

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

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|---|---------------------------------------|
| <b>SUBMISSION TYPE:</b>   | NEW ASSIGNMENT                        |
| <b>NATURE OF CONVEYANCE:</b>  | ASSIGNMENT                            |
| <b>CONVEYING PARTY DATA</b>   |                                       |
| <b>Name</b>   | <b>Execution Date</b>                 |
| Martin Joseph Crnkovich   | 03/21/2013                            |
| <b>RECEIVING PARTY DATA</b>   |                                       |
| <b>Name:</b>  | FRESENIUS MEDICAL CARE HOLDINGS, INC. |
| <b>Street Address:</b>  | 920 WINTER STREET                     |
| <b>City:</b>  | WALTHAM                               |
| <b>State/Country:</b>   | MASSACHUSETTS                         |
| <b>Postal Code:</b>   | 02541-1457                            |
| <b>PROPERTY NUMBERS Total: 1</b>  |                                       |
| <b>Property Type</b>  | <b>Number</b>                         |
| <b>Application Number:</b>  | 15230561                              |
| <b>CORRESPONDENCE DATA</b>  |                                       |
| <b>Fax Number:</b>  | (877)769-7945                         |
| <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> |                                       |
| <b>Phone:</b>   | (617) 521-7005                        |
| <b>Email:</b>   | apsi@fr.com                           |
| <b>Correspondent Name:</b>  | MOSES A. HEYWARD                      |
| <b>Address Line 1:</b>  | FISH & RICHARDSON P.C.                |
| <b>Address Line 2:</b>  | P.O.BOX 1022                          |
| <b>Address Line 4:</b>  | MINNEAPOLIS, MINNESOTA 55440-1022     |
| <b>ATTORNEY DOCKET NUMBER:</b>  | 18196-0160002                         |
| <b>NAME OF SUBMITTER:</b>   | MATTHEW G. DOHERTY                    |
| <b>SIGNATURE:</b>   | /Matthew G. Doherty/                  |
| <b>DATE SIGNED:</b>   | 08/22/2016                            |
| <b>Total Attachments: 2</b>   |                                       |
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| source=Assign0160002B#page2.tif   |                                       |

ASSIGNMENT

For valuable consideration, I, Martin Joseph Crnkovich, of 3436 Cassena Drive, Walnut Creek, CA 94598; hereby assign to FRESENIUS MEDICAL CARE HOLDINGS, INC., a corporation of New York, having a place of business at 920 Winter St., Waltham, MA 02451-1457, and its successors and assigns (collectively hereinafter called "the Assignee"), the entire right, title and interest throughout the world in the inventions and improvements which are subject of an application for United States Patent signed by me, entitled BLOOD FLOW REVERSAL VALVES AND RELATED SYSTEMS AND METHODS, filed September 25, 2012, and assigned U.S. Serial Number 61/705,411, his assignment including said application, any and all United States and foreign patents, utility models, and design registrations granted for any of said inventions or improvements, and the right to claim priority based on the filing date of said application under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the European Patent Convention, and all other treaties of like purposes; and I authorize the Assignee to apply in all countries in my name or in its own name for patents, utility models, design registrations and like rights of exclusion and for inventors' certificates for said inventions and improvements; and I agree for me and my respective heirs, legal representatives and assigns, without further compensation to perform such lawful acts and to sign such further applications, assignments, Preliminary Statements and other lawful documents as the Assignee may reasonably request to effectuate fully this assignment.

IN WITNESS WHEREOF, I hereto set my hand and seal at Waltham, Massachusetts  
This 21 day of March, 2013

*Martin Joseph Crnkovich*  
MARTIN JOSEPH CRNKOVICH

Commonwealth of Massachusetts;

ss.

County of Middlesex;

Before me this 21 day of March, 2013, personally appeared MARTIN JOSEPH CRNKOVICH known to me to be the person whose name is subscribed to the foregoing Assignment and acknowledged that he executed the same as his free act and deed for the purposes therein contained.

*Sharon Centamore*  
Notary Public

My Commission Expires: 2/24/17

[Notary's Seal Here]

