503194920 02/25/2015

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT3241537

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|----------------------|----------------|
| DARRIN D BEEKMAN | 02/05/2015 |
| PAUL ANTHONY IAIZZO | 02/06/2015 |
| TIMOTHY M KOWALEWSKI | 02/05/2015 |
| GREGORY K PETERSON | 02/05/2015 |
| JACK B STUBBS | 02/09/2015 |

RECEIVING PARTY DATA

| Name: | REGENTS OF THE UNIVERSITY OF MINNESOTA | |
|-------------------|--|--|
| Street Address: | 600 MCNAMARA ALUMNI CENTER | |
| Internal Address: | 200 OAK STREET SE | |
| City: | MINNEAPOLIS | |
| State/Country: | MINNESOTA | |
| Postal Code: | 55455-2020 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 14586312 |

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.

Phone: 612-766-7000

Email: patentdocketing@faegrebd.com

Correspondent Name: FAEGRE BAKER DANIELS LLP (487145)

Address Line 1: PATENT DOCKETING - INTELLECTUAL PROPERTY
Address Line 2: 2200 WELLS FARGO CENTER, 90 SOUTH SEVENT

Address Line 4: MINNEAPOLIS, MINNESOTA 55402-3901

| ATTORNEY DOCKET NUMBER: | 487145.393 |
|-------------------------|---------------|
| NAME OF SUBMITTER: | MEG K COLLINS |
| SIGNATURE: | /MK Collins/ |
| DATE SIGNED: | 02/25/2015 |

PATENT 503194920 REEL: 035030 FRAME: 0872

Total Attachments: 15 source=393_CompleteAssignment#page1.tif source=393_CompleteAssignment#page2.tif source=393_CompleteAssignment#page3.tif source=393_CompleteAssignment#page4.tif source=393_CompleteAssignment#page5.tif source=393_CompleteAssignment#page6.tif source=393_CompleteAssignment#page7.tif source=393_CompleteAssignment#page8.tif source=393 CompleteAssignment#page9.tif source=393_CompleteAssignment#page10.tif source=393_CompleteAssignment#page11.tif source=393 CompleteAssignment#page12.tif source=393_CompleteAssignment#page13.tif source=393_CompleteAssignment#page14.tif source=393_CompleteAssignment#page15.tif

PATENT REEL: 035030 FRAME: 0873



University of Minnesota ASSIGNMENT

WHEREAS, I, Darrin D. Beekman, have invented certain new and useful improvements in LASER CATHETER WITH USE OF REFLECTED LIGHT TO DETERMINE MATERIAL TYPE IN VASCULAR SYSTEM, for which applications for Letters Patents of the United States have been made, said applications being filed as follows: Utility application no. 14/586,312 on December 30, 2014 (collectively, the "Applications");

Whereas, the REGENTS OF THE UNIVERSITY OF MINNESOTA ("Assignee"), having offices at 600 McNamara Alumni Center, 200 Oak Street SE, Minneapolis, Minnesota 55455-2020, is desirous of acquiring the entire right, title and interest in and to said invention, said Applications and in, to and under any and all Letters Patent to be obtained therefore;

NOW, THEREFORE, to all whom it may concern, be it known that for good and valuable consideration, the receipt and sufficiency whereof is hereby acknowledged, and to the extent that the Assignor has not done so already via a prior agreement with the Assignee, or if I have already done so via a prior agreement with the Assignee then in confirmation of said prior agreement, I have sold, assigned, transferred and set over and by these presents do sell, assign, transfer and set over unto Assignee, its successors and assigns, the entire right, title and interest in and to the inventions set forth hereinabove and the entire right, title and interest in and to any and all Letters Patent of the United States and any foreign countries which may be granted therefor on the Applications including my rights under the International Convention for the Protection of Industrial Property, and in and to any and all extensions, divisions, continuations, continuations-in-part or reissues of said Applications and Letters Patent that may be granted, including all rights to claim priority therefrom, and specifically including the right to enforce such Letters Patent in the name of Assignee and to recover damages for past infringement of the rights conveyed herein, the same to be held and enjoyed by Assignee for its own use and benefit and use and benefit of its successors and assigns 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 and enjoyed by me had this assignment and sale not been made.

I hereby authorize said Assignee, its successors and assigns, or anyone it may properly designate, to apply for Letters Patent, in its own name if desired, in any and all foreign countries, and additionally to claim the filing date of any the Applications and/or otherwise take advantage of the provisions of the International Convention.

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

1

US,55556403.01

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

2

US,55556403.01

| I hereby request the Honorable Commissioner of Patents and Trademarks to issue the Letters Patent to Assignee in accordance with this instrument. |
|--|
| IN WITNESS WHEREOF, I have hereunto set my hand on this |
| [NAME] Dan Belle |
| STATE OF MINNESOTA) COUNTY OF HENNEDIN) |
| On this day of fellow, 2015, before me personally appeared by Beck man, to me known to be the person described in and who executed the foregoing instrument and acknowledged that s/he executed the same as his/her free act and deed. |
| IN WITNESS WHEREOF, I have hereunto affixed my official signature with the seal of my office, the day and year above written. |
| Notary Public |
| HOLLY A. EDGETT NOTARY PUBLIC MINNESOTA Commission Expires 01/31/2019 |

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076



ASSIGNMENT

WHEREAS, I, Paul Anthony Iaizzo, have invented certain new and useful improvements in LASER CATHETER WITH USE OF REFLECTED LIGHT TO DETERMINE MATERIAL TYPE IN VASCULAR SYSTEM, for which applications for Letters Patents of the United States have been made, said applications being filed as follows: Utility application no. 14/586,312 on December 30, 2014 (collectively, the "Applications");

Whereas, the REGENTS OF THE UNIVERSITY OF MINNESOTA ("Assignee"), having offices at 600 McNamara Alumni Center, 200 Oak Street SE, Minneapolis, Minnesota 55455-2020, is desirous of acquiring the entire right, title and interest in and to said invention, said Applications and in, to and under any and all Letters Patent to be obtained therefore;

NOW, THEREFORE, to all whom it may concern, be it known that for good and valuable consideration, the receipt and sufficiency whereof is hereby acknowledged, and to the extent that the Assignor has not done so already via a prior agreement with the Assignee, or if I have already done so via a prior agreement with the Assignee then in confirmation of said prior agreement, I have sold, assigned, transferred and set over and by these presents do sell, assign, transfer and set over unto Assignee, its successors and assigns, the entire right, title and interest in and to the inventions set forth hereinabove and the entire right, title and interest in and to any and all Letters Patent of the United States and any foreign countries which may be granted therefor on the Applications including my rights under the International Convention for the Protection of Industrial Property, and in and to any and all extensions, divisions, continuations, continuations-in-part or reissues of said Applications and Letters Patent that may be granted, including all rights to claim priority therefrom, and specifically including the right to enforce such Letters Patent in the name of Assignee and to recover damages for past infringement of the rights conveyed herein, the same to be held and enjoyed by Assignee for its own use and benefit and use and benefit of its successors and assigns 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 and enjoyed by me had this assignment and sale not been made.

I hereby authorize said Assignee, its successors and assigns, or anyone it may properly designate, to apply for Letters Patent, in its own name if desired, in any and all foreign countries, and additionally to claim the filing date of any the Applications and/or otherwise take advantage of the provisions of the International Convention.

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

1

US.55556447.01

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

2

US.55556447.01

I hereby request the Honorable Commissioner of Patents and Trademarks to issue the Letters Patent to Assignee in accordance with this instrument. IN WITNESS WHEREOF, I have hereunto set my hand on this , 2015. STATE OF HENNEDY Paul Anthony laizzo COUNTY OF MIMMLS of a On this total day of teleman, 2015, before me personally , to me known to be the person described in and who executed the foregoing instrument and acknowledged that s/he executed the same as his/her free act and deed. IN WITNESS WHEREOF, I have hereunto affixed my official signature with the seal of my office, the day and year above written. Notary Public HOLLY A. EDGETT NOTARY PUBLIC

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076 MINNESOTA



ASSIGNMENT

WHEREAS, I, Timothy M. Kowalewski, have invented certain new and useful improvements in LASER CATHETER WITH USE OF REFLECTED LIGHT TO DETERMINE MATERIAL TYPE IN VASCULAR SYSTEM, for which applications for Letters Patents of the United States have been made, said applications being filed as follows: Utility application no. 14/586,312 on December 30, 2014 (collectively, the "Applications");

Whereas, the REGENTS OF THE UNIVERSITY OF MINNESOTA ("Assignee"), having offices at 600 McNamara Alumni Center, 200 Oak Street SE, Minneapolis, Minnesota 55455-2020, is desirous of acquiring the entire right, title and interest in and to said invention, said Applications and in, to and under any and all Letters Patent to be obtained therefore;

NOW, THEREFORE, to all whom it may concern, be it known that for good and valuable consideration, the receipt and sufficiency whereof is hereby acknowledged, and to the extent that the Assignor has not done so already via a prior agreement with the Assignee, or if I have already done so via a prior agreement with the Assignee then in confirmation of said prior agreement, I have sold, assigned, transferred and set over and by these presents do sell, assign. transfer and set over unto Assignee, its successors and assigns, the entire right, title and interest in and to the inventions set forth hereinabove and the entire right, title and interest in and to any and all Letters Patent of the United States and any foreign countries which may be granted therefor on the Applications including my rights under the International Convention for the Protection of Industrial Property, and in and to any and all extensions, divisions, continuations. continuations-in-part or reissues of said Applications and Letters Patent that may be granted, including all rights to claim priority therefrom, and specifically including the right to enforce such Letters Patent in the name of Assignee and to recover damages for past infringement of the rights conveyed herein, the same to be held and enjoyed by Assignee for its own use and benefit and use and benefit of its successors and assigns 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 and enjoyed by me had this assignment and sale not been made.

I hereby authorize said Assignee, its successors and assigns, or anyone it may properly designate, to apply for Letters Patent, in its own name if desired, in any and all foreign countries, and additionally to claim the filing date of any the Applications and/or otherwise take advantage of the provisions of the International Convention.

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

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US.55556379.01

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

2

US.55556379.01

I hereby request the Honorable Commissioner of Patents and Trademarks to issue the Letters Patent to Assignee in accordance with this instrument.

IN WITNESS WHEREOF, I have hereunto set my hand on this _______ day o _______, 2015.

[NAME]

Timothy M. Kowalewski

country of Henneph

On this day of FOMAM, 2015, before me personally appeared Motter Rowall Mall Market and known to be the person described in and who executed the foregoing instrument and acknowledged that s/he executed the same as his/her free act and deed.

IN WITNESS WHEREOF, I have hereunto affixed my official signature with the seal of my office, the day and year above written.

Notary Public



Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

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US.55556379.01



ASSIGNMENT

WHEREAS, I, Gregory K. Peterson, have invented certain new and useful improvements in LASER CATHETER WITH USE OF REFLECTED LIGHT TO DETERMINE MATERIAL TYPE IN VASCULAR SYSTEM, for which applications for Letters Patents of the United States have been made, said applications being filed as follows: Utility application no. 14/586,312 on December 30, 2014 (collectively, the "Applications");

Whereas, the REGENTS OF THE UNIVERSITY OF MINNESOTA ("Assignee"), having offices at 600 McNamara Alumni Center, 200 Oak Street SE, Minneapolis, Minnesota 55455-2020, is desirous of acquiring the entire right, title and interest in and to said invention, said Applications and in, to and under any and all Letters Patent to be obtained therefore;

NOW, THEREFORE, to all whom it may concern, be it known that for good and valuable consideration, the receipt and sufficiency whereof is hereby acknowledged, and to the extent that the Assignor has not done so already via a prior agreement with the Assignee, or if I have already done so via a prior agreement with the Assignee then in confirmation of said prior agreement, I have sold, assigned, transferred and set over and by these presents do sell, assign. transfer and set over unto Assignee, its successors and assigns, the entire right, title and interest in and to the inventions set forth hereinabove and the entire right, title and interest in and to any and all Letters Patent of the United States and any foreign countries which may be granted therefor on the Applications including my rights under the International Convention for the Protection of Industrial Property, and in and to any and all extensions, divisions, continuations, continuations-in-part or reissues of said Applications and Letters Patent that may be granted. including all rights to claim priority therefrom, and specifically including the right to enforce such Letters Patent in the name of Assignee and to recover damages for past infringement of the rights conveyed herein, the same to be held and enjoyed by Assignee for its own use and benefit and use and benefit of its successors and assigns 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 and enjoyed by me had this assignment and sale not been made.

I hereby authorize said Assignee, its successors and assigns, or anyone it may properly designate, to apply for Letters Patent, in its own name if desired, in any and all foreign countries, and additionally to claim the filing date of any the Applications and/or otherwise take advantage of the provisions of the International Convention.

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

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US.55556411.01

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

US.55556411.01

PATENT

REEL: 035030 FRAME: 0884

I hereby request the Honorable Commissioner of Patents and Trademarks to issue the Letters Patent to Assignee in accordance with this instrument.

IN WITNESS WHEREOF, I have hereunto set my hand on this day of

[NAME] Gregnyk Letnes

Gregory K. Peterson

STATE OF MINNESOTA COUNTY OF HENNEDIN }

On this 5th day of fellow, 2015, before me personally appeared Gregory Felekson, to me known to be the person described in and who executed the foregoing instrument and acknowledged that s/he executed the same as his/her free act and deed.

IN WITNESS WHEREOF, I have hereunto affixed my official signature with the seal of my office, the day and year above written.

Notary Public



Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076



ASSIGNMENT

WHEREAS, I, Jack B. Stubbs, have invented certain new and useful improvements in LASER CATHETER WITH USE OF REFLECTED LIGHT TO DETERMINE MATERIAL TYPE IN VASCULAR SYSTEM, for which applications for Letters Patents of the United States have been made, said applications being filed as follows: Utility application no. 14/586,312 on December 30, 2014 (collectively, the "Applications");

Whereas, the REGENTS OF THE UNIVERSITY OF MINNESOTA ("Assignee"), having offices at 600 McNamara Alumni Center, 200 Oak Street SE, Minneapolis, Minnesota 55455-2020, is desirous of acquiring the entire right, title and interest in and to said invention, said Applications and in, to and under any and all Letters Patent to be obtained therefore;

NOW, THEREFORE, to all whom it may concern, be it known that for good and valuable consideration, the receipt and sufficiency whereof is hereby acknowledged, and to the extent that the Assignor has not done so already via a prior agreement with the Assignee, or if I have already done so via a prior agreement with the Assignee then in confirmation of said prior agreement, I have sold, assigned, transferred and set over and by these presents do sell, assign, transfer and set over unto Assignee, its successors and assigns, the entire right, title and interest in and to the inventions set forth hereinabove and the entire right, title and interest in and to any and all Letters Patent of the United States and any foreign countries which may be granted therefor on the Applications including my rights under the International Convention for the Protection of Industrial Property, and in and to any and all extensions, divisions, continuations, continuations-in-part or reissues of said Applications and Letters Patent that may be granted, including all rights to claim priority therefrom, and specifically including the right to enforce such Letters Patent in the name of Assignee and to recover damages for past infringement of the rights conveyed herein, the same to be held and enjoyed by Assignee for its own use and benefit and use and benefit of its successors and assigns 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 and enjoyed by me had this assignment and sale not been made.

I hereby authorize said Assignee, its successors and assigns, or anyone it may properly designate, to apply for Letters Patent, in its own name if desired, in any and all foreign countries, and additionally to claim the filing date of any the Applications and/or otherwise take advantage of the provisions of the International Convention.

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

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US.55556431.01

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

US.55556431.01

PATENT

I hereby request the Honorable Commissioner of Patents and Trademarks to issue the Letters Patent to Assignee in accordance with this instrument. IN/WITNESS WHEREOF, I have hereunto set my hand on this country of Henry) On this and day of few man, 2015, before me personally appeared actions of to me known to be the person described in and who executed the foregoing instrument and acknowledged that s/he executed the same as his/her free act and deed. IN WITNESS WHEREOF, I have hereunto affixed my official signature with the seal of my office, the day and year above written. Notary Public

Attorney Docket Number 487145.393 UM Case No. ROI20140073 & ROI20140076

US.55556431.01

RECORDED: 02/25/2015

PATENT

MINNESOTA

REEL: 035030 FRAME: 0888