6,638,242	Arrow International Investment Corp.
MEDICAL ATOMIZER	10/099,486	6,698,429	Wolfe Tory Medical, Inc.
PENETRATING TIP FOR TROCAR ASSEMBLY	10/120,895	6,884,253	Teleflex Medical Incorporated
PEELABLE PTFE SHEATHS AND METHODS FOR MANUFACTURE OF SAME	10/153,435	6,663,595	TECHNOLOGY HOLDING COMPANY II
METHOD OF MAKING A TOOL FOR EXTRACTING A BROKEN SCREW	10/171,899	7,240,588	TECHNOLOGY HOLDING COMPANY II
INSTRUMENT AND METHOD FOR DELIVERY OF ANAESTHETIC DRUG	10/188,605	6,973,346	Arrow International, Inc.
SUCTION PRESSURE REGULATOR FOR USE WITH A CHEST DRAINAGE	10/213,141	6,749,592	TECHNOLOGY HOLDING COMPANY II
AUTOMATIC HIGH NEGATIVE PRESSURE RELIEF VALVE AND CHEST DRAINAGE UNITS USING SAME	10/213,785	6,770,062	TECHNOLOGY HOLDING COMPANY II
CATHETER CONNECTOR WITH PIVOT LEVER SPRING LATCH	10/225,782	7,044,936	Arrow International Investment Corp.

Title	Application No.	Registration No.	Owner(s)
APPARATUS AND METHOD FOR REMOVING A CLIP	10/228,746	7,131,977	TECHNOLOGY HOLDING COMPANY II
CARTRIDGE FOR HOLDING ASYMMETRIC SURGICAL CLIPS AND METHOD FOR LOADING SURGICAL CLIPS INTO A CLIP APPLIER	10/229,240	6,880,699	TECHNOLOGY HOLDING COMPANY II
MULTI-LUMEN CATHETER WITH INTEGRATED CONNECTOR	10/231,577	6,921,396	Arrow International Investment Corp.
DOUBLE-Y-SHAPED MULTI-LUMEN CATHETER WITH SELECTIVELY ATTACHABLE HUBS	10/231,748	6,872,198	Arrow International Investment Corp.
SURGICAL RETRACTOR	10/244,358	7,736,308	Teleflex Medical Incorporated
LIGATING CLIP WITH INTEGRAL PENETRATING HOOK	10/251,182	6,863,675	TECHNOLOGY HOLDING COMPANY II
APPARATUS AND METHOD FOR REVERSE TUNNELING A MULTI-LUMEN CATHETER IN A PATIENT	10/251,384	7,128,734	Arrow International Investment Corp.
MULTI-LUMEN CATHETER WITH ATTACHABLE HUBS	10/251,411	7,300,430	Arrow International Investment Corp.
METHODS AND APPARATUS FOR CONTROLLING HEART ASSIST DEVICES	10/297,118	7,169,109	Arrow International Investment Corp.
AUTOMATED-FEED SURGICAL CLIP APPLIER AND RELATED METHODS	10/299,360	7,052,504	TECHNOLOGY HOLDING COMPANY II
AUTOMATED-FEED SURGICAL CLIP APPLIER AND RELATED METHODS	10/299,378	7,211,092	Teleflex Medical Incorporated
METHOD AND APPARATUS FOR IMPROVING THE ACCURACY WITH WHICH THE SPEED OF A FLUID IS MEASURED	10/340,552	6,905,469	Arrow International Investment Corp.

Title	Application No.	Registration No.	Owner(s)
INTRODUCER ASSEMBLY FOR MEDICAL INSTRUMENTS	10/360,550	7,316,699	Teleflex Medical Incorporated
ANCHORING ASSEMBLY FOR A MEDICAL INSTRUMENT	10/366,679	6,908,454	Teleflex Medical Incorporated
APPARATUS FOR MONITORING INTRA-ABDOMINAL PRESSURE	10/379,222	7,112,177	Wolfe Tory Medical, Inc.
CATHETER WITH LIMITED LONGITUDINAL EXTENSION	10/387,300	6,896,671	Arrow International, Inc.
DEVICE FOR DETERMINING A CHARACTERISTIC POINT IN THE CARDIAC CYCLE	10/408,767	6,887,206	Arrow International Investment Corp.
PACKAGE FOR DISPENSING AND STORING OF SURGICAL MEDICAL DEVICES AND METHODS	10/420,993	6,938,755	TECHNOLOGY HOLDING COMPANY II
FLOATING SEAL ASSEMBLY FOR A TROCAR	10/424,564	7,011,314	Teleflex Medical Incorporated
INSTRUMENT AND METHOD FOR DELIVERY OF ANAESTHETIC DRUGS	10/441,867	7,386,341	Arrow International Investment Corp.
MULTI-LUMEN CATHETER WITH ATTACHABLE HUB	10/612,532	7,381,204	Arrow International Investment Corp.
PUMP-BOTTLE ATOMIZER	10/618,459	7,389,947	Wolfe Tory Medical, Inc.
SURGICAL ARM ASSEMBLY INCLUDING QUICK CONNECT MECHANISM	10/720,143	7,021,854	TECHNOLOGY HOLDING COMPANY II
LIGATING CLIP WITH INTEGRAL INTERLOCKING LATCH MECHANISM	10/763,032	7,316,696	TECHNOLOGY HOLDING COMPANY II
LIGATING CLIP WITH INTEGRAL CUTTING GUIDE	10/763,033	7,326,223	Teleflex Medical Incorporated

Title	Application No.	Registration No.	Owner(s)
SURGICAL CLIP WITH INTEGRAL SUTURE-SECURING MECHANISM	10/766,800	7,001,412	TECHNOLOGY HOLDING COMPANY II
ENDOSCOPIC CLIP APPLYING APPARATUS WITH IMPROVED APERTURE FOR CLIP RELEASE AND RELATED METHOD	10/770,299	7,585,304	TECHNOLOGY HOLDING COMPANY II
METHOD OF INSERTING DOUBLE-Y SHAPED CATHETER WITH ATTACHABLE HUBS	10/796,495	7,749,185	Arrow International Investment Corp.
AUTOMATIC HIGH NEGATIVE PRESSURE RELIEF VALVE AND CHEST DRAINAGE UNITS USING SAME	10/852,228	7,524,311	Teleflex Medical Incorporated
HIGH-STRENGTH SUTURE	10/867,400	8,088,146	Teleflex Medical Incorporated
BLADDER CATHETER SET	10/877,057	7,476,223	TECHNOLOGY HOLDING COMPANY II
PRESSURE VENTING CIRCUIT FOR RESPIRATORY HUMIDIFICATION APPARATUS	10/881,944	7,228,859	TECHNOLOGY HOLDING COMPANY II
PIVOTAL AND ILLUMINATED SAPHENOUS VEIN RETRACTOR WITH TAPERED DESIGN	10/883,664	7,261,689	TECHNOLOGY HOLDING COMPANY II
ELECTRICAL ARCING PROTECTION CIRCUIT	10/884,087	7,061,252	TECHNOLOGY HOLDING COMPANY II
ILLUMINATED RETRACTOR FOR USE IN CONNECTION WITH HARVESTING A BLOOD VESSEL FROM THE ARM	10/889,017	7,311,662	Teleflex Medical Incorporated
SEAL POSITIONING ASSEMBLY	10/914,053	7,390,316	TECHNOLOGY HOLDING COMPANY II
HEAT AND MOISTURE EXCHANGE DEVICE FOR RESPIRATORY THERAPY	11/038,347	7,594,509	TECHNOLOGY HOLDING COMPANY II
DEVICE FOR DETERMINING A CHARACTERISTIC POINT IN THE CARDIAC CYCLE	11/069,585	7,090,644	Arrow International Investment Corp.

Title	Application No.	Registration No.	Owner(s)
PRE-LOADED LOCKABLE STIMULATING CATHETER FOR DELIVERY OF ANAESTHETIC DRUGS	11/074,515	8,611,993	Arrow International, Inc.
PENETRATING TIP FOR TROCAR ASSEMBLY	11/115,094	8,398,666	Teleflex Medical Incorporated
LAPAROSCOPIC PORT SITE CLOSURE TOOL	11/176,616	8,992,549	Teleflex Medical Incorporated
MEDICAL VALVE AND METHOD TO MONITOR INTRA-ABDOMINAL PRESSURE	11/199,790	7,644,722	Wolfe Tory Medical, Inc.
INTRA-ABDOMINAL PRESSURE MONITORING URINARY CATHETER	11/219,316	7,381,190	Wolfe Tory Medical, Inc.
APPARATUS FOR MONITORING INTRA-ABDOMINAL PRESSURE	11/219,319	7,892,181	Wolfe Tory Medical, Inc.
MINIMALLY INVASIVE SURGICAL ASSEMBLY AND METHODS	11/420,927	7,766,937	Teleflex Medical Incorporated
SYRINGE WITH SELECTABLE INDICIA OF CONTENTS	11/541,280	7,976,506	Arrow International, Inc.
METHODS AND APPARATUS FOR SELECTING INTRA-AORTIC BALLOON DEFLATION TIMING	11/633,320	8,016,738	Arrow International, Inc.
ADAPTIVE REAL TIME ECG TRIGGERING AND USES THEREOF	11/634,687	8,204,582	Arrow International, Inc.
MINIMALLY INVASIVE RAKE RETRACTOR AND METHOD FOR USING SAME	11/654,970	8,313,507	Teleflex Medical Incorporated
MINIMALLY INVASIVE SURGICAL ASSEMBLY AND METHODS	11/655,450	8,133,255	Teleflex Medical Incorporated
INTRA-ABDOMINAL PRESSURE MONITORING DEVICE AND METHOD	11/665,133	8,052,671	Wolfe Tory Medical, Inc.

Title	Application No.	Registration No.	Owner(s)
MINIMALLY INVASIVE SURGICAL ASSEMBLY AND METHODS	11/685,522	9,492,187	Teleflex Medical Incorporated
IMPROVED DIALYSIS CATHETER WITH STIFFENER	11/756,748	8,177,753	Arrow International, Inc.
CALCIUM PHOSPHATE POLYMER COMPOSITE AND METHOD	11/790,345		Teleflex Medical Incorporated
PERMEABLE MEMBRANE WATER DISSIPATION DEVICE	11/826,597	8,236,081	Teleflex Medical Incorporated
MULTI-LUMEN CATHETER WITH ATTACHABLE HUB	11/861,722	7,833,214	Arrow International, Inc.
CAGED FLOATING SEAL ASSEMBLY	11/892,814	7,731,695	Teleflex Medical Incorporated
LIGATION CLIP WITH FLEXIBLE CLAMPING FEATURE	11/967,733	9,445,820	Teleflex Medical Incorporated
MINIMALLY INVASIVE SURGICAL NEEDLE AND CAUTERIZING ASSEMBLY AND METHODS	12/100,185	8,956,351	Teleflex Medical Incorporated
INSTRUMENT AND METHOD FOR DELIVERY OF ANAESTHETIC DRUG	12/101,777	7,715,925	Arrow International, Inc.
WATER DISSIPATION DEVICE WITH CAPILLARY ACTION	12/145,902	8,105,410	Teleflex Medical Incorporated
STABILIZED ENZYME COMPOSITIONS	12/392,544	8,545,459	Teleflex Medical Incorporated
COMBINED FIBRINOLYTIC AND ANTIMICROBIAL CATHETER AND USES THEREOF	12/451,773	8,895,047	Arrow International, Inc.
MINIMALLY INVASIVE SURGICAL ASSEMBLY AND METHODS	12/503,035	9,326,784	Teleflex Medical Incorporated

Title	Application No.	Registration No.	Owner(s)
WATER DISSIPATION DEVICE AND METHOD	12/539,088	8,252,081	Teleflex Medical Incorporated
MEDICAL VALVE AND METHOD TO MONITOR INTRA-ABDOMINAL PRESSURE	12/583,823	7,726,328	Wolfe Tory Medical, Inc.
LAYERED NON-FOULING, ANTIMICROBIAL ANTITHROMBOGENIC COATINGS	12/632,669	8,308,699	Arrow International, Inc.
NON-FOULING, ANTI-MICROBIAL, ANTI-THROMBOGENIC GRAFT-FROM COMPOSITIONS	12/632,686		Arrow International, Inc.
MINIMALLY INVASIVE SURGICAL CLAMPS, ASSEMBLIES AND METHODS	12/689,352	9,486,238	Teleflex Medical Incorporated
BACTERIOSTATIC CATHETER LOCK CONTAINING GLYCEROL	12/693,706	8,747,911	Teleflex Medical Incorporated
SPUTUM DISSOLVING SUCTIONING SOLUTION FOR ENDOTRACHEAL AND TRACHEOSTOMY TUBES	12/693,753	8,691,286	Teleflex Medical Incorporated
APPLICATOR FOR OROPHARYNGEAL ANESTHETIC	12/733,490	9,265,898	Wolfe Tory Medical, Inc.
COLORED SUTURE CONSTRUCTION	12/767,127	8,632,566	Teleflex Medical Incorporated
METHODS AND DEVICES FOR LAPAROSCOPIC SURGERY	12/781,831	9,138,207	Teleflex Medical Incorporated
CAGED FLOATING SEAL ASSEMBLY	12/790,164	8,821,445	Teleflex Medical Incorporated
ANTIMICROBIAL HYDROCHLORIC ACID CATHETER LOCK SOLUTION AND METHOD OF USE	12/849,665	8,951,577	Teleflex Medical Incorporated

Title	Application No.	Registration No.	Owner(s)
SURGICAL INSTRUMENTS FOR LAPAROSCOPIC ASPIRATION AND RETRACTION	12/862,917	9,326,757	Teleflex Medical Incorporated
METHOD AND DEVICES FOR PERFORMING MINIMALLY INVASIVE SURGERY	12/937,705	8,225,798	Teleflex Medical Incorporated
MEDICAL DEVICE LOCATION SYSTEMS, DEVICES AND METHODS	12/949,671	8,380,289	Arrow International, Inc.
ENDOTRACHEAL TUBE WITH SUBGLOTTIC SECRETION SUCTION AND DETACHABLE SUCTION CONNECTION LINE	13/093,083	8,511,311	Teleflex Medical Incorporated
APPARATUS AND METHODS FOR TISSUE CLOSURE	13/144,291	8,926,639	Teleflex Medical Incorporated
NON-FOULING, ANTI-MICROBIAL, ANTI-THROMBOGENIC GRAFT-FROM COMPOSITIONS	13/156,677	9,096,703	Arrow International, Inc.
NON-FOULING, ANTI-MICROBIAL, ANTI-THROMBOGENIC GRAFT COMPOSITIONS	13/156,708		Arrow International, Inc.
ARTICLES HAVING NON-FOULING SURFACES AND PROCESSES FOR PREPARING THE SAME INCLUDING PRETREATMENT OF ARTICLES	13/156,772	8,632,838	Arrow International, Inc.
ARTICLES HAVING NON-FOULING SURFACES AND PROCESSES FOR PREPARING THE SAME WITHOUT ALTERING BULK PHYSICAL PROPERTIES	13/156,904	8,574,660	Arrow International, Inc.
ARTICLES HAVING NON-FOULING SURFACES AND PROCESSES FOR PREPARING THE SAME INCLUDING APPLYING A PRIMER COAT	13/156,936		Arrow International, Inc.
HIGH-STRENGTH SUTURE	13/339,610	8,672,966	Teleflex Medical Incorporated

Title	Application No.	Registration No.	Owner(s)
INTEGRATED SYRINGE DEVICE WITH SELF-CAPPING CONNECTOR	13/398,480	8,617,120	Arrow International, Inc.
METHOD AND DEVICES FOR PERFORMING MINIMALLY INVASIVE SURGERY	13/528,714	9,333,029	Teleflex Medical Incorporated
NARROW PROFILE SURGICAL LIGATION CLIP	13/616,120		Teleflex Medical Incorporated
AUTOMATIC SURGICAL LIGATION CLIP APPLIER	13/618,215	9,271,737	Teleflex Medical Incorporated
MANUAL SURGICAL LIGATION CLIP APPLIER	13/618,858	9,456,824	Teleflex Medical Incorporated
LAYERED NON-FOULING, ANTIMICROBIAL ANTITHROMBOGENIC COATINGS	13/671,703	9,358,326	Arrow International, Inc.
BUMPED DIALATOR TIP	13/685,156	9,474,884	Teleflex Medical Incorporated
DEVICE WITH INTEGRATED ALLERGY TESTING	13/689,301	9,554,736	Arrow International, Inc.
NOVEL ENHANCED INTRODUCER ASSEMBLY	13/707,827	9,149,606	Teleflex Medical Incorporated
SURFACE MODIFICATION FOR DIALYSIS CATHETERS	13/715,066		Arrow International, Inc.
LUMINAL MODIFICATIONS FOR CATHETERS	13/715,141		Arrow International, Inc.
SURFACE MODIFIED CONTACT LENSES	13/715,761	9,004,682	Arrow International, Inc.
REDOX PROCESSES FOR CONTACT LENS MODIFICATION	13/715,775	9,120,119	Arrow International, Inc.

Title	Application No.	Registration No.	Owner(s)
IMBIBING PROCESS FOR CONTACT LENS SURFACE MODIFICATION	13/715,790	9,006,359	Arrow International, Inc.
HIGH IONIC STRENGTH PROCESS FOR CONTACT LENS MODIFICATION	13/715,819		Arrow International, Inc.
MULTISTEP UV PROCESS TO CREATE SURFACE MODIFIED CONTACT LENSES	13/715,832	9,000,063	Arrow International, Inc.
SILICONE HYDROGEL CONTACT LENS MODIFIED USING LANTHANIDE OR TRANSITION METAL OXIDANTS	13/715,841	8,870,372	Arrow International, Inc.
MULTIPLE DELIVERY DEVICE COUNTER AND COUNTING METHOD	13/755,346	9,208,429	Teleflex Medical Incorporated
CATHETER WITH ADJUSTABLE GUIDEWIRE EXIT POSITION	13/871,662	9,126,013	Teleflex Medical Incorporated
MINIATURE FLUID ATOMIZER	13/880,558		Wolfe Tory Medical, Inc.
ATOMIZER FOR NASAL THERAPY	13/884,576		Wolfe Tory Medical, Inc.
COLORED SUTURE CONSTRUCTION	14/031,654	9,474,520	Teleflex Medical Incorporated
STABILIZED ENZYME COMPOSITIONS	14/041,947	9,333,280	Teleflex Medical Incorporated
ARTICLES HAVING NON-FOULING SURFACES AND PROCESSES FOR PREPARING THE SAME INCLUDING PRETREATMENT OF ARTICLES	14/044,188		Arrow International, Inc.
SMART 3-WAY VALVE WITH HIGH AND LOW PRESSURE SENSING	14/067,573		Teleflex Medical Incorporated

Title	Application No.	Registration No.	Owner(s)
SUCTION CATHETER DEVICE AND METHOD	14/155,002		Teleflex Medical Incorporated
RIGID AND FLEXIBLE LAPAROSCOPIC TOOL SHAFTS AND METHODS USING SME	14/155,953		Teleflex Medical Incorporated
END EFFECTOR CONNECTION AND ACTUATION SYSTEMS	14/175,413		Teleflex Medical Incorporated
EXHALATION SCAVENGING THERAPY MASK	14/201,533		Teleflex Medical Incorporated
PRESSURE CONTROL FOR RESPIRATORY HUMIDIFICATION APPARATUS	14/204,830		Teleflex Medical Incorporated
SAFETY CLIP FOR A NEEDLE	14/205,307		Teleflex Medical Incorporated
UV-C CATHETER HUB STERILIZATION AND DATA ACQUISITION SYSTEM	14/206,967	8,946,653	Teleflex Medical Incorporated
DILATING CANNULA WITH RADIALY EXPANDABLE FLANGE AND METHOD OF USING THE SAME	14/207,987		Teleflex Medical Incorporated
ROTARY NEEDLE AND EXPANDING BELLOWS PRESSURE INDICATOR	14/209,165		Teleflex Medical Incorporated
SLIDING PISTON PRESSURE INDICATOR	14/209,558	9,513,180	Teleflex Medical Incorporated
PRESSURE ADJUSTMENT APPARATUS AND METHOD	14/209,985		Teleflex Medical Incorporated
METHODS AND SYSTEMS FOR VERIFYING AND MONITORING ENDOTRACHEAL TUBE POSITION DURING INTUBATION	14/213,339		Teleflex Medical Incorporated
CATHETER INSERTION DEVICE	14/306,698		Teleflex Medical Incorporated

Title	Application No.	Registration No.	Owner(s)
CAGED FLOATING SEAL ASSEMBLY	14/339,840		Teleflex Medical Incorporated
NOVEL ENHANCED FORMULATIONS FOR COATING MEDICAL DEVICES	14/357,440		Arrow International, Inc.
APPARATUS AND METHODS FOR TISSUE CLOSURE	14/370,680		Teleflex Medical Incorporated
HIGH-STRENGTH MULTI-COMPONENT SUTURE	14/471,716		Teleflex Medical Incorporated
SYRINGE WITH INTEGRAL AMPULE	14/474,605		Teleflex Medical Incorporated
NON-FOULING, ANTI-MICROBIAL, ANTI-THROMBOGENIC GRAFT-FROM COMPOSITIONS	14/531,383		Arrow International, Inc.
NON-FOULING, ANTI-MICROBIAL, ANTI-THROMBOGENIC GRAFT COMPOSITIONS	14/533,908		Arrow International, Inc.
SEAL ASSEMBLY HAVING AN ANTI-FRICTION RING AND METHOD OF ASSEMBLY	14/535,003		Teleflex Medical Incorporated
CATHETER ADAPTER ASSEMBLY AND SYSTEM	14/554,674		Teleflex Medical Incorporated
DOSE DIVIDER SYRINGE	14/561,756		Teleflex Medical Incorporated
DOSE DIVIDER SYRINGE	14/563,106		Teleflex Medical Incorporated
LAPAROSCOPIC FASCIAL CLOSURE SYSTEM	14/564,331	9,539,002	Teleflex Medical Incorporated
SLIDING SUTURE GRASPER	14/564,345	9,492,163	Teleflex Medical Incorporated

Title	Application No.	Registration No.	Owner(s)
APPARATUS AND METHODS FOR TISSUE CLOSURE	14/589,647		Teleflex Medical Incorporated
MINIMALLY INVASIVE SURGICAL NEEDLE AND CAUTERIZING ASSEMBLY AND METHODS	14/605,614		Teleflex Medical Incorporated
UV-C CATHETER HUB STERILIZATION AND DATA ACQUISITION SYSTEM	14/612,033	9,421,290	Teleflex Medical Incorporated
ANTIMICROBIAL HYDROCHLORIC ACID CATHETER LOCK SOLUTION AND METHOD OF USE	14/618,964		Teleflex Medical Incorporated
LAPAROSCOPIC PORT SITE CLOSURE TOOL	14/672,924		Teleflex Medical Incorporated
DEVICES WITH ANTI-THROMBOGENIC AND ANTI-MICROBIAL TREATMENT	14/774,602		Teleflex Medical Incorporated
OPTICAL FIBER BASED ANTIMICROBIAL ULTRAVIOLET RADIATION THERAPY SYSTEM	14/775,562		Teleflex Medical Incorporated
MULTI-LUMEN BREATHING CIRCUIT INCLUDING A FLEXIBLE PRINTED CIRCUIT BOARD ASSEMBLY	14/776,217		Teleflex Medical Incorporated
SINGLE-PIECE AEROSOL EXHALATION FILTER AND AN AEROSOL DELIVERY DEVICE INCLUDING THE SAME	14/776,258		Teleflex Medical Incorporated
MINIMALLY INVASIVE SURGICAL ASSEMBLY AND METHODS	14/784,844		Teleflex Medical Incorporated
NEEDLESCOPIC INSTRUMENT WITH REUSABLE HANDLE AND DETACHABLE NEEDLE ASSEMBLY	14/784,886		Teleflex Medical Incorporated
EXCHANGER SURGICAL ACCESS PORT AND METHODS OF USE	14/798,987		Teleflex Medical Incorporated

Title	Application No.	Registration No.	Owner(s)
REDOX PROCESSES FOR CONTACT LENS MODIFICATION	14/804,929		Arrow International, Inc.
CATHETER WITH ADJUSTABLE GUIDEWIRE EXIT POSITION	14/827,357		Teleflex Medical Incorporated
METHODS AND DEVICES FOR LAPAROSCOPIC SURGERY	14/831,424		Arrow International, Inc.
INTRODUCER ASSEMBLY	14/874,414		Arrow International, Inc.
ANTIMICROBIAL CATHETERS WITH PERMEABILIZATION AGENTS	14/910,473		Arrow International, Inc.
FLEXIBLE TIP DILATOR	14/944,121		Teleflex Medical Incorporated
AUTOMATIC SURGICAL LIGATION CLIP APPLIER	15/018,565		Teleflex Medical Incorporated
EXCHANGE SURGICAL ACCESS PORT ASSEMBLY AND METHODS OF USE	15/022,910		Teleflex Medical Incorporated
DOSE DIVIDER SYRINGE	15/052,665		Teleflex Medical Incorporated
ENDOTRACHEAL TUBE HOLDER DEVICE	15/074,359		Teleflex Medical Incorporated
MOISTURE REMOVAL AND CONDENSATION AND HUMIDITY MANAGEMENT APPARATUS FOR A BREATHING CIRCUIT.	15/099,051		Teleflex Medical Incorporated
ANTIMICROBIAL HYDROCHLORIC ACID CATHETER LOCK SOLUTION AND METHOD OF USE	15/131,161		Teleflex Medical Incorporated

Title	Application No.	Registration No.	Owner(s)
HUMIDIFICATION DEVICE	15/139,613		Teleflex Medical Incorporated
METHOD AND DEVICES FOR PERFORMING MINIMALLY INVASIVE SURGERY	15/150,051		Teleflex Medical Incorporated
TETHERED FILTER ASSEMBLIES AND METHODS FOR USE THEREOF	15/152,654		Teleflex Medical Incorporated
CONDUCTIVE TIP CATHETER	15/210,362		Teleflex Medical Incorporated
MEDICAL DEVICES CONTAINING NITROPRUSSIDE AND ANTIMICROBIAL AGENTS	15/219,829		Teleflex Medical Incorporated
SNAP-ON SURGICAL CLIP CARTRIDGE	15/222,456		Teleflex Medical Incorporated
LIGATION CLIP WITH FLEXIBLE CLAMPING FEATURE	15/241,310		Teleflex Medical Incorporated
BUMPED DILATOR TIP	15/267,141		Teleflex Medical Incorporated
MANUAL SURGICAL LIGATION CLIP APPLIER	15/283,991		Teleflex Medical Incorporated
NEEDLESCOPIC SCISSORS END EFFECTOR AND METHODS OF USE	15/329,370		Teleflex Medical Incorporated
COLORED SUTURE CONSTRUCTION	15/332,485		Teleflex Medical Incorporated
LOW FRICTION FLAT BRAID	15/334,125		Teleflex Medical Incorporated
VALVE APPARATUS THAT REGULATES FLOW OF FLUID AND VACUUM PRESSURE	15/344,049		Teleflex Medical Incorporated

Title	Application No.	Registration No.	Owner(s)
MINIMALLY INVASIVE SURGICAL ASSEMBLY AND METHODS	15/344,739		Teleflex Medical Incorporated
MINIMALLY INVASIVE SURGICAL ASSEMBLY AND METHODS	15/345,716		Teleflex Medical Incorporated
SLIDING SUTURE GRASPER	15/350,508		Teleflex Medical Incorporated
DEVICE WITH INTEGRATED ALLERGY TESTING	15/385,989		Arrow International, Inc.
LAPAROSCOPIC FASCIAL CLOSURE SYSTEM	15/401,173		Teleflex Medical Incorporated
AUTOMATIC CLIP APPLIER	29/166,473	D494,271	TECHNOLOGY HOLDING COMPANY II
FINGER TIP CLIP APPLIER	29/166,474	D490,188	TECHNOLOGY HOLDING COMPANY II
ROTATABLE TOOL HANDLE	29/208,723	D522,836	TECHNOLOGY HOLDING COMPANY II
ATOMIZING NOZZLE FOR NASAL THERAPY	29/373,889	D674,892	Wolfe Tory Medical, Inc.
CATHETER INSERTION DEVICE	29/451,282	D740,410	Teleflex Medical Incorporated
THROMBECTOMY HANDLE ASSEMBLY	29/564,824		Teleflex Medical Incorporated
ROTATIONAL MECHANICAL THROMBECTOMY DEVICE	62/292,452		Teleflex Medical Incorporated
HIGH FRICTION FASTENING FLAT BRAID	62/333,600		Teleflex Medical Incorporated

Title	Application No.	Registration No.	Owner(s)
SURGICAL LIGATION CLIP	62/370,502		Teleflex Medical Incorporated
MOISTURE REMOVAL AND CONDENSATION AND HUMIDITY MANAGEMENT APPARATUS FOR A BREATHING CIRCUIT	62/410,195		Teleflex Medical Incorporated
SYSTEM AND METHOD FOR ON-DEMAND NEAR-PATIENT HUMIDIFICATION	62/413,154		Teleflex Medical Incorporated
ASPIRATION IRRIGATION DEVICE FOR LAPAROSCOPIC SURGERY	62/438,878		Teleflex Medical Incorporated
CAPTURE ASSEMBLY AND METHOD	CA 2,955,841 (filed 1/25/2017)		Vascular Solutions, Inc.
DRAINAGE OR FEEDING CATHETER ASSEMBLY	US 14/206,940 (filed 3/12/2014)	US 9,522,253 (issued 12/20/2016)	Vascular Solutions, Inc.; Eric Gandras
GUIDE EXTENSION CATHETER	US 62/431,911 (filed 12/9/2016)		Vascular Solutions, Inc.
GUIDE EXTENSION CATHETER	US 62/440,438 (filed 12/30/2016)		Vascular Solutions, Inc.
PACING GUIDEWIRE	US 62/436,750 (filed 12/20/2016)		Vascular Solutions, Inc.; David Daniels
SYSTEM AND METHOD FOR FREEZE-DRYING AND PACKAGING	US 14/553,722 (filed 11/25/2014)	US 9,561,893 (will issue 2/7/2017)	Vascular Solutions, Inc.
SYSTEM AND METHOD FOR FREEZE-DRYING AND PACKAGING	US 15/399,643 (filed 1/5/2017)		Vascular Solutions, Inc.