PTO/SB/14 (11-08)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2006.86US03
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

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Applicant Authority	◉ Inventor	○ Legal Representative under 35 U.S.C. 117	○ Party of Interest under 35 U.S.C. 118

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	Howard		Root	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

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City	Maple Grove	State/Province	MN	Country of Residence [i]	US

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Mailing Address of Applicant:					
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Citizenship under 37 CFR 1.41(b) i	US				
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Postal Code	55369	**Country**i	US		

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

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Application Information:

Title of the Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES		
Attorney Docket Number	2006.86US03	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		**Sub Class (if any)**	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	13	**Suggested Figure for Publication (if any)**	

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Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐	**Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S. C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

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This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Division of	12/824734	2010-06-28
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	non provisional of	11/416629	2006-05-03	8048032	2011-11-01

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Application Number	Country [i]	Parent Filing Date (YYYY-MM-DD)	Priority Claimed
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Assignee Information:

Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office.

Assignee 1 Remove

If the Assignee is an Organization check here. ☒

Organization Name	Vascular Solutions, Inc.		
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Address 1	6464 Sycamore Court North		
Address 2			
City	Minneapolis	**State/Province**	MN
Country [i]	US	Postal Code	55369
Phone Number		Fax Number	
Email Address			

Additional Assignee Data may be generated within this form by selecting the **Add** button. Add

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.

Signature	/Paul C. Onderick/			Date (YYYY-MM-DD)	2012-01-26
First Name	Paul	Last Name	Onderick	Registration Number	45354

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COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

Related Applications

This Application is a divisional of Application No. 12/824,734, filed June 28, 2010 entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures", which is divisional of Application No. 11/416,629, filed May 3, 2006 now U.S. Patent 8,048,032 entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures".

FIELD OF THE INVENTION

The present invention relates generally to catheters used in interventional cardiology procedures. More particularly the present invention relates to methods and apparatus for increasing backup support for catheters inserted into the coronary arteries from the aorta.

BACKGROUND OF THE INVENTION

Interventional cardiology procedures often include inserting guidewires or other instruments through catheters into coronary arteries that branch off from the aorta. For the purposes of this application, the term "interventional cardiology devices" is to be understood to include but not be limited to guidewires, balloon catheters, stents and stent catheters. In coronary artery disease the coronary arteries may be narrowed or occluded by atherosclerotic plaques or other lesions. These lesions may totally obstruct the lumen of the artery or may dramatically narrow the lumen of the artery. Narrowing is referred to as stenosis. In order to diagnose and treat obstructive coronary artery disease it is commonly necessary to pass a guidewire or other instruments through and beyond the occlusion or stenosis of the coronary artery.

In treating a stenosis, a guide catheter is inserted through the aorta and into the ostium of the coronary artery. This is sometimes accomplished with the aid of a guidewire. A guide catheter is typically seated into the opening or ostium of the artery to be treated and a guidewire or other instrument is passed through the lumen of the guide catheter and inserted into the artery beyond the occlusion or stenosis. Crossing tough lesions can create enough backward force to dislodge the guide catheter from the ostium of the artery being treated. This can make it difficult or impossible for the interventional cardiologist to treat certain forms of coronary artery disease.

Prior attempts to provide support to the guiding catheter to prevent backward dislodgement from the coronary ostium (referred to as "backup support") fall generally into four categories.

First are guiding catheters that, through a combination of shape and stiffness, are configured to draw backup support from engaging the wall of the aortic arch opposing the ostium of the coronary artery that is being accessed. Examples of this approach can be found in U.S. Patent No. 6,475,195 issued to Voda and U.S. Patent No. 5,658,263 issued to Dang et al. These guiding catheters all share the common limitation that a guide catheter stiff enough to provide adequate backup support is often too stiff to be safely inserted into the aorta without the possibility of causing damage to the aortic wall. In addition, attempts to deep seat the guide catheter have been made but the rigid nature of the guide catheter creates the risk that the guide catheter may damage the coronary artery wall or that the guide catheter may occlude the coronary artery and interfere with blood flow to the heart muscle.

Second are guiding catheters that include a retractable appendage. The appendage in these catheters can be extended to engage the opposing wall of the aortic arch to provide backup support or the appendage may be placed under tension to stiffen a bend in the catheter to provide backup support. Examples of this approach may be found in U.S. Patent Nos. 4,813, 930 issued to Elliot; 5,098,412 issued to Shiu; and 6,860,876 issued to Chen. These guiding catheters tend to be somewhat mechanically complex and have not been widely adopted by practitioners.

Third are guide catheters that have a portion that seeks to expand laterally to grip the interior wall of the ostium of the coronary artery to provide a force acting in opposition to the backward forces created when trying to maneuver a therapeutic device past a lesion or blockage in the coronary artery. These devices can include a balloon secured to a guidewire or a catheter or another device for expanding to grip the walls of the coronary artery from within. Examples of this approach may be found in U.S. Patent Nos. 4,832,028 issued to Patel; 6,595,952 issued to Forsberg; and U.S. Published Application No. 2005/0182437 by Bonnette et al. Again, these devices tend to be mechanically complex and can completely occlude the coronary ostium thus stopping perfusion of the coronary artery.

A fourth technique includes the placement of a smaller guide catheter within a larger guide catheter in order to provide added support for the crossing of lesions or for the distal delivery of balloons and stents. This technique has been described in an article by Takahashi entitled "New Method to Increase a Backup Support of Six French Guiding Coronary Catheter," published in Catheterization and Cardiovascular Interventions, 63:452-456 (2004). This technique is used in order to provide a method of deep seating the guide catheter within the ostium of the coronary artery. Deep seating refers to inserting the catheter more deeply into the

ostium of the coronary artery than typically has been done before. Unfortunately, deep seating by this technique with a commonly available guide catheter creates the risk that the relatively stiff, fixed curve, guide catheter will damage the coronary artery. This damage may lead to dissection of the coronary artery when the catheter is advanced past the ostium.

Several other problems arise when using a standard guide catheter in this catheter-in-a-catheter fashion. First, the inner catheters must be substantially longer than the one hundred centimeter guide catheter. Second, a new hemostasis valve must be placed on the inner guide catheter which prevents the larger guide catheter from being used for contrast injections or pressure measurements. Third, the smaller guide catheter still must be inserted into the coronary vessel with great care since the smaller guide catheter has no tapered transition or dilator at its tip and does not run over a standard 0.014 inch guidewire.

Thus, the interventional cardiology art would benefit from the availability of a system that would be deliverable through standard guide catheters for providing backup support by providing the ability to effectively create deep seating in the ostium of the coronary artery.

SUMMARY OF THE INVENTION

The present invention is a coaxial guide catheter that is deliverable through standard guide catheters by utilizing a guidewire rail segment to permit delivery without blocking use of the guide catheter. The coaxial guide catheter preferably includes a tapered inner catheter that runs over a standard 0.014 inch coronary guidewire to allow atraumatic placement within the coronary artery. This feature also allows removal of the tapered inner catheter after the coaxial guide catheter is in place. The tapered inner catheter provides a gradual transition from the

standard 0.014 inch diameter guidewire to the diameter of the coaxial guide catheter which is typically five to eight French.

The coaxial guide catheter preferably can be delivered through commonly existing hemostatic valves used with guide catheters while still allowing injections through the existing Y adapter. In addition, the coaxial guide catheter preferably has an inner diameter that is appropriate for delivering standard coronary treatment devices after it is placed in the coronary artery.

In one embodiment, the coaxial guide catheter is made in at least three sizes corresponding to the internal capacity of 8 French, 7 French, and 6 French guide catheters that are commonly used in interventional cardiology procedures. An 8 French catheter has an internal diameter greater than or equal to 0.088 inches. A 7 French catheter has an internal diameter greater than or equal to 0.078 inches. A 6 French guide catheter has an internal diameter greater than or equal to 0.070 inches. Thus, for three exemplary sizes the effective internal diameter of the coaxial guide catheter may be as follows. For a 7 French in 8 French coaxial guide catheter, the internal diameter should be greater than or equal to 0.078 inches. For a 6 French in 7 French coaxial guide catheter the internal diameter should be greater than or equal to 0.070 inches. For a 5 French in 6 French coaxial guide catheter the internal diameter should be greater than or equal to 0.056 inches.

Interventional cardiology procedures are typically carried out under fluoroscopy or another x-ray or imaging technique. Therefore, one embodiment of the coaxial guide catheter of the present invention includes a radiopaque marker at its distal tip to facilitate positioning and manipulation of the coaxial guide catheter.

The present invention generally includes the coaxial guide catheter and a tapered inner catheter. The coaxial guide catheter includes a tip portion, a reinforced portion, and a substantially rigid portion. The coaxial guide catheter will generally have an overall length of preferably approximately 125 cm, though this should not be considered limiting.

In one embodiment, the tip portion may include a soft tip and a marker band. The soft tip is tapered and may be formed from a low durometer polymer or elastomer material such as polyether block amide polymer, (PEBA, Pebax®) the marker band may be formed from a platinum iridium alloy sandwiched between the Pebax® that extends from the bump tip and a PTFE liner.

In one embodiment, the reinforced portion may be reinforced, preferably with metallic fibers in a braided or coiled pattern. The braided or coiled portion is lined by a PTFE liner and may be covered on its exterior with Pebax®. The braided or coiled portion may extend approximately 20 to 110 cm in length. In one exemplary embodiment, the braided portion extends approximately 32 to 36 cm.

Preferably, the rigid portion may be advantageously formed from a stainless steel or Nitinol tube. The rigid portion may be joined to the braid or coil portion by welding. The rigid portion may include a cutout portion and a full circumference portion. For example, the cutout portion may include a section where about 45% of the circumference of the cylindrical tubular structure has been removed. The cutout portion may also include a section where 75-90% of the circumference of the tubular structure has been removed. In one exemplary embodiment, the portion having approximately 45% removed may extend for approximately 75 cm and the portion having 75-90% of the structure removed extends for about 15 cm.

The full circumference portion of the rigid portion is typically located at the most proximal end of the coaxial guide catheter.

The rigid portion may include a plurality of radially oriented slits or other cuts in its distal portion to increase and control the flexibility of the rigid portion

In an exemplary embodiment, the tapered inner catheter generally includes a tapered inner catheter tip and a cutout portion. The tapered inner catheter tip includes a tapered portion and a straight portion. The tapered portion is typically at the most distal end of the tapered inner catheter. Both the straight portion and the tapered portion are pierced by a lumen through which a guidewire may be passed.

The cutout portion supports a track passing along the concave side thereof that continues from the lumen that passes through the straight portion and the tapered portion. The tapered inner catheter may also have a clip or snap attachment at its proximal end to releasably join the tapered inner catheter to the coaxial guide catheter.

In operation, the tapered inner catheter is inserted inside and through the coaxial guide catheter. The tapered inner catheter is positioned so that the tapered inner catheter tip extends beyond the tip portion of the coaxial guide catheter. The coaxial guide catheter-tapered inner catheter combination may then be inserted into a blood vessel that communicates with the aorta. The coaxial guide catheter-tapered inner catheter combination may be threaded over a preplaced 0.014 inch guidewire. The tapered inner catheter-coaxial guide catheter combination is advanced up the aorta until the tapered inner catheter is passed into the ostium of a coronary artery over the guidewire. Once the coaxial guide catheter-tapered inner catheter combination has been inserted sufficiently into the ostium of the coronary artery to achieve deep seating the tapered inner

catheter may be removed. During this entire process at least part of the coaxial guide catheter-tapered inner catheter combination is located inside of the guide catheter.

Once the tapered inner catheter is removed a cardiac treatment device, such as a guidewire, balloon or stent, may be passed through the coaxial guide catheter within the guide catheter and into the coronary artery. As described below, the presence of the coaxial guide catheter provides additional backup support to make it less likely that the coaxial guide catheter guide catheter combination will be dislodged from the ostium of the coronary artery while directing the coronary therapeutic device past a tough lesion such as a stenosis or a chronic arterial occlusion.

A guide catheter inserted into the ostium of a branch artery where it branches off from a larger artery is subject to force vectors that tend to dislodge the distal end of the guide catheter from the ostium of the branch artery when a physician attempts to direct a guidewire or other interventional cardiology device past an occlusive or stenotic lesion in the branch artery. This discussion will refer to a guide wire but it is to be understood that similar principles apply to other interventional cardiology devices including balloon catheters and stent catheters.

One of the forces that act on the guide catheter is an axial force substantially along the axis of the branch artery and the portion of the guide catheter that is seated in the ostium. This force vector is a reactive force created by the pushing back of the guide wire against the guide catheter as the physician tries to force the guidewire through or past the lesion. It tends to push the distal end of the catheter out of the ostium in a direction parallel to the axis of the branch artery and the axis of the distal end of the guide catheter.

Another of the force vectors that acts on the guide catheter is a shearing force that tends to dislodge the distal end of the guide catheter from the ostium of the branch artery in a direction perpendicular to the axis of the branch artery and the axis of the distal end of the guide catheter. This force vector arises from curvature of the guide catheter near its distal end and the guide wire pushing on the curved portion of the guide catheter as the physician applies force to the guidewire. The coaxial guide catheter of the present invention assists in resisting both the axial forces and the shearing forces that tend to dislodge a guide catheter from the ostium of a branch artery.

The system is deliverable using standard techniques utilizing currently available equipment. The present invention also allows atraumatic placement within the coronary artery. Further, the invention is deliverable through an existing hemostatic valve arrangement on a guide catheter without preventing injections through existing Y adapters. Finally, the invention has an inner diameter acceptable for delivering standard coronary devices after it is placed in the blood vessel.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic depiction of the coaxial guide catheter and a tapered inner catheter in accordance with the present invention;

Fig. 2 is schematic depiction of the coaxial guide catheter and tapered inner catheter assembled in accordance with the present invention;

Fig. 3 is a plan view of a guide catheter, the coaxial guide catheter, and a treatment catheter in accordance with the present invention;

Fig. 4 is a sectional view of the coaxial guide catheter in accordance with the present invention;

Fig. 5 is a cross sectional view of the coaxial guide catheter and tapered inner catheter in accordance with the present invention;

Fig. 6 is another cross sectional view of the coaxial guide catheter and tapered inner catheter in accordance with the present invention;

Fig. 7 is a schematic view of a guide catheter and a guidewire located in an aortic arch and a coronary artery and the guide catheter and guidewire in a second position depicted in phantom;

Fig. 8 is a schematic view of a guide catheter, a guidewire, a coaxial guide catheter in accordance with the present invention and a tapered inner catheter located in the aortic arch and coronary artery;

Fig. 9 is a schematic view of a guide catheter, a guidewire and a coaxial guide catheter in accordance with the present invention located in the aortic arch and coronary artery;

Fig. 10 is a flat pattern for making relief cuts in a curved rigid portion of the coaxial guide catheter in accordance with the present invention;

Fig. 11 is a detailed view taken from Fig. 10;

Fig. 12 is a plan view of the rigid portion in accordance with the present invention;

Fig. 13 is an elevational view of the rigid portion;

Fig. 14 is a sectional view of the rigid portion taken along section line 14-14 of Fig. 13; and

Fig. 15 is a sectional view of the rigid portion taken along section line 15-15 of Fig. 13.

Fig. 16 is a sectional view of the rigid portion taken along section line 16-16 of Fig. 13.

Fig. 17 is a plan view of a coaxial guide catheter having a longer rail segment and a tapered inner catheter in accordance with the present invention.

Fig. 18 is a plan view of the tapered inner catheter as depicted in the Fig. 17.

Fig. 19 is a cross-sectional view of the tapered inner catheter taken along section lines 19-19 of Fig. 18.

Fig. 20 is a plan view of a coaxial guide catheter in accordance with the present invention.

Fig. 21 is an elevational view of a coaxial guide catheter in accordance with the present invention.

Fig. 22 is a cross-sectional view taken along section line 22-22 of Fig. 21.

DETAILED DESCRIPTION OF THE DRAWINGS

Referring to Figs. 1 and 2, coaxial guide catheter assembly 10 of the present invention generally includes coaxial guide catheter 12 and tapered inner catheter 14.

Coaxial guide catheter 12 generally includes tip portion 16, reinforced portion 18, and rigid portion 20. The overall length of the coaxial guide catheter typically can be approximately 125 cm. This length should not be considered limiting.

Tip portion 16 generally includes bump tip 22 and marker band 24. Bump tip 22 includes taper 26. Bump tip 24 is relatively flexible and may be formed, for example, from 4033 Pebax®. Bump tip 22 may be yellow or another high visibility color for ease of handling.

Marker band 24 is formed of a radiopaque material such as platinum/iridium alloy usually at a 90/10 ratio. Marker band 24 may be sandwiched between an outer Pebax® material 28 and a PTFE liner 30. Outer Pebax® material 28 in this location may be formed of 5533 Pebax, for example.

Reinforced portion 18 includes braid or coil reinforcement 32. Braid or coil reinforcement 32 may be formed of metal, plastic, graphite, or composite structures known to the art. Reinforced portion 18 may be lined on the interior by PTFE liner 30 and covered on the exterior by Pebax® material 28. Tip portion 16 and reinforced portion 18 together form a substantially cylindrical structure. Braid or coil reinforcement 32 may extend approximately 20 to 30 cm. In one exemplary embodiment, braid or coiled portion has a length of approximately 32 to 36 cm.

Rigid portion 20 may be secured to braid or coil reinforcement by, for example, welding or bonding. Rigid portion 20 may be formed from a hypotube or a section of stainless steel or Nitinol tubing. Other substantially rigid materials may be used as well. Rigid portion 20 includes first full circumference portion 34, hemicylindrical portion 36, arcuate portion 38, and second full circumference portion 40.

First full circumference portion 34 is joined to braid or coil reinforcement 32. First full circumference portion 34 extends for a relatively short distance, for example, .25 cm.

Hemicylindrical portion 36 desirably includes 40% to 70% of the circumference of the tube. Hemicylindrical portion 36 may extend, for example, approximately 20 to75 cm in length.

Hemicylindrical portion 36 tapers into arcuate portion 38.

Arcuate portion 38 extends from 25% to 40% of the circumference of the tube. Arcuate portion 38 may extend linearly, for example, for about 15 cm.

Arcuate portion 38 connects to second full circumference portion 40. Second full circumference portion 40 may extend for a short distance, for example, approximately 3 cm.

Tapered inner catheter 14 generally includes tapered inner catheter tip 42 and cutout portion 44. Tapered inner catheter tip 42 tapers gradually from the diameter of a guide wire to the diameter of tip portion 16.

Tapered inner catheter tip 42 includes tapered portion 46 at a distal end thereof, and straight portion 48. Both tapered portion 46 and straight portion 48 are pierced by lumen 50.

Cutout portion 44 defines a concave track 52 along its length. Concave track 52 is continuous with lumen 50.

Tapered inner catheter 14 may also include clip 54 at a proximal end thereof to releasably join tapered inner catheter 14 to coaxial guide catheter 12. Thus, tapered inner catheter 14 is keyed to coaxial guide catheter 12.

Coaxial guide catheter 12 may include, starting at its distal end, a first portion having a flexural modulus of about 13,000 PSI plus or minus 5000 PSI, a second portion having a flexural modulus of about 29,000 PSI plus or minus 10,000 PSI, a third portion having a flexural modulus of about 49,000 PSI plus or minus 10,000 PSI and a fourth portion having a flexural modulus of about 107,000 PSI plus or minus 20,000 PSI. Coaxial guide catheter 12 may be formed, for example, of 4033 Pebax ® at bump tip 22 for the first 0.1 cm. This portion may followed by a section about three cm long of 5533 Pebax® that covers marker band 24 and the distal portion of braid or coil reinforcement 32. Next may come an approximately five cm

portion of 6333 Pebax® which encloses part of braid or coil reinforcement 32 followed by an approximately twenty seven cm portion of 7233 Pebax® covering the most proximal portion of braid or coil reinforcement 32. Braid or coil reinforcement 32 is bonded to rigid portion 20 which may be formed from stainless steel or a similar biocompatible material. Rigid portion 20 may extend for approximately ninety cm and include first full circumference portion 34 (approximately .25 cm), hemicylindrical portion 36 (approximately seventy five cm), arcuate portion (approximately fifteen cm) and second full circumference portion (approximately three cm.) Rigid portion 20 may be formed from a stainless steel or Nitinol hypo tube.

Fig. 7 depicts a typical guide catheter 56 passing through aortic arch 58 into ostium 60 of coronary artery 62. Fig. 7 also depicts guidewire 64 passing through the guide catheter 56 and into coronary artery 62. Located in coronary artery 62 is stenotic lesion 66. In a typical procedure, guidewire 64 is placed through the aortic arch 58 and into the ostium 60 of the coronary artery. 62. The guide catheter 56 is passed over guidewire 64 until distal end 68 of guide catheter 56 is seated in ostium 60 of coronary artery 62. Force is then applied to the guidewire 64 to push guidewire 64 past stenotic lesion 66 or an occlusive lesion (not shown). Once the guidewire 64 is pushed past stenotic lesion 66 or occlusive lesion (not shown), a treating catheter including a stent or balloon can be passed along the guidewire to stenotic lesion 66 or occlusive lesion (not shown). The lesion can then be treated.

As can be seen in phantom, in Fig. 7, the application of force to guidewire 64 can cause guide catheter 56 to dislodge from ostium 60 of coronary artery 62. This can occur in the case of a tough stenotic lesion 66 or occlusive lesion (not shown) when it is difficult to pass the guidewire 64 beyond the stenotic lesion 66 or occlusive lesion (not shown).

Referring the Fig. 8 coaxial guide catheter 12 is depicted as used with guide catheter 56, guidewire 64, and tapered inner catheter 14. Here, coaxial guide catheter 12 with tapered inner catheter 14 is passed through guide catheter 56 and over guidewire 64 into coronary artery 62 after the guide catheter 56 has been placed in the ostium 60 of coronary artery 62, as depicted in Fig. 7. Coaxial guide catheter 12, with tapered inner catheter 14, provides an inner support member for proper translation over guidewire 64. Tapered inner catheter tip 42 provides a distal tapered transition from guidewire 64 to coaxial guide catheter 12. Once coaxial guide catheter 12 is in place, tapered inner catheter 14 is removed from the inside of coaxial guide catheter 12.

Coaxial guide catheter 12 is now ready to accept a treatment catheter such as a stent or balloon catheter. Referring to Fig. 9, the combination of guide catheter 56 with coaxial guide catheter 12 inserted into ostium 60 of coronary artery 62 provides improved distal anchoring of guide catheter 56 and coaxial guide catheter 12. The presence of coaxial guide catheter 12 within guide catheter 56 also provides stiffer back up support than guide catheter 56 alone. The combination of improved distal anchoring and stiffening of the guide catheter 56/coaxial guide catheter 12 combination provides additional back up support to resist dislodging of guide catheter 56 from ostium 60 when force is applied to guidewire 64 to pass through stenotic lesion 66 or another lesion. In addition, the improved back up support assists in the positioning of a treating catheter that may include a stent or balloon.

Referring to Figs. 10 and 11, in some embodiments of coaxial guide catheter 12, rigid portion 20 may be perforated by relief cuts 70. Relief cuts 70 may be classed into first group 72 and second group 74.

First group 72 may be located near to the juncture between rigid portion 20 and reinforced portion 18. First group 72 of relief cuts 70, are relatively closely spaced. For example, first group 72 of relief cuts 70 may be spaced approximately .010 inches apart. First group 72 of relief cuts 70 extends for a relatively short distance, for example, approximately 2 inches.

Second group 74 of relief cuts 70 may extend for a relatively long distance, for example, approximately 30-35 inches. Second group 74 of relief cuts 70 are spaced farther apart than first group 72. For example, relief cuts 70 of second group 74 may be spaced approximately .020 inches between cuts. Referring particularly to Fig. 11, relief cuts 70 may include single cuts 76 and double cuts 78. Single cuts 76 may include an individual linear cut, as can be seen in Fig. 11. Double cuts 78 may include two linear cuts along a single line but separated by a short section of uncut structure. Typically, single cuts 76 and double cuts 78 are alternated along the length of rigid portion 20. Generally, the overall length of single cut 76 may be less than the overall length of two double cuts 78.

In an embodiment depicted in Figs. 12-15, rigid portion includes full circumference portion 80, greater than 180° portion 82, and less than 180° portion 84. Greater than 180° portion 82 may, for example, include structure forming approximately 300° of the circumference of the cylinder. Less than 180° portion may include, for example, structure forming approximately 90° of the circumference of a cylinder. Greater than 180° portion 82 may extend approximately 22-25 inches. Greater than 180° portion 82 holds tapered inner catheter 14 within rigid portion 20.

When tapered inner catheter is inserted into coaxial guide catheter 12 greater than 180,° portion 82 grips tapered inner catheter 14 which is exposed through the opening in greater than 180° portion 82. Thus, the overall structure of tapered inner catheter 14 along with greater than 180° portion 82 is substantially cylindrical. Accordingly, when inserted through a guide catheter 56 having a Touhey-Borst style adapter, the Touhey-Borst style adapter can still seal around rigid portion 20 and enclosed inner tapered catheter 14.

Referring to Fig. 16, another embodiment of coaxial guide catheter assembly 10 includes coaxial guide catheter 12 and tapered inner catheter 14. Tapered inner catheter 14 is keyed to coaxial guide catheter 12 at hub 86.

Referring to Figs. 17 and 18, tapered inner catheter 14 generally includes connector hub 88 and catheter tube 90.

Connector hub 88 generally includes connector portion 92, grip portion 94 and joining portion 96. Connector hub 88 defines funnel portion 98 therein.

Catheter tube 90 generally includes straight portion 100, tapered portion 102 and marker band tip 104. Catheter tube 90 is joined to connector hub 88 at joining portion 96. Tapered inner catheter 14 may be formed in whole or in part from low-density polyethylene plastic, for example. Other suitable materials known to the catheter arts may be used as well.

Grip portion 94 desirably includes gripping ears 106. Gripping ears 106 may extend outwardly from grip portion 94 substantially radially and be shaped for convenient gripping by a physician.

Referring to Figs. 19 through 21, in this embodiment, coaxial guide catheter 12 includes interrupted hub 108, hemi-tube portion 110, braided portion 112 and tip portion 114.

Interrupted hub 108 defines an opening 116, along a side thereof. Interrupted hub 108 may be substantially C-shaped or U-shaped in cross section. Opening 116 is sized so that tapered inner catheter 14 may be passed readily therethrough in a direction perpendicular to the long axes of both interrupted hub 108 and tapered inner catheter 14. Hemi-tube portion 110 is immediately distal to interrupted hub 108. Hemi-tube portion 110 may be formed, for example, from a metal hypo tube forming approximately 50% of the circumference of a cylinder. Hemi-tube portion 110 is aligned so that opening 116 of interrupted hub 108 is coextensive with opening 118 of hemi-tube portion 110. Hemi-tube portion 110 is joined to braided portion 112, for example, by adhesive, bonding or welding. The location where hemi-tube portion 110 and braided portion 112 join defines the entire circumference of a cylinder.

Braided portion 112 may be reinforced by a coil or braid, 120. Coil or braid 120 may be formed of metal or another suitable reinforcing material.

Tip portion 114 is generally not reinforced and is substantially soft. Tip portion 114 is similarly structured to tapered inner catheter tip 42. Tip portion 114 may include a radiopaque marker band 24.

Beginning at the distal end of coaxial guide catheter 12, tip portion 114 may be formed substantially of, for example, 2533 Pebax® This may be followed by a section of 3533 Pebax®, then by a section of 5533 Pebax®, then by a further section of 7233 Pebax®. These Pebax® portions may all incorporate, for example, about 20% barium sulfate ($BaSO_4$).

In one embodiment, tip portion 114 and braided portion 112 may have an overall length together of approximately one hundred nine centimeters. Hemi-tube portion 110 and interrupted hub 108 may together have an overall length of approximately eighteen centimeters.

In this embodiment, coaxial guide catheter 12 may be lined with a PTFE liner 122.

In operation, a guide catheter 56 is inserted into a major blood vessel in the body such as aortic arch 58 over guidewire 64 and the distal end 68 of guide catheter 56 is brought into proximity of ostium 60 of a smaller branch blood vessel, such as coronary artery 62, that it is desired to enter. Coaxial guide catheter 12, with tapered inner catheter 14, is inserted through guide catheter 56 and over guidewire 64. Guide catheter 56, guidewire 64, coaxial guide catheter 12, and tapered inner catheter 14 are manipulated to insert tapered inner catheter tip 42 into the ostium 60 of the blood vessel that branches off from the major blood vessel. The bump tip 22 of coaxial guide catheter 12 is inserted with tapered inner catheter tip 42 well into ostium 60 of coronary artery 62 or other blood vessel until bump tip 22 of coaxial guide catheter 12 achieves a deep seated position. Tapered inner catheter 14 is then withdrawn from the lumen of coaxial guide catheter 12. An interventional cardiology treatment device such as a catheter bearing a stent or a balloon (not shown) is then inserted through the lumen of coaxial guide catheter 12 which remains inside guide catheter 56.

When the interventional cardiology device reaches a stenosis or blockage in coronary artery 62 or another branch blood vessel, force may be applied to the interventional cardiology device catheter while reinforced portion 18 and rigid portion 20 of coaxial guide catheter 12 provide back up support. The back force that would tend to dislodge bump tip 22 from a deep seated position in the ostium in the branch blood vessel is transferred through reinforced portion 18 to rigid portion 20 of coaxial guide catheter 12. A physician may apply a force to the proximal end of the coaxial guide catheter 12 to resist dislodging of bump tip 22 from the ostium of the branch artery.

One advantage of the present invention over prior art approaches is that the present invention does not interfere with the injection of fluids via the Y-adapter of guide catheter 56 as does the use of a smaller catheter within a larger catheter.

The present invention may be embodied in other specific forms without departing from the spirit of the essential attributes thereof; therefore, the illustrated embodiments should be considered in all respects as illustrative and not restrictive, reference being made to the appended claims rather than to the foregoing description to indicate the scope of the invention.

CLAIMS

1. A system for use with interventional cardiology devices adapted to be insertable into a branch artery, the system comprising:

a guide catheter having a continuous lumen extending for a predefined length from a proximal end at a hemostatic valve to a distal end adapted to be placed in the branch artery, the continuous lumen of the guide catheter having a circular cross-sectional inner diameter sized such that interventional cardiology devices are insertable into and through the continuous lumen of the guide catheter; and

a device adapted for use with the guide catheter, including:

a flexible tip portion defining a tubular rail structure without a lumen and having a circular cross-section and a length that is shorter than the predefined length of the continuous lumen of the guide catheter, the tubular structure having a cross-sectional outer diameter sized to be insertable through the cross-sectional inner diameter of the continuous lumen of the guide catheter and defining a coaxial lumen having a cross-sectional inner diameter through which interventional cardiology devices are insertable; and

a substantially rigid portion proximal of and operably connected to, and more rigid along a longitudinal axis than, the flexible tip portion and defining a structure having a maximal cross-sectional dimension at a proximal portion that is smaller than the cross-sectional outer diameter of the flexible tip portion and having a length that, when combined with the length of the flexible distal tip portion, defines a total length of the device along the longitudinal axis that is longer than the length of the continuous lumen of the guide catheter, such that when at least a distal portion of the flexible tip portion is extended distally of the distal end of the

guide catheter, at least a portion of the proximal portion of the substantially rigid portion extends proximally through the hemostatic valve in common with interventional cardiology devices that are insertable into the guide catheter.

2. The system of claim 1, wherein the tubular structure includes a distal portion adapted to be extended beyond the distal end of the guide catheter while a proximal portion remains within the lumen of the guide catheter, such that the device assists in resisting axial and shear forces exerted by the interventional cardiology device passed through and beyond the coaxial lumen that would otherwise tend to dislodge the guide catheter from the branch artery.

3. The system of claim 2, wherein the proximal portion of the tubular structure further comprises structure defining a proximal side opening extending for a distance along the longitudinal axis, and accessible from a longitudinal side defined transverse to the longitudinal axis, to receive the interventional cardiology devices into the coaxial lumen while the proximal portion remains within the lumen of the guide catheter.

4. The system of claim 3, wherein the proximal side opening includes structure defining a full circumference portion and structure defining a partially cylindrical portion.

5. The system of claim 1, wherein the tubular structure includes a flexible cylindrical distal tip portion and a flexible cylindrical reinforced portion proximal to the flexible distal tip portion.

6. The system of claim 5, wherein the flexible cylindrical reinforced portion is reinforced with metallic elements in a braided or coiled pattern.

7. The system of claim 2, wherein the flexible cylindrical distal tip portion further comprises a radiopaque marker proximate a distal tip.

8. The system of claim 1, wherein the cross-sectional inner diameter of the coaxial lumen of the tubular structure is not more than one French smaller than the cross-sectional inner diameter of the guide catheter.

9. The system of claim 1, wherein the substantially rigid portion includes from distal to proximal direction, a cross-sectional shape having a full circumference portion, a hemicylindrical portion and an arcuate portion.

10. The system of claim 1, wherein the predefined length of the guide catheter is about 100 cm and the total length of the device is about 125 cm.

11. The system of claim 1, further comprising a kit that includes the guide catheter and the device in a common sterile package.

12. A system for use with interventional cardiology devices adapted to be insertable into a branch artery, the system comprising:

a guide catheter having a continuous lumen extending for a predefined length from a proximal end at a hemostatic valve to a distal end adapted to be placed in the branch artery, the continuous lumen of the guide catheter having a circular cross-section and a cross-sectional inner diameter sized such that interventional cardiology devices are insertable into and through the continuous lumen of the guide catheter; and

a device adapted for use with the guide catheter, including:

an elongate structure having an overall length that is longer than the predefined length of the continuous lumen of the guide catheter, the elongate structure including:

a flexible tip portion defining a tubular rail structure without a lumen and having a circular cross-section that is smaller than the circular cross-section of the continuous lumen of the guide catheter and a length that is shorter than the predefined length of the continuous lumen of the guide catheter, the flexible tip portion having a cross-sectional outer diameter sized to be insertable through the cross-sectional inner diameter of the continuous lumen of the guide catheter and defining a coaxial lumen having a cross-sectional inner diameter through which interventional cardiology devices are insertable;

a reinforced portion proximal to the flexible tip portion; and

a substantially rigid portion proximal of, connected to, and more rigid along a longitudinal axis than, the flexible tip portion and defining a structure having a maximal cross-sectional dimension at a proximal portion that is smaller than the cross-sectional outer diameter of the flexible tip portion, such that when at least a distal portion of the flexible tip portion is

extended distally of the distal end of the guide catheter with at least proximal portion of the reinforced portion remaining within the continuous lumen of the guide catheter, at least a portion of the proximal portion of the substantially rigid portion extends proximally through the hemostatic valve in common with interventional cardiology devices that are insertable into the guide catheter.

13. The system of claim 12, wherein, when the distal portion of the flexible tip portion is insertable through the continuous lumen of the guide catheter and beyond the distal end of the guide catheter, the device assists in resisting axial and shear forces exerted by an interventional cardiology device passed through and beyond the coaxial lumen that would otherwise tend to dislodge the guide catheter from the branch artery.

14. The system of claim 12, wherein the substantially rigid portion further includes a partially cylindrical portion defining an opening extending for a distance along a side thereof defined transverse to a longitudinal axis that is adapted to receive an interventional cardiology device passed through continuous lumen of the guide catheter and into the coaxial lumen while the device is inserted into the continuous lumen, the opening extending substantially along at least a portion of a length of the substantially rigid portion.

15. The system of claim 12, wherein, after the device is inserted into the continuous lumen of the guide catheter, the device presents an overall effective length of a coaxial lumen through which an interventional cardiology device may be inserted while utilizing only a single hemostatic valve and without any telescoping structure preassembled prior to the device being inserted into the continuous lumen of the guide catheter.

16. The system of claim 12, the device further comprising a radiopaque marker proximate the distal portion of the flexible tip portion.

17. The system of claim 12, wherein the reinforced portion of the device is reinforced with metallic elements in a braided or coiled pattern.

18. The system of claim 12, wherein the cross-sectional inner diameter of the coaxial lumen of the flexible distal portion is not more than one French smaller than the cross-sectional inner diameter of the guide catheter.

19. The system of claim 12, wherein the substantially rigid portion includes, from distal to proximal, a cross-sectional shape having a full circumference portion, a hemicylindrical portion and an arcuate portion.

20. The system of claim 12, wherein the elongate structure includes, starting at the distal portion of the flexible distal portion, at least a first portion having a first flexural modulus, a second portion having a second flexural modulus greater than the first flexural modulus, and a third portion having a third flexural modulus greater than the second flexural modulus.

21. The system of claim 20, in which the first flexural modulus is about 13,000 PSI plus or minus 5000 PSI, the second flexural modulus is about 29,000 PSI plus or minus 10,000 PSI, and the third portion flexural modulus is about 49,000 PSI plus or minus 10,000 PSI.

22. The system of claim 20, in which the first portion is about 0.1 cm in length, the second portion is about three cm in length, and the third portion is about five cm in length.

23. The system of claim 12, wherein the predefined length of the guide catheter is about 100 cm and the total length of the device is about 125 cm.

24. The system of claim 12, further comprising a kit that includes the guide catheter and the device in a common sterile package.

ABSTRACT

A coaxial guide catheter to be passed through guide catheter having a first lumen, for use with interventional cardiology devices that are insertable into a branch artery that branches off from a main artery. The coaxial guide catheter is extended through the lumen of the guide catheter and beyond the distal end of the guide catheter and inserted into the branch artery. The device assists in resisting axial and shear forces exerted by an interventional cardiology device passed through the second lumen and beyond the flexible distal tip portion that would otherwise tend to dislodge the guide catheter from the branch artery.

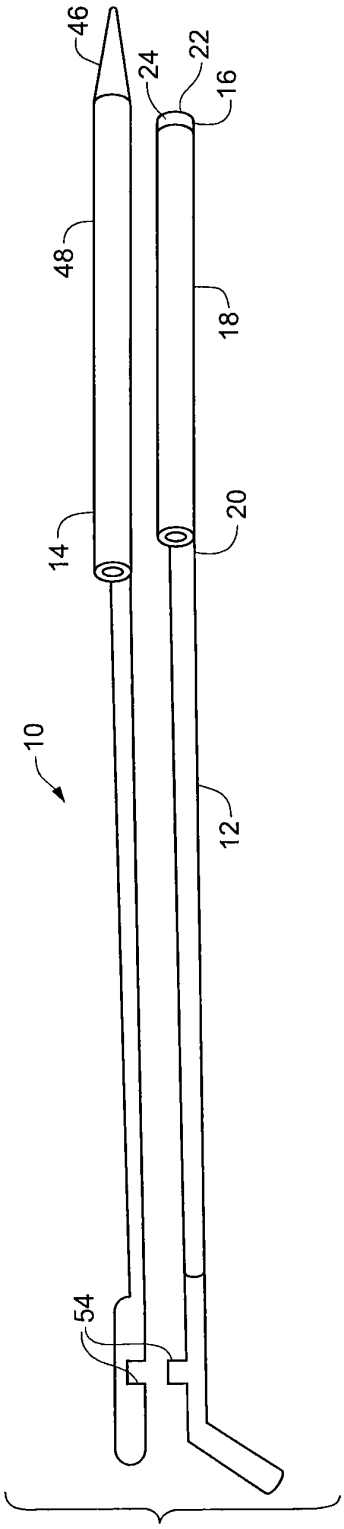


Fig. 1

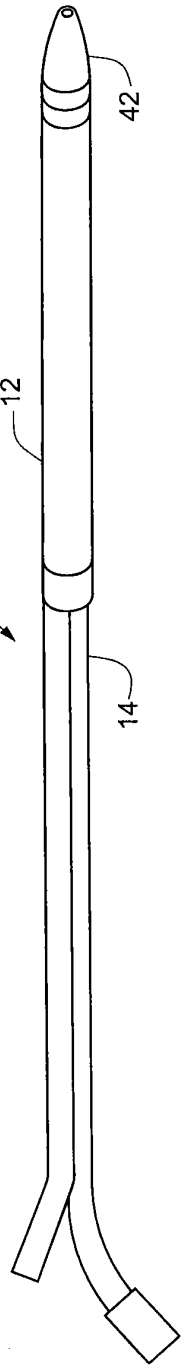


Fig. 2

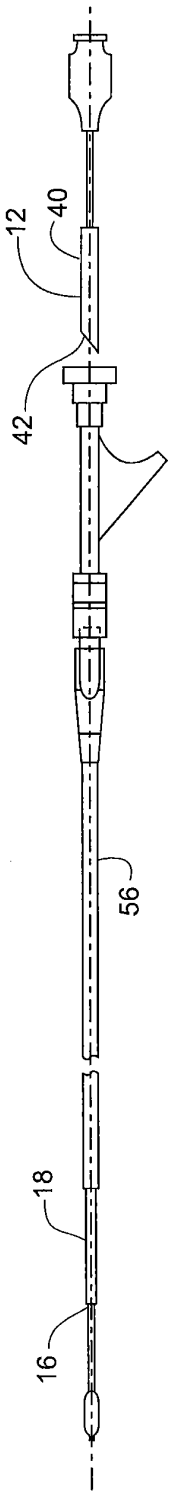


Fig. 3

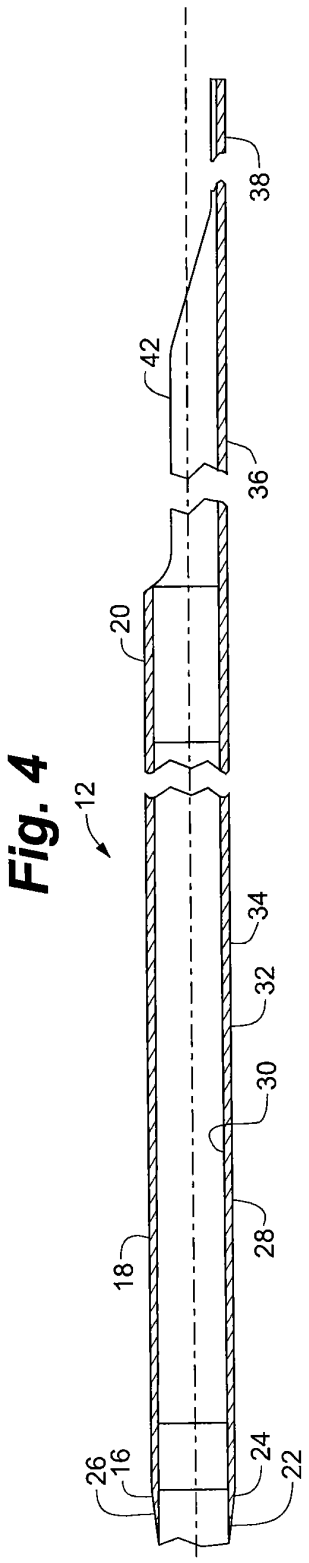


Fig. 4

Fig. 5

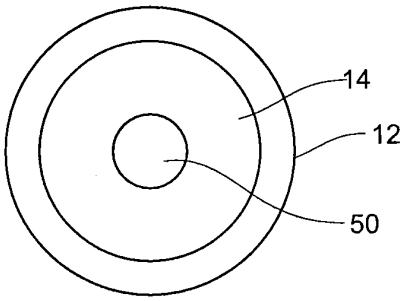


Fig. 6

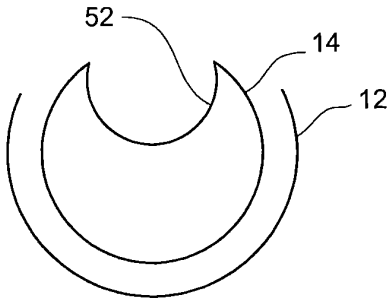


Fig. 7

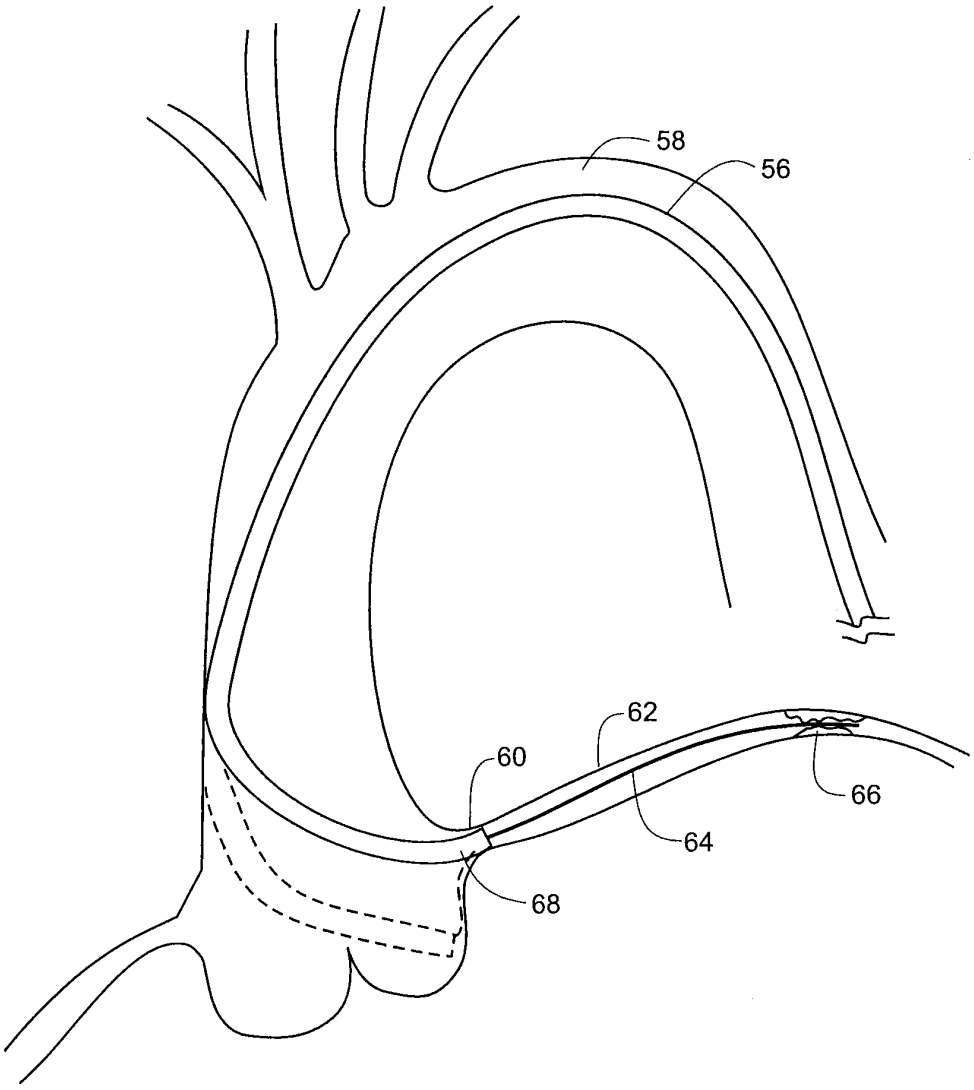


Fig. 8

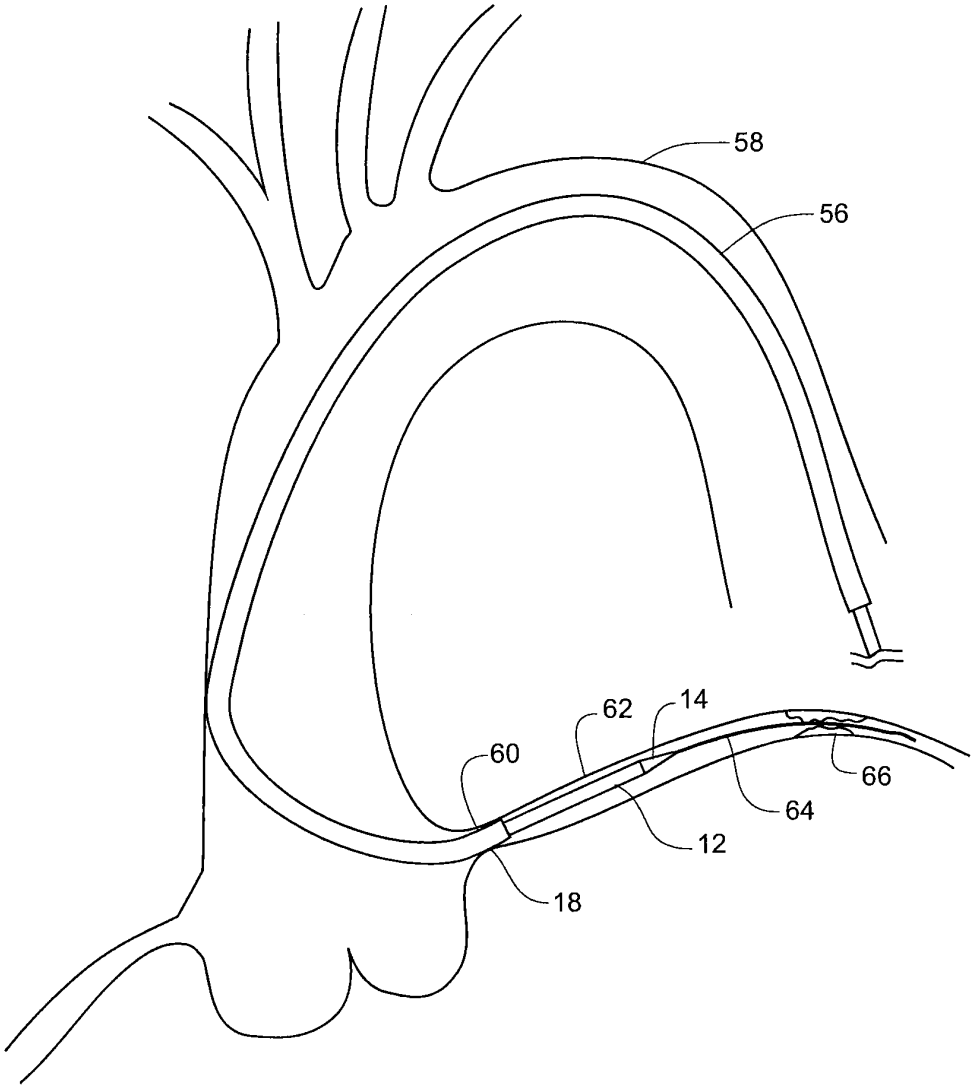
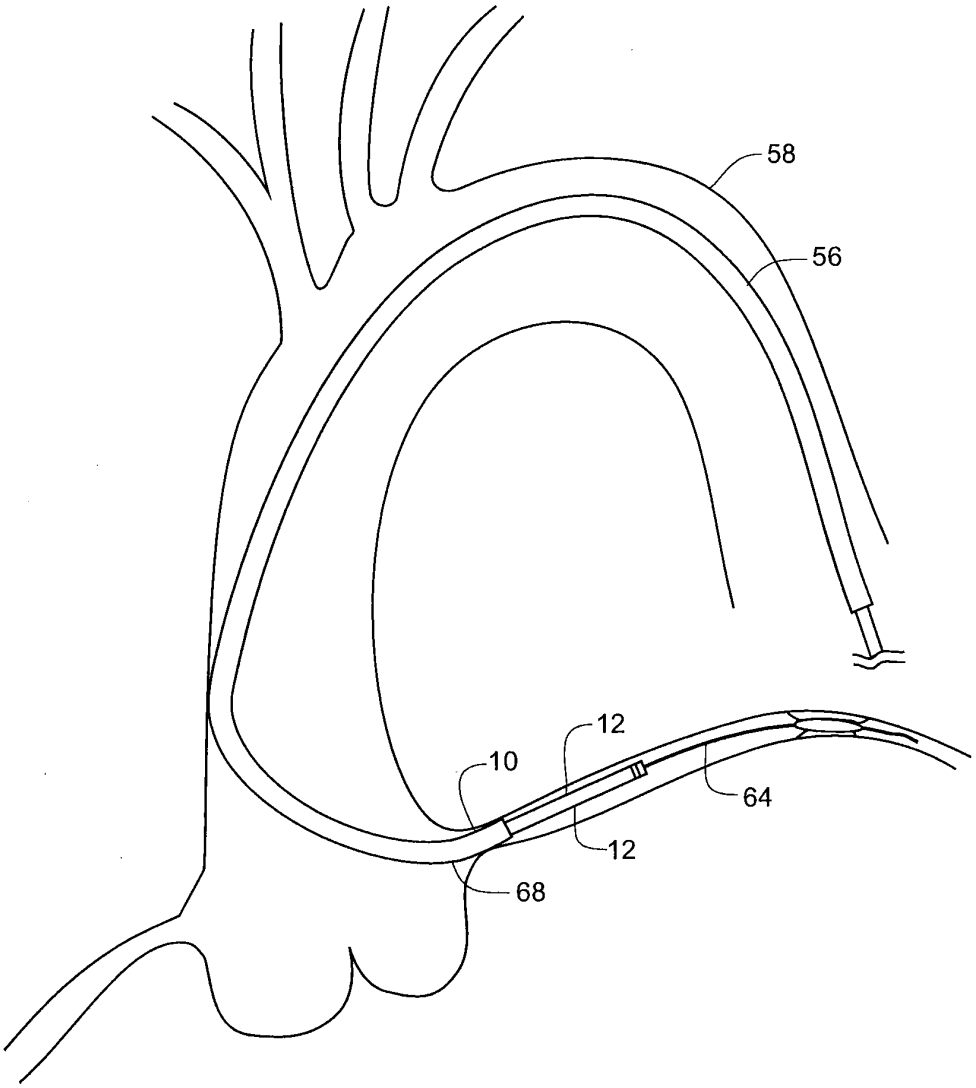


Fig. 9



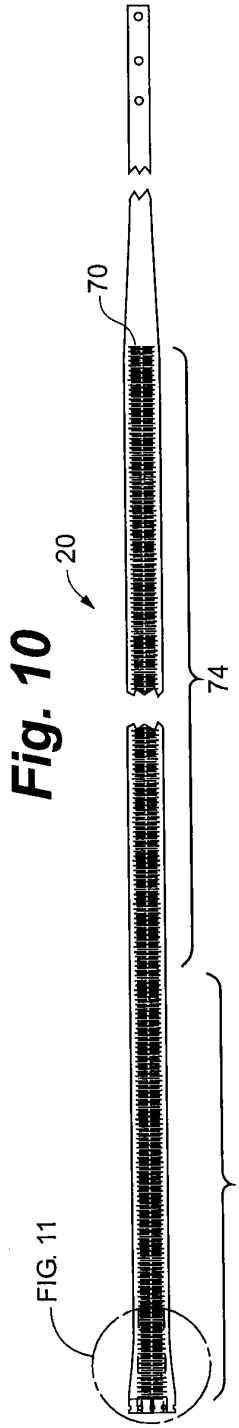


Fig. 10

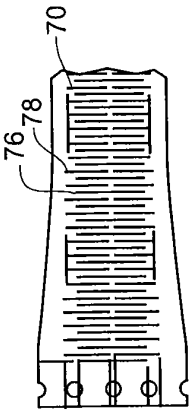


Fig. 11

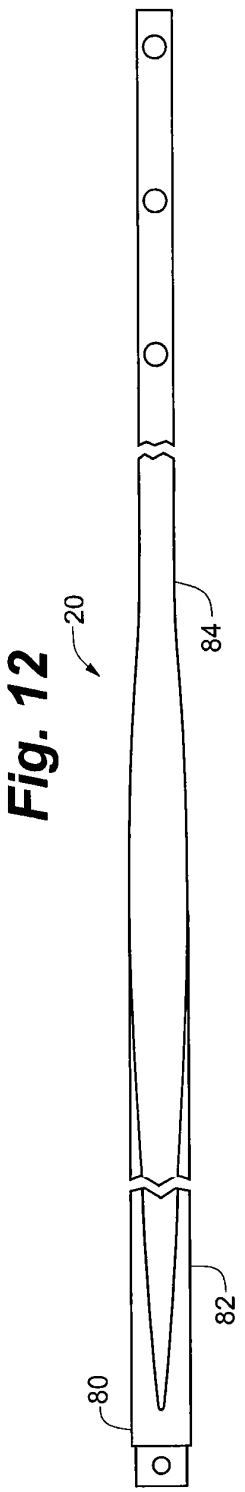


Fig. 12

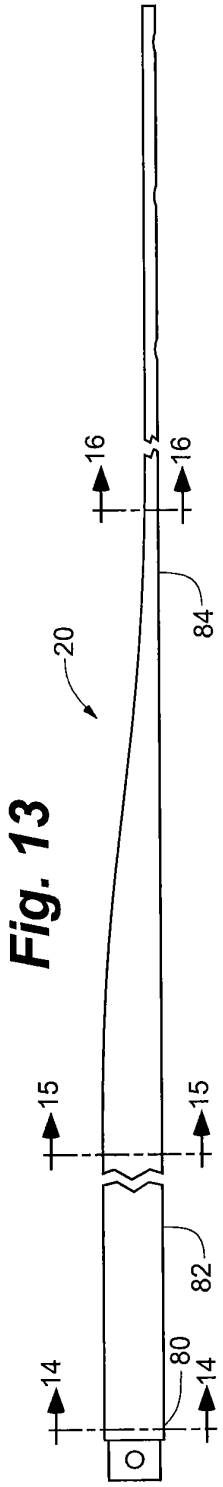


Fig. 13

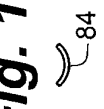


Fig. 16

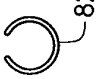


Fig. 15

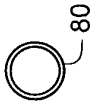


Fig. 14

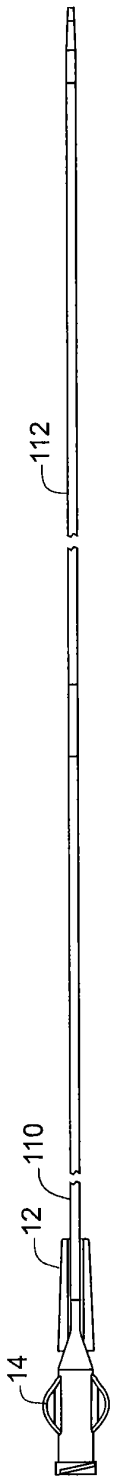


Fig. 17

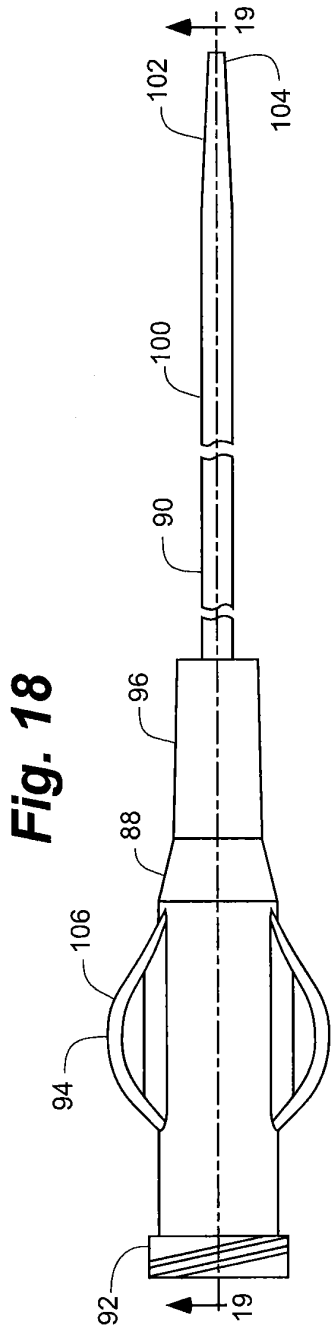


Fig. 18

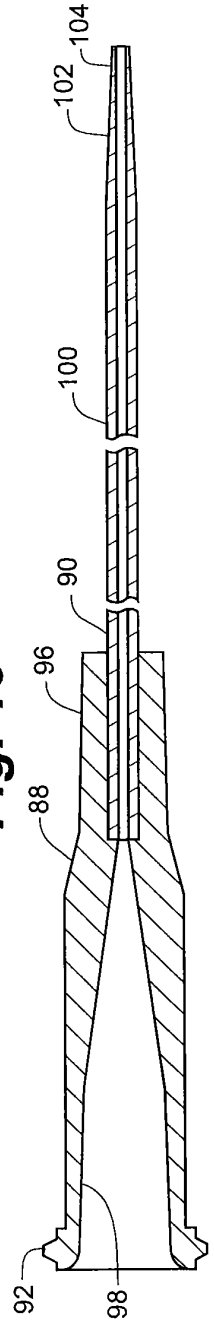


Fig. 19

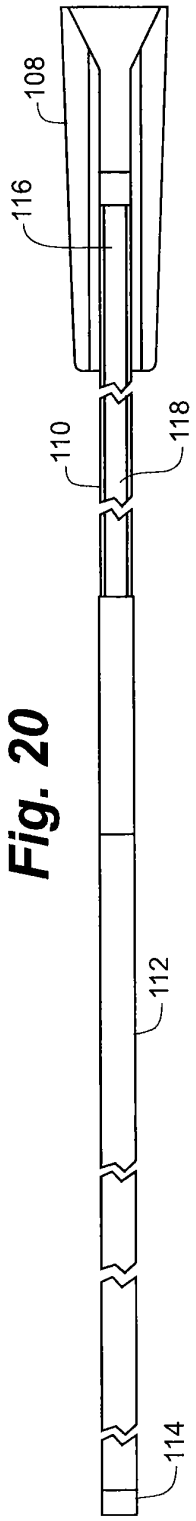


Fig. 20

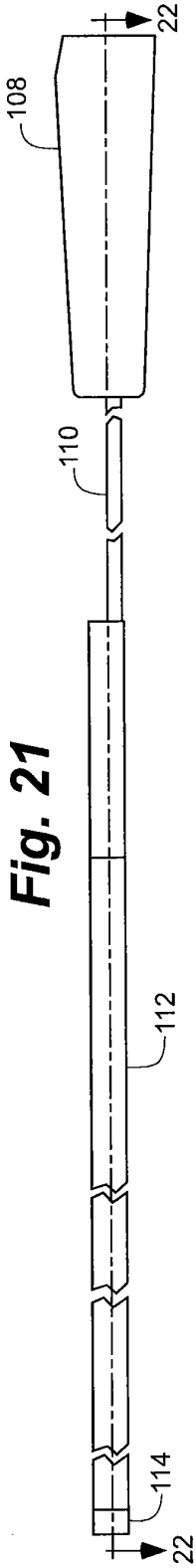


Fig. 21

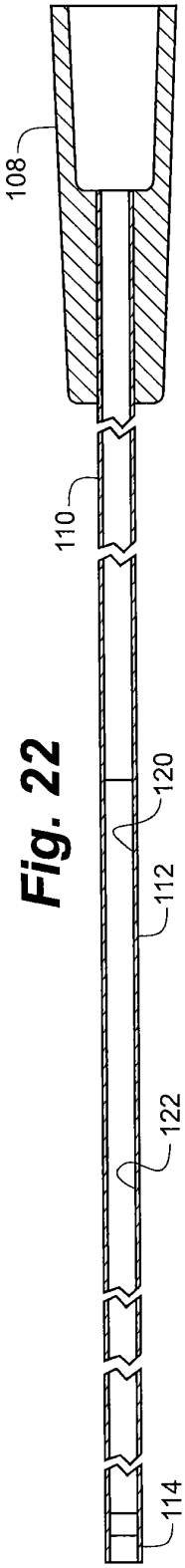


Fig. 22

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby appoint the practitioners associated with **Customer Number 24113** to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Address all telephone calls to: Paul C. Onderick at telephone number (612) 349-5766.

Address all correspondence to: Customer Number 24113
Paul C. Onderick
Patterson, Thuente, Skaar & Christensen, P.A.
4800 IDS Center, 80 South 8th Street
Minneapolis, Minnesota 55402-2100

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES, the specification of which is attached hereto unless the following is checked:

[x] The specification was filed on May 3, 2006 as United States Application Number or PCT International Application Number 11/416,629 and was amended on.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)			Priority Claimed
(Number)	(Country)	(Day/Month/Year Filed)	(Yes/No)
(Number)	(Country)	(Day/Month/Year Filed)	(Yes/No)

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

(Application Number) (Filing Date)

(Application Number) (Filing Date)

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

(Application Number) (Filing Date) (Status - patented, pending, abandoned)

(Application Number) (Filing Date) (Status - patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Howard Root
Full name of sole or first inventor (given name, family name)

Inventor's signature — May 22, 2006 — Date

Excelsior, Minnesota — US
Residence (City and either State or Foreign Country) — Citizenship

c/o Vascular Solutions, Inc.; 6464 Sycamore Court; Minneapolis, Minnesota 55369
Mailing Address

Gregg Sutton
Full name of second joint inventor, if any (given name, family name)

Second Inventor's signature — 5/22/06 — Date

Maple Grove, Minnesota — US
Residence (City and either State or Foreign Country) — Citizenship

16917 73rd Place North; Maple Grove, Minnesota 55311
Mailing Address

Jeffrey M. Welch
Full name of third joint inventor, if any (given name, family name)

Third Inventor's signature — Date: 5/18/06

Maple Grove, Minnesota — US
Residence (City and either State or Foreign Country) — Citizenship

8723 Comstock Lane North; Maple Grove, Minnesota 55311
Mailing Address

Jason M. Garrity
Full name of fourth joint inventor, if any (given name, family name)

Fourth Inventor's signature — Date: 5-18-06

Minneapolis, Minnesota — US
Residence (City and either State or Foreign Country) — Citizenship

3056 Jersey Avenue South; Minneapolis, Minnesota 55426
Mailing Address

Full name of fifth joint inventor, if any (given name, family name)

Fifth Inventor's signature — Date

Residence (City and either State or Foreign Country) — Citizenship

Mailing Address

[ ] Additional inventors are named on the attached sheets.

Electronic Acknowledgement Receipt	
EFS ID:	11929948
Application Number:	13359059
International Application Number:	
Confirmation Number:	6559
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard Root
Customer Number:	24113
Filer:	Paul C. Onderick/Allison Goette
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86US03
Receipt Date:	26-JAN-2012
Filing Date:	
Time Stamp:	15:58:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	2005_86US03_ADS.pdf	1082196 35631e8ddbdf04d481d06ae22ec0554b811c89a7	no	5
Warnings:					
Information:					

2		2005_86US03_DIVAPPLN.pdf	1219219 3bb7cce3bd7ac8ad3d81a7641f86805687a0156f	yes	44

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Specification	1	20
	Claims	21	27
	Abstract	28	28
	Drawings-only black and white line drawings	29	41
	Oath or Declaration filed	42	44

Warnings:	
Information:	
Total Files Size (in bytes):	2301415

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/359,059	01/26/2012	3767	0.00	2006.86US03	24	2

CONFIRMATION NO. 6559

24113
PATTERSON THUENTE CHRISTENSEN PEDERSEN, P.A.
4800 IDS CENTER
80 SOUTH 8TH STREET
MINNEAPOLIS, MN 55402-2100

FILING RECEIPT

OC000000052429442

Date Mailed: 02/10/2012

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Howard Root, Excelsior, MN;
Gregg Sutton, Maple Grove, MN;
Jeffrey M. Welch, Maple Grove, MN;
Jason M. Garrity, Minneapolis, MN;

Assignment For Published Patent Application

VASCULAR SOLUTIONS, INC., Minneapolis, MN

Power of Attorney: The patent practitioners associated with Customer Number 24113

Domestic Priority data as claimed by applicant

This application is a DIV of 12/824,734 06/28/2010
which is a DIV of 11/416,629 05/03/2006 PAT 8048032

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)

If Required, Foreign Filing License Granted: 02/06/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/359,059**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****

Title

COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

Preliminary Class

604

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/359,059	01/26/2012	Howard Root	2006.86US03

CONFIRMATION NO. 6559

24113
PATTERSON THUENTE CHRISTENSEN PEDERSEN, P.A.
4800 IDS CENTER
80 SOUTH 8TH STREET
MINNEAPOLIS, MN 55402-2100

FORMALITIES LETTER

OC000000052429443

Date Mailed: 02/10/2012

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
  *Applicant must submit $**95** to complete the basic filing fee for a small entity.*

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- Additional claim fees of $**120** as a small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.
- A surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of $**65** for a small entity in compliance with 37 CFR 1.27, must be submitted.

SUMMARY OF FEES DUE:

Total fee(s) required within **TWO MONTHS** from the date of this Notice is $**715** for a small entity

- $**95** Statutory basic filing fee.
- $**65** Surcharge.
- The application search fee has not been paid. Applicant must submit $**310** to complete the search fee.
- The application examination fee has not been paid. Applicant must submit $**125** to complete the examination fee for a small entity in compliance with 37 CFR 1.27.
- Total additional claim fee(s) for this application is $**120**
  - $**120** for **4** total claims over 20.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web.
https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/mkoroma/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/359,059

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE($)	FEE($)		RATE($)	FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	95		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	310		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	125		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	24 minus 20 =	* 4	x 30 =	120	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 125 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	650		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Attorney Docket No.: 2005.86US03

Howard Root et al. Confirmation No.: 6559

Application No.: 13/359,059 Examiner: *Not Yet Assigned*

Filed: January 26, 2012 Group Art Unit: 3767

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

RESPONSE TO NOTICE TO FILE MISSING PARTS
OF NONPROVISIONAL APPLICATION

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Notice to File Missing Parts of Application - Filing Date Granted mailed February 10, 2012,

The filing fee has been calculated as shown below:

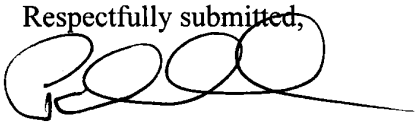
(Application filed on or after December 8, 2004)					
	No. Filed	No. Extra	Small Entity Rate	OR	Large Entity Rate
Basic Filing Fee			$190/$95	OR	$380
Utility Search Fee			$310	OR	$620
Utility Examination Fee			$125	OR	$250
Total Claims	24 - 20	= 4	x 30 = $120	OR	x 60 = $
Independent Claims	2 - 3	= 0	x 125 = $	OR	x 250 = $
Presence of Multiple Dependent Claim			+ $225	OR	+$450
Surcharge - Late filing fee or oath or declaration			+ $65	OR	+$130
Non-electronic filing fee			+$200	OR	+$400
Utility Application Size Fee - per each additional 50 sheets that exceeds 100 sheets:			x 155 = $	OR	x 310 = $
		TOTAL	**$715.00**	**TOTAL**	**$**
**If the difference is less than zero, enter "0". Total # of sheets = (Spec and Abst pgs)+Dwg Sheets					

Applicants are entitled to small entity status in accordance with 37 CFR 1.27. Electronic payment is submitted by credit card for the surcharge and filing fee. The Commissioner is hereby authorized to grant any extensions of time and to charge any fees under 37 C.F.R. §§ 1.16 and 1.17 that may be required during the entire pendency of this application to Deposit Account No. 16-0631.

Entry of these documents should complete all of the filing formalities and fully satisfy all requirements of the Notice to File Missing Parts. Accordingly, examination and allowance of this application in due course are respectfully solicited.

The Commissioner is hereby authorized to charge any underpayment or credit any overpayment to Deposit Account No. 16-0631.

Respectfully submitted,



Paul C. Onderick
Registration No. 45354

Customer No.
Patterson Thuente Christensen Pedersen, P.A.
4800 IDS Center
80 South 8th Street
Minneapolis, Minnesota 55402-2100
Telephone: 612.349.5766

Please grant any extension of time necessary for entry; charge any fee due to Deposit Account No. 16-0631.

Electronic Patent Application Fee Transmittal

Application Number:	13359059
Filing Date:	26-Jan-2012
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard Root
Filer:	Paul C. Onderick/Allison Goette
Attorney Docket Number:	2005.86US03

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	95	95
Utility Search Fee	2111	1	310	310
Utility Examination Fee	2311	1	125	125
Pages:				
Claims:				
Claims in excess of 20	2202	4	30	120
Miscellaneous-Filing:				
Late filing fee for oath or declaration	2051	1	65	65

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		715

Electronic Acknowledgement Receipt	
EFS ID:	12313170
Application Number:	13359059
International Application Number:	
Confirmation Number:	6559
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard Root
Customer Number:	24113
Filer:	Paul C. Onderick/Allison Goette
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86US03
Receipt Date:	15-MAR-2012
Filing Date:	26-JAN-2012
Time Stamp:	14:32:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$715
RAM confirmation Number	892
Deposit Account	160631
Authorized User	ONDERICK,PAUL C
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)					
File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1	Applicant Response to Pre-Exam Formalities Notice	2005_86US03_ResponseMP.pdf	63111 ba83f07d2f113aa3a02f0e8c1dd3017a94a3ffca	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38286 f5ed8637ffaf665e458bdc0566f881d88e2bafac	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	101397		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/359,059

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE($)	FEE($)		RATE($)	FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	95		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	310		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	125		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	24 minus 20 =	* 4	x 30 =	120	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 125 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	650		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/359,059	01/26/2012	3767	715	2005.86US03	24	2

CONFIRMATION NO. 6559

24113
PATTERSON THUENTE CHRISTENSEN PEDERSEN, P.A.
4800 IDS CENTER
80 SOUTH 8TH STREET
MINNEAPOLIS, MN 55402-2100

UPDATED FILING RECEIPT

OC000000053228687

Date Mailed: 03/21/2012

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Howard Root, Excelsior, MN;
Gregg Sutton, Maple Grove, MN;
Jeffrey M. Welch, Maple Grove, MN;
Jason M. Garrity, Minneapolis, MN;

Assignment For Published Patent Application

VASCULAR SOLUTIONS, INC., Minneapolis, MN

Power of Attorney: The patent practitioners associated with Customer Number 24113

Domestic Priority data as claimed by applicant

This application is a DIV of 12/824,734 06/28/2010 PAT 8142413
which is a DIV of 11/416,629 05/03/2006 PAT 8048032

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)

If Required, Foreign Filing License Granted: 02/06/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/359,059**

Projected Publication Date: 06/28/2012

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****

Title

COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

Preliminary Class

604

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Attorney Docket No.: 2005.86US03

Howard Root et al. Confirmation No.: 6559

Application No.: 13/359,059 Examiner: *Not Yet Assigned*

Filed: January 26, 2012 Group Art Unit: 3767

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

INFORMATION DISCLOSURE STATEMENT

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 CFR § 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached Form PTO-1449. It is respectfully requested that the information be expressly considered during the prosecution of the above-referenced application, and be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

The listing of a reference herein is not an admission that the reference is prior art or is material to patentability. 37 CFR § 1.97(h). Applicant reserves the right to establish the patentability of any claimed invention over any of the information provided herewith, and/or prove that this information may not be prior art, and/or prove that this information may not be enabling for any aspect of the information provided herewith.

This Information Disclosure Statement is being filed without a certification or fee because this Information Disclosure Statement is being filed within three months of the U.S. filing date. No certification or fee is required. 37 CFR § 1.97(b)(1)(2).

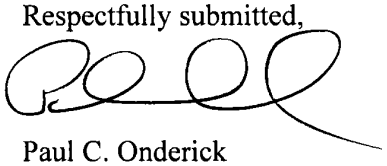
The Examiner's attention is directed to the applications or patents, if any, to which priority is claimed, as well as to any continuing applications which claim priority to the above-referenced application, and to applications, if any, that may be related by virtue of similar claimed subject matter as the above-referenced application (collectively, the "Related Case(s)"). The Related Case(s), or documents associated with the Related Case(s), are identified on the attached form PTO-1449 by serial number, publication number and/or patent number, along with a copy of the current prosecution history, downloaded from PAIR where available. The current prosecution history for the Related Case(s) is submitted as an NPL document for the convenience of the Examiner.

The prosecution history for any and all of these Related Case(s) may include information material to patentability of the above-referenced application including Office Actions, Responses, Office Communications or Notices of Allowance, all of which are readily accessible to the Examiner via PAIR/PALM. To promote consistency and full disclosure during the prosecution of the above-referenced application together with the prosecution of any of the Related Case(s) and to assist the Examiner in complying with the obligations of MPEP 2001.06(b), the Examiner is respectfully requested to review the prosecution history of each of the Related Case(s). **This request for review should be considered ongoing throughout the prosecution of the above-referenced application with an updated review via PAIR/PALM of the prosecution histories of any Related Case(s) being made prior to issuance of any**

Notice of Allowance for the above-referenced application. The identification of any of the Related Case(s) for purposes of this Information Disclosure Statement should not be construed as a waiver of secrecy, if applicable, as to such applications now or upon issuance of the above-referenced application as a patent. For purposes of the Related Case(s), it should be noted that all of the Related Case(s) are published or otherwise publicly available on PAIR.

Please note that copies of the references that were cited by or submitted to the Office in applications which are relied upon for an earlier filing date under 35 U.S.C. § 120 may be found in the appropriate records via PAIR/PALM. 37 CFR § 1.98(d).

Respectfully submitted,



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Please grant any extension of time necessary for entry; charge any fee due to Deposit Account No. 16-0631.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	13/359,058
				Filing Date	January 26, 2012
				First Named Inventor	Howard Root et al.
				Art Unit	3767
				Examiner Name	*Not Yet Assigned*
Sheet	1	of	3	Attorney Docket Number	2005.86US03

U.S. PATENT DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
		US-4,813,930	03-21-1989	Elliott
		US-4,832,028	05-23-1989	Patel
		US-4,932,413	06-12-1990	Shockey et al.
		US-5,098,412	03-24-1992	Shiu
		US-5,122,125	01-16-1992	Deuss
		US-5,472,425	12-05-1995	Teirstein
		US-5,658,263	08-19-1997	Dang et al.
		US-5,776,141	07-07-1998	Klein et al.
		US-6,159,195	12-12-2000	Ha et al.
		US-6,338,725	01-15-2002	Hermann et al.
		US-6,475,195	11-05-2002	Voda
		US-6,595,952	07-22-2003	Forsberg
		US-6,610,068	08-26-2003	Yang
		US-6,638,268	10-28-2003	Niazi
		US-2003/0195546	10-16-2003	Solar et al.

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T[6]

EXAMINER SIGNATURE		DATE CONSIDERED	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.**

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	13/359,059
				Filing Date	January 26, 2012
				First Named Inventor	Howard Root et al.
				Art Unit	3767
				Examiner Name	*Not Yet Assigned*
Sheet	2	of	3	Attorney Docket Number	2005.86US03

U.S. PATENT DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
		US-6,689,144	02-10-2004	Gerberding
		US-6,706,018	03-16-2004	Westlund et al.
		US-6,755,812	06-29-2004	Peterson et al.
		US-2004/0127927	07-01-2004	Kenneth Adams
		US-2005/0004523	01-06-2005	Osborne et al.
		US-6,860,876	03-01-2005	Chen
		US-2005/0182437	08-18-2005	Bonnette et al.
		US-2007/0260219	11-08-2007	Root et al.
		US-7,697,996	04-13-2010	Manning et al.
		US-7,717,899	05-18-2010	Bowe et al.
		US-		
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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T[6]

EXAMINER SIGNATURE		DATE CONSIDERED	

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Substitute for form 1449/PTO				*Complete if Known*	
				Application Number	13/359,059
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Filing Date	January 26, 2012
(Use as many sheets as necessary)				First Named Inventor	Howard Root et al.
				Art Unit	3767
				Examiner Name	*Not Yet Assigned*
Sheet	3	of	3	Attorney Docket Number	2005.86US03

NON PATENT LITERATURE DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T[2]
		Saeko Takahashi et al.; New Method to Increase A Backup Support Of A 6 French Guiding Coronary Catheter; Catheterization and Cardiovascular Interventions 63:452-456 (2004), 5 pages; Published online in Wiley InterScience (www.interscience.wiley.com).	
		Image File Wrapper of Appln. No.: 11/416,629; filed June 28, 2010; Howard Root et al.	
		Image File Wrapper of Appln. No.: 12/824,734, filed June 28, 2010; Howard Root et al.	

EXAMINER SIGNATURE		DATE CONSIDERED	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1]Applicant's unique citation designation number (optional). [2]Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.**

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Electronic Acknowledgement Receipt

EFS ID:	12495276
Application Number:	13359059
International Application Number:	
Confirmation Number:	6559
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard Root
Customer Number:	24113
Filer:	Paul C. Onderick/Allison Goette
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86US03
Receipt Date:	09-APR-2012
Filing Date:	26-JAN-2012
Time Stamp:	12:35:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	2005_86US03_IDS.pdf	261951 9c1212f9b59559345c38fdeed26631cb73eec9b4	no	6

Warnings:	
Information:	

This is not an USPTO supplied IDS fillable form					
2	Non Patent Literature	2005_86US03_Takahashi_New Method_NPL.pdf	421556 e40254ab30584d52aba873684b514b8e6453ba3c	no	5
Warnings:					
Information:					
3	Non Patent Literature	2005_86US03_IFW_11_416629.pdf	5154312 48fd01091a13626c1ce3381b7889b436a0c16c50	no	155
Warnings:					
Information:					
4	Non Patent Literature	2005_86US03_IFW_11_416629_PART2.pdf	4756498 062302c8b07032405b10d0d6b538cefc63c92464	no	139
Warnings:					
Information:					
5	Non Patent Literature	2005_86US03_IFW_12_824734.pdf	6604131 1da402b419186a35c63d91b99659e8d3d7c3b02b	no	195
Warnings:					
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		Total Files Size (in bytes):	17198448		

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/359,059	01/26/2012	Howard Root	2005.86US03

CONFIRMATION NO. 6559

24113
PATTERSON THUENTE CHRISTENSEN PEDERSEN, P.A.
4800 IDS CENTER
80 SOUTH 8TH STREET
MINNEAPOLIS, MN 55402-2100

PUBLICATION NOTICE

OC000000055103915

Title:COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

Publication No.US-2012-0165756-A1
Publication Date:06/28/2012

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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NOTICE OF ALLOWANCE AND FEE(S) DUE

24113 7590 08/22/2012

PATTERSON THUENTE CHRISTENSEN PEDERSEN, P.A.
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MINNEAPOLIS, MN 55402-2100

EXAMINER
OSINSKI, BRADLEY JAMES

ART UNIT	PAPER NUMBER
3767	

DATE MAILED: 08/22/2012

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/359,059	01/26/2012	Howard Root	2005.86US03	6559

TITLE OF INVENTION: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$870	$300	$0	$1170	11/23/2012

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

24113 7590 08/22/2012
PATTERSON THUENTE CHRISTENSEN PEDERSEN, P.A.
4800 IDS CENTER
80 SOUTH 8TH STREET
MINNEAPOLIS, MN 55402-2100

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/359,059	01/26/2012	Howard Root	2005.86US03	6559

TITLE OF INVENTION: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

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nonprovisional	YES	$870	$300	$0	$1170	11/23/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
OSINSKI, BRADLEY JAMES	3767	604-527000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
❑ Issue Fee
❑ Publication Fee (No small entity discount permitted)
❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)
❑ A check is enclosed.
❑ Payment by credit card. Form PTO-2038 is attached.
❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

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PATTERSON THUENTE CHRISTENSEN PEDERSEN, P.A.
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MINNEAPOLIS, MN 55402-2100

EXAMINER	
OSINSKI, BRADLEY JAMES	
ART UNIT	PAPER NUMBER
3767	

DATE MAILED: 08/22/2012

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/359,059	Applicant(s) ROOT ET AL.	
	Examiner BRADLEY OSINSKI	Art Unit 3767	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *1/26/2012*.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-24*.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 4/9/2012
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Bradley J Osinski/ Examiner, Art Unit 3767	/KEVIN C. SIRMONS/ Supervisory Patent Examiner, Art Unit 3767

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Paul Onderick on 8/6/2012.

The application has been amended as follows:

In both claims 1 and 12:

after "a flexible tip portion defining a tubular",

"rail structure without a lumen" has been changed to --structure--, and

after "than, the flexible tip portion and defining a",

"structure" has been changed to --rail structure without a lumen--.

In the specification, page 1, in the Related Applications section:

After "filed June 28, 2010", --now U.S. Patent 8,142,413 -- has been inserted.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: just as in the parent applications, the examiner did not find any teaching or suggestion for the claimed arrangement. Specifically, adding a guide catheter to the claimed rail structure with the claimed flexible tip that is insertable through a hemostatic valve is not taught or suggested by the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRADLEY OSINSKI whose telephone number is (571)270-3640. The examiner can normally be reached on M-Th 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Sirmons can be reached on (571)272-4965. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bradley J Osinski/
Examiner, Art Unit 3767
/KEVIN C. SIRMONS/
Supervisory Patent Examiner, Art Unit 3767

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13359059	ROOT ET AL.
	Examiner	**Art Unit**
	BRADLEY OSINSKI	3767

ORIGINAL		INTERNATIONAL CLASSIFICATION															
CLASS	SUBCLASS	CLAIMED										NON-CLAIMED					
604	164.01	A	6	1	M	5 / 178 (2006.01.01)											
CROSS REFERENCE(S)		A	6	1	M	25 / 00 (2006.01.01)											
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																
604	525																

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	17												
2	2	18	18												
3	3	19	19												
4	4	20	20												
5	5	21	21												
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12	12														
13	13														
14	14														
15	15														
16	16														

/BRADLEY OSINSKI/ Examiner.Art Unit 3767	8/7/2012	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	24	
/KEVIN C SIRMONS/ Supervisory Patent Examiner.Art Unit 3767	08/09/2012	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1 and 2

U.S. Patent and Trademark Office Part of Paper No. 20120807

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application Number	13/359,058
Filing Date	January 26, 2012
First Named Inventor	Howard Root et al.
Art Unit	3767
Examiner Name	*Not Yet Assigned*
Attorney Docket Number	2005.86US03

Sheet	1	of	3

U.S. PATENT DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
		US-4,813,930	03-21-1989	Elliott
		US-4,832,028	05-23-1989	Patel
		US-4,932,413	06-12-1990	Shockey et al.
		US-5,098,412	03-24-1992	Shiu
		US-5,122,125	01-16-1992	Deuss
		US-5,472,425	12-05-1995	Teirstein
		US-5,658,263	08-19-1997	Dang et al.
		US-5,776,141	07-07-1998	Klein et al.
		US-6,159,195	12-12-2000	Ha et al.
		US-6,338,725	01-15-2002	Hermann et al.
		US-6,475,195	11-05-2002	Voda
		US-6,595,952	07-22-2003	Forsberg
		US-6,610,068	08-26-2003	Yang
		US-6,638,268	10-28-2003	Niazi
		US-2003/0195546	10-16-2003	Solar et al.

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T[6]

EXAMINER SIGNATURE	/Bradley Osinski/ (08/07/2012)	DATE CONSIDERED	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /BJO/

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	13/359,059
				Filing Date	January 26, 2012
				First Named Inventor	Howard Root et al.
				Art Unit	3767
				Examiner Name	*Not Yet Assigned*
Sheet	2	of	3	Attorney Docket Number	2005.86US03

U.S. PATENT DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
		US-6,689,144	02-10-2004	Gerberding
		US-6,706,018	03-16-2004	Westlund et al.
		US-6,755,812	06-29-2004	Peterson et al.
		US-2004/0127927	07-01-2004	Kenneth Adams
		US-2005/0004523	01-06-2005	Osborne et al.
		US-6,860,876	03-01-2005	Chen
		US-2005/0182437	08-18-2005	Bonnette et al.
		US-2007/0260219	11-08-2007	Root et al.
		US-7,697,996	04-13-2010	Manning et al.
		US-7,717,899	05-18-2010	Bowe et al.
		US-		
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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T[6]

EXAMINER SIGNATURE	/Bradley Osinski/ (08/07/2012)	DATE CONSIDERED	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /BJO/

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	13/359,059
				Filing Date	January 26, 2012
				First Named Inventor	Howard Root et al.
				Art Unit	3767
				Examiner Name	*Not Yet Assigned*
Sheet	3	of	3	Attorney Docket Number	2005.86US03

NON PATENT LITERATURE DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T[2]
		Saeko Takahashi et al.; New Method to Increase A Backup Support Of A 6 French Guiding Coronary Catheter; Catheterization and Cardiovascular Interventions 63:452-456 (2004), 5 pages; Published online in Wiley InterScience (www.interscience.wiley.com).	
		Image File Wrapper of Appln. No.: 11/416,629; filed June 28, 2010; Howard Root et al.	
		Image File Wrapper of Appln. No.: 12/824,734, filed June 28, 2010; Howard Root et al.	

EXAMINER SIGNATURE	/Bradley Osinski/ (08/07/2012)	DATE CONSIDERED	

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /BJO/

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13359059	ROOT ET AL.
	Examiner	**Art Unit**
	BRADLEY OSINSKI	3767

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/07/2012								
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EAST Search History

EAST Search History (Prior Art)

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L3	1114	(604/164.01-164.02).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2012/08/07 15:42
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EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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8/7/2012 3:46:22 PM
C:\Users\bosinski\Documents\EAST\Workspaces\11416629.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13359059	ROOT ET AL.
	Examiner	Art Unit
	BRADLEY OSINSKI	3767

SEARCHED			
Class	Subclass	Date	Examiner
604	103.04,103.09,160-162,164.01,164.02,164.09-164.11,525	8/7/2012	bjo

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Search	8/7/2012	bjo
Previous search of parent applications (11416629 and 12824734)	8/7/2012	bjo

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
604	164.01,525	8/7/2012	bjo

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CONFIRMATION NO. 6559

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/359,059	01/26/2012	604	3767	2005.86US03

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Jeffrey M. Welch, Maple Grove, MN;
Jason M. Garrity, Minneapolis, MN;

**** CONTINUING DATA ***************************

This application is a DIV of 12/824,734 06/28/2010 PAT 8,142,413
which is a DIV of 11/416,629 05/03/2006 PAT 8,048,032

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
02/06/2012

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /BRADLEY JAMES OSINSKI/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		MN	13	24	2

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MINNEAPOLIS, MN 55402-2100
UNITED STATES

TITLE

COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

FILING FEE RECEIVED	FEES: Authority has been given in Paper	☐ All Fees
715	No._____ to charge/credit DEPOSIT ACCOUNT	☐ 1.16 Fees (Filing)
	No._____ for following:	☐ 1.17 Fees (Processing Ext. of time)
		☐ 1.18 Fees (Issue)
		☐ Other _____
		☐ Credit

BIB (Rev. 05/07).

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:	Attorney Docket No.: 2005.86US03
Howard Root et al.	Confirmation No.: 6559
Application No.: 13/359,059	Examiner: Bradley James Osinski
Filed: January 26, 2012	Group Art Unit: 3767

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

TELEPHONE INTERVIEW SUMMARY

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

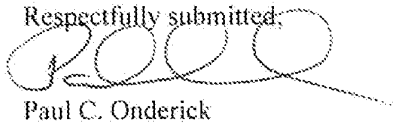
Sir:

Applicants thank the Examiner for the courtesy extended to their undersigned representative in a telephone interview on August 6, 2012.

During the telephone interview, correction of informalities of independent claims 1 and 12 was discussed. Agreement was reached and Applicants' undersigned representative authorized the making of an Examiner's Amendment as reflected in the Notice of Allowance mailed August 22, 2012.

Applicants thank the Examiner for his attention to the claims and for the subsequent Notice of Allowance.

Respectfully submitted,



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Please grant any extension of time necessary for entry; charge any fee due to Deposit Account No. 16-0631.

Electronic Acknowledgement Receipt

EFS ID:	13628185
Application Number:	13359059
International Application Number:	
Confirmation Number:	6559
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard Root
Customer Number:	24113
Filer:	Paul C. Onderick/Allison Goette
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86US03
Receipt Date:	30-AUG-2012
Filing Date:	26-JAN-2012
Time Stamp:	15:15:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant summary of interview with examiner	2005_86US03_TelephoneInterviewSummary.pdf	221994 804cd3510877cfefc43b0e228c18fcb5e6c1803a	no	1

Warnings:	
Information:	

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

34113 7590 08/22/2012

PATTERSON THUENTE CHRISTENSEN PEDERSEN, P.A.
4800 IDS CENTER
80 SOUTH 8TH STREET
MINNEAPOLIS, MN 55402-2100

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO.
13/359,059	01/26/2012	Howard Root	2005.86US03	6559

TITLE OF INVENTION: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$870	$300	$0	$1170	11/23/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
OSINSKI, BRADLEY JAMES	3767	604-527000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Patterson Thuente
2 Christensen Pedersen, P.A.
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Vascular Solutions, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Minneapolis, Minnesota

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☒ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 160651 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature [signature] Date 9-21-2012

Typed or printed name Paul C. Onderick Registration No. 45354

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Electronic Patent Application Fee Transmittal

Application Number:	13359059
Filing Date:	26-Jan-2012
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard Root
Filer:	Paul C. Onderick/Allison Goette
Attorney Docket Number:	2005.86US03

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	2501	1	870	870
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1170**

Electronic Acknowledgement Receipt	
EFS ID:	13807504
Application Number:	13359059
International Application Number:	
Confirmation Number:	6559
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard Root
Customer Number:	24113
Filer:	Paul C. Onderick/Allison Goette
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86US03
Receipt Date:	21-SEP-2012
Filing Date:	26-JAN-2012
Time Stamp:	14:51:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1170
RAM confirmation Number	1268
Deposit Account	160631
Authorized User	ONDERICK, PAUL C
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	2005_86US03_IssueFee.pdf	516453 4cf920d1147a66e6906d68ab999e16fb44cb2242	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	31927 af77f128b852efb1f6320dce341770f9408956e7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	548380		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT
(Use as many sheets as necessary)

Complete if Known	
Application Number	13/359,058
Filing Date	January 26, 2012
First Named Inventor	Howard Root et al.
Art Unit	3767
Examiner Name	*Not Yet Assigned*
Attorney Docket Number	2005.86US03

Sheet 1 of 3

U.S. PATENT DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
		US-4,813,930	03-21-1989	Elliott
		US-4,832,028	05-23-1989	Patel
		US-4,932,413	06-12-1990	Shockey et al.
		US-5,098,412	03-24-1992	Shiu
		US-5,122,125	~~01-16-1992~~ 06/1992	Deuss
		US-5,472,425	12-05-1995	Teirstein
		US-5,658,263	08-19-1997	Dang et al.
		US-5,776,141	07-07-1998	Klein et al.
		US-6,159,195	12-12-2000	Ha et al.
		US-6,338,725	01-15-2002	Hermann et al.
		US-6,475,195	11-05-2002	Voda
		US-6,595,952	07-22-2003	Forsberg
		US-6,610,068	08-26-2003	Yang
		US-6,638,268	10-28-2003	Niazi
		US-2003/0195546	10-16-2003	Solar et al.

Change(s) applied to document,
/A.J.P./
9/24/2012

FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T[6]

EXAMINER SIGNATURE	/Bradley Osinski/ (08/07/2012)	DATE CONSIDERED	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /BJO/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/359,059	10/23/2012	8292850	2005.86US03	6559

24113 7590 10/03/2012

PATTERSON THUENTE CHRISTENSEN PEDERSEN, P.A.
4800 IDS CENTER
80 SOUTH 8TH STREET
MINNEAPOLIS, MN 55402-2100

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Howard Root, Excelsior, MN;
Gregg Sutton, Maple Grove, MN;
Jeffrey M. Welch, Maple Grove, MN;
Jason M. Garrity, Minneapolis, MN;

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the patent of: Attorney Docket No.: 2005.86US03

Howard Root et al. Confirmation No.: 6559

Patent No.: 8,292,850 Application No.: 13/359,059

Issued: October 23, 2012 Filed: January 26, 2012

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

REQUEST FOR CERTIFICATE OF CORRECTION
UNDER 37 CFR § 1.322

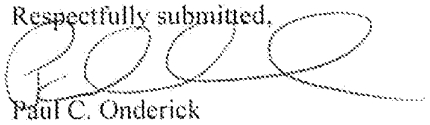
Attention Certificate of Correction Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

It is respectfully requested that a Certificate of Correction be issued to correct the errors specified in the attached duplicate copies of Certificate of Correction Form PTO-1050.

It is believed that the errors are on the part of the Patent and Trademark Office, and therefore no fee is due in relation to this matter in accordance with the provisions of 37 CFR § 1.322. However, please charge any fee due to Deposit Account No. 16-0631 to ensure prompt issuance of a Certificate of Correction.

Respectfully submitted,



Paul C. Onderick
Registration No. 45354

Customer No. 24113
Patterson Thuente Christensen Pedersen, P.A.
4800 IDS Center
80 South 8th Street
Minneapolis, Minnesota 55402-2100
Telephone: 612.349.5766

Please grant any extension of time necessary for entry; charge any fee due to Deposit Account No. 16-0631.

PTO/SB/44 (09-2007)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.: 8,292,850

APPLICATION NO.: 13/359,059

ISSUE DATE: 10/23/2012

INVENTOR(S): Howard Root, Gregg Sutton, Jeffrey M. Welch and Jason M. Garrity

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Column 10, claim 1, line 46, prior to “structure” insert
-- a flexible tip portion defining a tubular--

In Column 10, claim 1, line 57, delete “rain a” and insert --than the flexible tip portion and defining a rail”--

In Column 11,, claim 12, line 64, prior to “structure”, insert
--a flexible tip portion defining a tubular --

In Column 12, claim 12, lines 11-12, prior to “structure”,
insert --than the flexible tip portion and defining a--

MAILING ADDRESS OF SENDER (Please do not use customer number below):

PAUL C. ONDERICK
PATTERSON THUENTE CHRISTENSEN PEDERSEN, P.A.
4800 IDS CENTER
80 SOUTH EIGHTH STREET
MINNEAPOLIS, MN 55402-2100

Electronic Acknowledgement Receipt

EFS ID:	14389622
Application Number:	13359059
International Application Number:	
Confirmation Number:	6559
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard Root
Customer Number:	24113
Filer:	Paul C. Onderick/Allison Goette
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86US03
Receipt Date:	05-DEC-2012
Filing Date:	26-JAN-2012
Time Stamp:	14:36:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	2005_86US03_COCREQUEST.pdf	220400 19bce219af357cb01b02da558bd0bedc6948e0f7	no	1
Warnings:					
Information:					

2	Request for Certificate of Correction	2005_86US03_PTO_1050.pdf	110668 0eb47c11cb595b7c0418634ef473f2fa1d490465	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	331068	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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New International Application Filed with the USPTO as a Receiving Office
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UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 8,292,850 B2
APPLICATION NO. : 13/359059
DATED : October 23, 2012
INVENTOR(S) : Howard Root et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

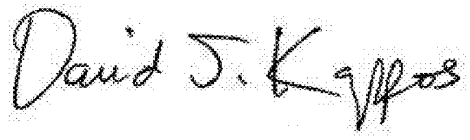
In Column 10, claim 1, line 46, prior to "structure", insert
-- a flexible tip portion defining a tubular --

In Column 10, claim 1, line 57, delete "rain a" and insert -- than the flexible tip portion and defining a rail" --

In Column 11, claim 12, line 64, prior to "structure", insert
-- a flexible tip portion defining a tubular --

In Column 12, claim 12, lines 11-12, prior to "structure", insert
-- than the flexible tip portion and defining a --

Signed and Sealed this
Twenty-second Day of January, 2013



David J. Kappos
Director of the United States Patent and Trademark Office

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court DISTRICT OF MINNESOTA on the following

☐ Trademarks or ☐ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
0:13cv01172	5/16/2013	DISTRICT OF MINNESOTA

PLAINTIFF	DEFENDANT
Vascular Solutions, Inc.,	Boston Scientific Corporation,

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	8.048,032		
2	8,142,413		
3	8,292,850		
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

31. On March 21, 2013, Rasmussen contacted VSI's sales representative for the Minnesota territory, Matt Nigon, wanting to discuss the GuideLiner catheter. Rasmussen asked Nigon about the market size and pricing for the GuideLiner catheter.

32. On April 12, 2013, Boston Scientific provided a Guidezilla catheter for clinical use at Barnes Jewish Hospital in St. Louis, Missouri, where it was used on a patient. Additional Guidezilla catheters have been provided by Boston Scientific since April 12, 2013 for clinical use in California, Illinois, New York and numerous other states across the U.S.

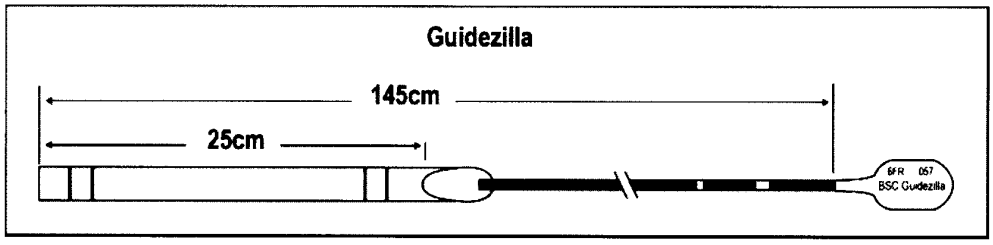
33. On April 25, 2013, Root sent another letter to Ballinger asking to purchase a sample of the Guidezilla for evaluation, to see any analysis performed by Boston Scientific with respect to the patents-in-suit, and to discuss the issue. On May 3, 2013, Root received a written reply stating only that Ballinger had forwarded Root's letter to his legal department for review. As of the time of this filing, no further response has been received from Ballinger or Boston Scientific.

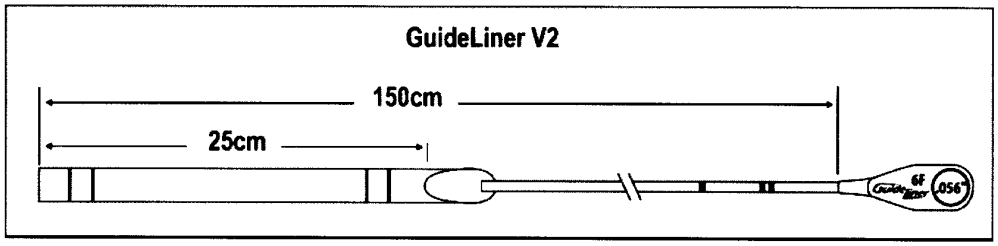
34. Boston Scientific's Guidezilla catheter is a copy of VSI's GuideLiner catheter. Guidezilla's design, materials, and dimensions are materially the same as those of GuideLiner and those described and claimed in the patents-in-suit. The drawings below show a comparison of Guidezilla and GuideLiner to Figure 1 of the patents-in-suit (orientation of the patent drawing has been reversed for comparison purposes):

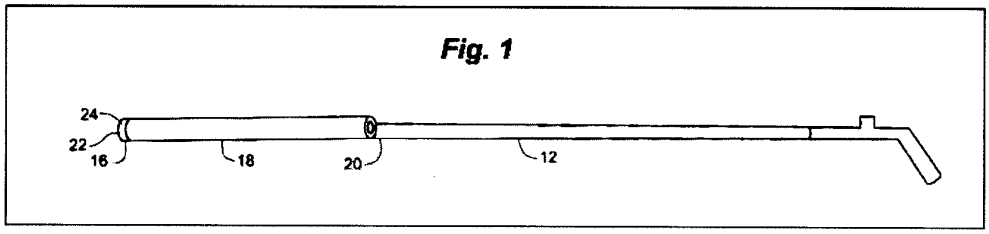
///

///

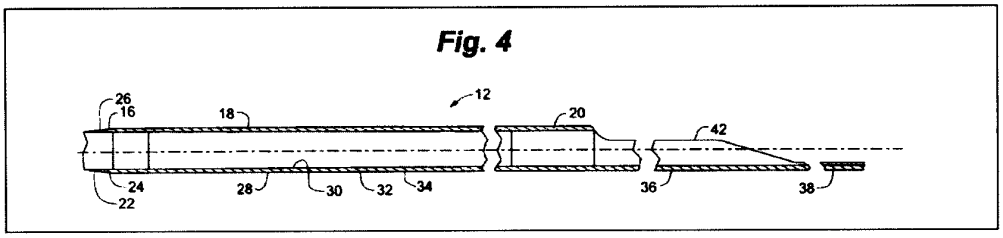
///



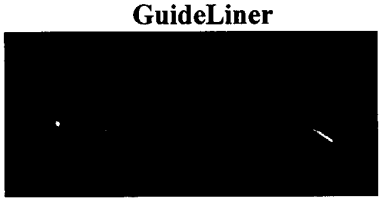




35. The rapid exchange, or "rail," technology used in the Guidezilla catheter is materially the same as VSI's GuideLiner and as described and claimed in VSI's patents-in-suit. The drawing and photographs below show a comparison of rapid exchange transition of the Guidezilla and VSI's GuideLiner catheters and Figure 1 of VSI's patents-in-suit:



GuideLiner



Guidezilla

36. Boston Scientific's Guidezilla catheter infringes one or more claims of the patents-in-suit, as described more fully below.

COUNT ONE
Infringement of the '032 Patent

37. VSI restates and incorporates by reference the allegations in paragraphs 1-36.

38. VSI is the assignee and sole owner of the '032 patent.

39. Boston Scientific has infringed and continues to infringe one or more claims of the '032 patent, including at least claims 1-8, 11-17, and 19, by making, using, offering to sell, and selling (directly or through intermediaries), in this district and elsewhere in the United States, coaxial guide catheters for cardiac catheterization procedures, namely the Guidezilla catheter.

40. VSI did not give Boston Scientific authorization or license to make, use, offer to sell, or sell the Guidezilla catheter.

41. At least as early as October 2, 2012, and likely much earlier, Boston Scientific had knowledge of the '032 patent, and knew that its actions infringe the '032 patent. Boston Scientific did not develop the Guidezilla on its own, but instead copied VSI's GuideLiner catheter. Boston Scientific has willfully infringed, and continues to willfully infringe, the '032 patent.

42. Boston Scientific's willful infringement of the '032 patent has caused and will continue to cause damage to VSI, causing irreparable harm for which there is no adequate remedy at law, unless enjoined.

COUNT TWO
Infringement of the '413 Patent

43. VSI restates and incorporates by reference the allegations in paragraphs 1-42.

44. VSI is the assignee and sole owner of the '413 patent.

45. Boston Scientific has infringed and continues to infringe one or more claims of the '413 patent, including at least claims 1, 2, 4, 5, and 7-13, by making, using, offering to sell, and selling (directly or through intermediaries), in this district and elsewhere in the United States, coaxial guide catheters for cardiac catheterization procedures, namely the Guidezilla catheter, and using such catheters for cardiac catheterization procedures.

46. Boston Scientific has induced and continues to induce infringement in this district and elsewhere in the United States of one or more claims of the '413 patent, including at least claims 1, 2, 4, 5, and 7-13, by, among other things, actively and

successfully encouraging, instructing, enabling, and otherwise causing end users and/or customers to use its coaxial guide catheter for cardiac catheterization procedures, namely the Guidezilla catheter, in a manner which infringes the '413 patent.

47. At least as early as October 2, 2012, and likely much earlier, Boston Scientific had knowledge of the '413 patent. Boston Scientific did not develop the Guidezilla, or the instructions for using Guidezilla, on its own, but instead copied VSI's GuideLiner and its IFU. Boston Scientific has specifically intended that its end users and/or customers use the Guidezilla catheter in a way that infringes the '413 patent by, at a minimum, providing instructions to its end users and/or customers on how to use the accused products, and Boston Scientific knew that its actions would induce, have induced, and will continue to induce infringement by end users and/or customers.

48. Boston Scientific has contributed to and continues to contribute to the infringement of one or more claims of the '413 patent, including at least claims 1, 2, 4, 5, and 7-13, by offering to sell and selling (directly or through intermediaries), to end users and/or customers, in this district or elsewhere in the United States, its coaxial guide catheter for cardiac catheterization procedures, namely the Guidezilla catheter, that constitutes a material or apparatus for use in practicing a patented process covered by the '413 patent, constituting a material part of the invention, and that end users and/or customers have used in a manner that infringes one or more claims of the '413 patent.

49. Boston Scientific has known since at least as early as October 2, 2012, and likely much earlier, that its Guidezilla catheters are specially made and/or adapted for

use(s) that infringe one or more claims of the '413 patent and are, therefore, not staple articles or commodities of commerce suitable for substantial noninfringing use.

50. VSI did not give Boston Scientific authorization or license to engage in the activities described above.

51. Boston Scientific has willfully infringed, willfully induced infringement of, and willfully contributed to the infringement of one or more claims of the '413 patent, and continues to do so.

52. Boston Scientific's willful infringement, willful inducement of infringement, and willful contributory infringement of the '413 patent has caused and will continue to cause damage to VSI, causing irreparable harm for which there is no adequate remedy at law, unless enjoined.

COUNT THREE
Infringement of the '850 Patent

53. VSI restates and incorporates by reference the allegations in paragraphs 1-52.

54. VSI is the assignee and sole owner of the '850 patent.

55. Boston Scientific has infringed and continues to infringe one or more claims of the '850 patent, including at least claims 1-8, 12-18, and 20, by making, using, offering to sell, and selling (directly or through intermediaries), in this district and elsewhere in the United States, coaxial guide catheters for cardiac catheterization procedures, namely the Guidezilla catheter, with standard guide catheters.

56. Boston Scientific has induced and continues to induce infringement in this district and elsewhere in the United States of one or more claims of the '850 patent, including at least claims 1-8, 12-18, and 20, by, among other things, actively and successfully encouraging, instructing, enabling, and otherwise causing end users and/or customers to use its coaxial guide catheter for cardiac catheterization procedures, namely the Guidezilla catheter, along with standard guide catheters, as a system which infringes the '850 patent.

57. At least as early as October 2, 2012, and likely much earlier, Boston Scientific had knowledge of the application that issued as the '850 patent, and knew that its Guidezilla product, when used with standard guide catheters, would infringe the '850 patent when issued. Boston Scientific did not develop the Guidezilla on its own, but instead copied VSI's GuideLiner. Boston Scientific has specifically intended that its end users and/or customers use the Guidezilla catheter, along with standard guide catheters, as a system which infringes the '850 patent by, at a minimum, providing instructions to its end users and/or customers on how to use the accused products, and Boston Scientific knew that its actions would induce, have induced, and will continue to induce infringement by end users and/or customers.

58. Boston Scientific has contributed to and continues to contribute to the infringement of one or more claims of the '850 patent, including at least claims 1-8, 12-18, and 20, by offering to sell and selling (directly or through intermediaries), to end users and/or customers, in this district or elsewhere in the United States, its coaxial guide catheter for cardiac catheterization procedures, namely the Guidezilla catheter, that

constitutes a component of a machine, manufacture, combination or composition covered by the '850 patent, constituting a material part of the invention, and that end users and/or customers have used the Guidezilla catheter as part of a system that infringes one or more claims of the '850 patent.

59. At least as early as October 2, 2012, and likely much earlier, Boston Scientific knew that its Guidezilla catheters are specially made and/or adapted for use(s) as part of a system that would infringe one or more claims of the '850 patent when issued and are, therefore, not staple articles or commodities of commerce suitable for substantial noninfringing use.

60. VSI did not give Boston Scientific authorization or license to engage in the activities described above.

61. Boston Scientific has willfully infringed, willfully induced infringement, and willfully contributed to infringement of one or more claims of the '850 patent and continues to do so.

62. Boston Scientific's willful infringement, willful inducement of infringement, and willful contributory infringement of the '850 patent has caused and will continue to cause damage to VSI, causing irreparable harm for which there is no adequate remedy at law, unless enjoined.

JURY DEMAND

VSI requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

PRAYER FOR RELIEF

WHEREFORE, Vascular Solutions, Inc. prays for Judgment:

(a) In favor of VSI and against Boston Scientific on all of VSI's claims;

(b) Finding that Boston Scientific has willfully infringed one or more claims of the patents-in-suit, has willfully induced others to infringe one or more claims of the patents-in-suit, and has willfully contributed to infringement of one or more claims of the patent-in-suit;

(c) Preliminarily and permanently enjoining Boston Scientific, its agents, servants, employees, officers, directors, successors, licensees, assigns, and all others in active concert or participation with Boston Scientific, from making, using, offering to sell, or selling its Guidezilla catheters in the United States, or from otherwise infringing, inducing infringement, and contributing to the infringement of claims of the patents-in-suit;

(d) Awarding VSI damages adequate to compensate VSI for Boston Scientific's acts of patent infringement, together with pre-judgment and post-judgment interest;

(e) Declaring this to be an exceptional case and awarding VSI enhanced damages and reasonable attorneys' fees and costs pursuant to 35 U.S.C. § 285;

(f) Awarding VSI its taxable costs and expenses, with interest; and

(g) Granting such other and further relief as this Court may deem just and equitable.

DORSEY & WHITNEY LLP

Dated: May 16, 2013

By s/ Heather D. Redmond

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Attorneys for Plaintiff

UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA

Vascular Solutions, Inc.,

Plaintiff,

v.

Boston Scientific Corporation,

Defendant.

Civil File No. _____

COMPLAINT

JURY TRIAL DEMANDED

Plaintiff Vascular Solutions, Inc. ("VSI"), for its complaint against Boston Scientific Corporation ("Boston Scientific"), states and alleges as follows:

1. This is a patent infringement action to stop Boston Scientific's infringement of VSI's United States Patent No. 8,048,032 ("'032 patent") (Ex. A), United States Patent No. 8,142,413 ("'413 patent") (Ex. B), and United States Patent No. 8,292,850 ("'850 patent") (Ex. C), all entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures" (collectively, the "patents-in-suit").

PARTIES

2. Plaintiff VSI is a Minnesota corporation, with its principal place of business at 6464 Sycamore Court North, Maple Grove, Minnesota 55369. VSI is the owner by assignment of the patents-in-suit.

3. Defendant Boston Scientific is a Delaware corporation, with its corporate headquarters at One Boston Scientific Place, Natick, Massachusetts 01760. Boston Scientific also maintains a place of business and manufacturing operations at Two

Scimed Place, Maple Grove, Minnesota 55331, and in numerous other states and countries.

JURISDICTION AND VENUE

4. This action arises under the Patent Act, 35 U.S.C. § 1 *et seq.*

5. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

6. The Court has personal jurisdiction over Boston Scientific, because Boston Scientific maintains places of business within the State of Minnesota and this district; Boston Scientific regularly conducts business in the State of Minnesota and this district; and VSI's cause of action arises directly from Boston Scientific's infringing actions by manufacturing, marketing and selling the infringing Guidezilla™ product in the State of Minnesota and this district.

7. Venue is proper in the District of Minnesota pursuant to 28 U.S.C. §§ 1391(a) and 1400(b).

BACKGROUND

Vascular Solutions, its GuideLiner® Product, and the Patents-in-Suit

8. Formed in 1997, VSI is a medical device company focused on bringing new clinically unique solutions for vascular diseases to physicians worldwide. VSI has developed and markets over 75 different medical device products through its 91employee U.S. sales force and international distribution network covering 49 countries. VSI's annual revenue in 2012 was $98 million.

9. Starting in 2004, VSI's Chief Executive Officer, Howard Root, along with VSI employees Gregg Sutton, Jeffrey Welch, and Jason Garrity (together, the "Inventors"), conceived of a new idea and developed that idea into VSI's GuideLiner catheter. VSI's GuideLiner catheter is a medical device used in coronary catheterization medical procedures to provide stable access to the coronary arteries and thereby facilitate the placement of stents and other medical devices for the treatment of coronary artery disease. The GuideLiner catheter uses rapid exchange or "rail" technology to make the catheter easy to deliver and consistent with the lengths of other devices used in coronary catheterization procedures.

10. On May 3, 2006, the Inventors filed an application for a U.S. patent on their invention that would issue as the '032 patent.

11. The '032 patent issued on November 1, 2011. VSI is the assignee and sole owner of the '032 patent.

12. The Inventors filed two additional divisional U.S. patent applications relating to aspects of their invention that were issued as the '413 patent on March 27, 2012 and the '850 patent on October 23, 2012. VSI is the assignee and sole owner of the '413 and '850 patents.

13. VSI obtained CE mark clearance from its European notified body and commenced international sales of the GuideLiner catheter in September 2009.

14. VSI obtained 510(k) regulatory clearance from the U.S. Food & Drug Administration and commenced U.S. sales of the GuideLiner catheter in November 2009.

15. The Instructions for Use ("IFU") that VSI supplies with every unit of GuideLiner catheter shipped to a customer in the U.S. contains a listing of the numbers of the patents-in-suit and a description of the product and the deployment technique. VSI is the owner of copyright in the IFU. VSI has applied to register its copyright in the United States Copyright Office.

16. Since its introduction, the GuideLiner catheter has been described by physicians who use the product as "a game-changing device." Physicians have stated that by using the GuideLiner catheter they have "been able to treat arteries previously deemed untreatable." Other physicians have described the GuideLiner catheter as a device that "makes some impossible cases possible and difficult cases easier;" "an indispensable part of my tool kit;" and a device that "allows me to successfully complete previously unimaginable interventions."

17. Before Boston Scientific introduced its infringing Guidezilla product, VSI's patented GuideLiner catheter was the only available product that provided guide extension with rapid exchange, or "rail" technology, and therefore according to physicians using the product had "no competitor device."

18. Since 2010, twenty-two articles have been published in peer-reviewed medical journals on the GuideLiner catheter; VSI has published twelve case reports on a variety of beneficial clinical uses of the GuideLiner catheter; and five medical symposia have been held on GuideLiner catheter at medical meetings in the United States and Europe.

19. The GuideLiner catheter has been a commercially successful product for VSI. From 2010 to current, the GuideLiner catheter has been VSI's fastest growing product, with sales growth of 48% in the first quarter of 2013 over the prior year, to an annual rate of approximately $20 million. GuideLiner catheter sales currently represent approximately 20% of VSI's total revenue.

Boston Scientific and its Infringing Guidezilla Product

20. Boston Scientific is the largest medical device company in the U.S. market for interventional cardiology devices, with a 40% share of the market according to 2010 market research estimates. Boston Scientific sells a variety of medical devices into this market through its interventional cardiology division, including drug-eluting stents and guide catheters. Boston Scientific's worldwide 2012 revenue was $7.2 billion.

21. Since VSI launched its GuideLiner catheter in 2009, interventional cardiologists have used VSI's GuideLiner catheter to deliver Boston Scientific's drug-eluting stents into coronary arteries, of which Boston Scientific's sales and marketing employees have been well aware.

22. On February 14, 2012, Boston Scientific filed a trademark application on "Guidezilla" for use as a medical guide catheter with the U.S. Patent & Trademark Office.

23. On October 2, 2012, VSI's CEO, Howard Root, met the president of Boston Scientific's Interventional Cardiology Division, Keven Ballinger, at an event sponsored by the trade organization LifeScience Alley in St. Louis Park, Minnesota. At the event, Root asked Ballinger if Boston Scientific was developing a new guide catheter

called Godzilla or Guidezilla. In response, Ballinger stated that Boston Scientific hadn't developed a new guide catheter in over a decade.

24. On October 16, 2012, Root sent a letter to Ballinger informing him of the patents-in-suit. Ballinger did not respond.

25. Boston Scientific prepared its 510(k) application with the U.S. Food & Drug Administration ("FDA") for the Guidezilla catheter on December 6, 2012 and filed it on February 19, 2013. Boston Scientific's 510(k) filing identifies the GuideLiner catheter as the only predicate device for the Guidezilla catheter. The Guidezilla catheter "Intended Use / Indications for Use" included in the 510(k) application is the same as the Intended Use that VSI created and provides with its GuideLiner catheter.

26. As part of its filing with the FDA, Boston Scientific stated the following: "The GUIDEZILLA™ Guide Extension Catheter incorporates substantially equivalent device materials and design, packaging materials and design, fundamental technology, manufacturing processes, sterilization process and intended use as the GuideLiner® V2 (K112082)."

27. Boston Scientific describes its Guidezilla catheter in its Directions for Use as "a single lumen rapid exchange catheter" with "a stainless steel proximal shaft with a 25 cm single lumen distal guide segment . . . ." This description is the same as VSI's description of its GuideLiner catheter in its IFU as "a single lumen rapid exchange catheter" with "a stainless steel shaft with a 25cm single lumen . . . ."

28. Boston Scientific's Directions for Use for its Guidezilla catheter is a copy of the VSI Instructions for Use for its GuideLiner catheter, including the "Deployment

Procedure" / "Delivery Procedure" section as shown below (language copied from GuideLiner Instructions into Guidezilla Directions is shown in bold):

GuideLiner	Guidezilla
Deploy **the GuideLiner catheter according to the following steps:**	Deliver **the Guidezilla device according to the following steps:**
1. Secure the previously inserted guidewire and backload the distal tip of the GuideLiner catheter onto the guidewire and advance until the catheter is just proximal to the hemostasis valve.	**1. Secure the previously inserted guidewire and backload the distal tip of the Guidezilla device onto the guidewire and advance until the device is just proximal to the hemostasis valve.**
2. Open the hemostasis valve and advance the GuideLiner catheter through the hemostasis valve and into the guide catheter.	**2. Open the hemostasis valve and advance the Guidezilla device through the hemostasis valve and into the guide catheter.**
3. Under fluoroscopy, advance the GuideLiner catheter up to a maximum of 15cm beyond the distal tip of the guide catheter and into the desired location within the vessel.	**3. Under fluoroscopy, advance the Guidezilla device up to a maximum of 15 cm beyond the distal tip of the guide catheter and into the desired location within the vessel.**
Warning: Never advance the GuideLiner catheter into a vessel with an effective diameter less than 2.5mm. Vessel injury, ischemia, and/or occlusion may result. If pressure in a vessel dampens after inserting the GuideLiner catheter, withdraw the GuideLiner catheter until the pressure returns to normal.	**Warning: Never advance the Guidezilla device into a vessel with an effective diameter less than 2.5 mm. Vessel injury, ischemia, and/or occlusion may result. If pressure in a vessel dampens after inserting the Guidezilla catheter, withdraw the Guidezilla catheter until the pressure returns to normal.**
Warning: Due to the size and non-tapered tip of the GuideLiner, extreme care must be taken to avoid vessel occlusion and damage to the wall of the vessels through which this catheter passes.	**Warning: Due to the size and non-tapered tip of the Guidezilla device, extreme care must be taken to avoid vessel occlusion and damage to the wall of the vessels through which this catheter passes.***
4. Using fluoroscopy, confirm the desired position of the GuideLiner catheter in the vessel.	**4. Using fluoroscopy, confirm the desired position of the Guidezilla device in the vessel.**

5. If performing an interventional procedure, backload the interventional device over the in place **guidewire and advance the device through the guide catheter and GuideLiner** catheter **into the desired vascular space.**	**5. If performing an interventional procedure, backload the interventional device over the guidewire and advance the device through the guide catheter and Guidezilla** device **into the desired vascular space.** Note: Use caution when advancing the interventional device into the distal guide segment.
6. Tighten the Y-adaptor hemostasis valve securely on the proximal shaft of the GuideLiner catheter **to prevent back-bleeding.**	**6. Tighten the Y-adaptor hemostasis valve securely on the proximal shaft of the Guidezilla** device **to prevent back-bleeding.**
7. Perform the catheterization procedure. After completing the procedure, remove the GuideLiner catheter **prior to removing the guide catheter from the vessel.**	**7. Perform the catheterization procedure. After completing the procedure, remove the Guidezilla** device **prior to removing the guide catheter from the vessel.**

* The order of the two warnings is reversed in the Guidezilla document.

29. Boston Scientific received 510(k) clearance from the FDA for the Guidezilla catheter on March 19, 2013.

30. Sam Rasmussen was employed as a Senior Product Manager at VSI from June 2006 through November 2006, a time period during which VSI was actively developing its GuideLiner catheter. Rasmussen voluntarily left VSI's employ in November 2006 and is currently employed as a Senior Product Manager at Boston Scientific. Rasmussen is responsible for providing marketing leadership for the launch of the Guidezilla catheter at Boston Scientific.

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court of Minnesota on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
13-1172	5/16/2013	of Minnesota

PLAINTIFF	DEFENDANT
Vascular Solutions, Inc.	Boston Scientific Corporation

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	8,048,032	11/1/2011	Vascular Solutions, Inc.
2	8,142,413	3/27/2012	Vascular Solutions, Inc.
3	8,292,850	10/23/2012	Vascular Solutions, Inc.
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
Complaint filed 5/16/2013

CLERK	(BY) DEPUTY CLERK	DATE
RICHARD D. SLETTEN	A. Linner	5/23/2013

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

Trials@uspto.gov
571-272-7822

Paper 10
Entered: August 11, 2014

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOSTON SCIENTIFIC CORPORATION
and BOSTON SCIENTIFIC SCIMED, INC.
Petitioners

v.

VASCULAR SOLUTIONS, INC.
Patent Owner

Case IPR2014-00759
Patent 8,142,413

Cases IPR2014-00760 and IPR2014-00761
Patent 8,048,032

Cases IPR2014-00762 and IPR2014-00763
Patent 8,292,850[1]

Before GLENN J. PERRY, BARBARA A. PARVIS and
J. JOHN LEE, *Administrative Trial Judges*

PERRY, *Administrative Trial Judge*

---

[1] This Order addresses scheduling that is identical in the listed cases. We exercise our discretion to issue a single paper to be filed in each case. The parties are not authorized to use this style heading for any subsequent papers.

JUDGMENT
Termination of Proceeding
37 C.F.R. § 42.73

The parties have requested that these trial proceedings be terminated pursuant to a settlement. On August 6, 2014, the Board authorized[2] the parties to file a Joint Motion to Terminate these proceedings along with a true copy of any and all settlement agreements between them related to the patent at issue. The parties filed in each case a Joint Motion to Terminate[3] in accordance with 35 U.S.C. § 327(a) and 37 C.F.R. § 42.72. The parties also filed in each case a Joint Motion to Treat the Parties' Settlement Agreement as Business Confidential[4] pursuant to 35 U.S.C. § 317(b) and Rule 42.74. The settlement agreement[5] purports to settle matters between the parties with respect to each of the patents at issue in this *inter partes* review.

Each of the captioned *inter partes* reviews is in its preliminary stage. A decision on the respective Petitions[6] has not yet been rendered. The parties have identified the following USPTO proceedings that are pending.

---

[2] IPR2014-00759, Paper 6; IPR2014-00760, Paper 6; IPR2014-00761, Paper 7; IPR2014-00762, Paper 6; IPR2014-00763, Paper 9.
[3] IPR2014-00759, Paper 7; IPR2014-00760, Paper 7; IPR2014-00761, Paper 7; IPR2014-00762, Paper 8; IPR2014-00763, Paper 10.
[4] IPR2014-00759, Paper 8; IPR2014-00760, Paper 8; IPR2014-00761, Paper 8; IPR2014-00762, Paper 8; IPR2014-00763, Paper 11.
[5] IPR2014-00759, Exhibit 1041; IPR2014-00760, Exhibit 1042; IPR2014-00761, Exhibit 1042; IPR2014-00762, Exhibit 1043; IPR2014-00763, Exhibit 1043.
[6] IPR2014-00759, Paper 1; IPR2014-00760, Paper 1; IPR2014-00761, Paper 1; IPR2014-00762, Paper 1; IPR2014-00763, Paper 1.

Application	Status
Reissue Application for U.S. Patent No. 8,292,850: Serial No. 14/070161	Pending
Reissue Continuation Application for U.S. Patent No. 8,292,850: Serial No. 14/195385	Pending
Reissue Continuation Application for U.S. Patent No. 8,292,850: Serial No. 14/195413	Pending
Reissue Continuation Application for U.S. Patent No. 8,292,850: Serial No. 14/195435	Pending

The parties indicated that they "shall cooperate" to have the related District Court litigation[7] in the U.S. District Court for the District of Minnesota dismissed with prejudice.

Under these circumstances, the Board determines that it is appropriate to enter judgment[8] and terminate each of the trials without rendering a final written decision under 37 C.F.R. § 42.72.

[7] *Vascular Solutions, Inc. v. Boston Scientific Corp.*, No. 0:13-cv-1172-JRT-SER (D. Minn.).
[8] A judgment means a final written decision by the Board, or a termination of a proceeding. 37 C.F.R. § 42.2.

ORDER

It is, therefore,

ORDERED that the joint motions to terminate these proceedings are GRANTED and the proceedings are hereby terminated as to all parties including, Petitioners and Patent Owner; and

FURTHER ORDERED that the parties' joint requests that the settlement agreement, as filed in each case, be treated as business confidential information and kept separate from the file of the involved patent under the provisions of to 35 U.S.C. § 317(b) and 37 C.F.R. § 42.74(c), are GRANTED.

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571-272-7822

Paper 13
Entered: August 11, 2014

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOSTON SCIENTIFIC CORPORATION
and BOSTON SCIENTIFIC SCIMED, INC.
Petitioners

v.

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Before GLENN J. PERRY, BARBARA A. PARVIS and
J. JOHN LEE, *Administrative Trial Judges*

PERRY, *Administrative Trial Judge*

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[3] IPR2014-00759, Paper 7; IPR2014-00760, Paper 7; IPR2014-00761, Paper 7; IPR2014-00762, Paper 8; IPR2014-00763, Paper 10.
[4] IPR2014-00759, Paper 8; IPR2014-00760, Paper 8; IPR2014-00761, Paper 8; IPR2014-00762, Paper 8; IPR2014-00763, Paper 11.
[5] IPR2014-00759, Exhibit 1041; IPR2014-00760, Exhibit 1042; IPR2014-00761, Exhibit 1042; IPR2014-00762, Exhibit 1043; IPR2014-00763, Exhibit 1043.
[6] IPR2014-00759, Paper 1; IPR2014-00760, Paper 1; IPR2014-00761, Paper 1; IPR2014-00762, Paper 1; IPR2014-00763, Paper 1.

Application	Status
Reissue Application for U.S. Patent No. 8,292,850: Serial No. 14/070161	Pending
Reissue Continuation Application for U.S. Patent No. 8,292,850: Serial No. 14/195385	Pending
Reissue Continuation Application for U.S. Patent No. 8,292,850: Serial No. 14/195413	Pending
Reissue Continuation Application for U.S. Patent No. 8,292,850: Serial No. 14/195435	Pending

The parties indicated that they "shall cooperate" to have the related District Court litigation[7] in the U.S. District Court for the District of Minnesota dismissed with prejudice.

Under these circumstances, the Board determines that it is appropriate to enter judgment[8] and terminate each of the trials without rendering a final written decision under 37 C.F.R. § 42.72.

[7] *Vascular Solutions, Inc. v. Boston Scientific Corp.*, No. 0:13-cv-1172-JRT-SER (D. Minn.).
[8] A judgment means a final written decision by the Board, or a termination of a proceeding. 37 C.F.R. § 42.2.

ORDER

It is, therefore,

ORDERED that the joint motions to terminate these proceedings are GRANTED and the proceedings are hereby terminated as to all parties including, Petitioners and Patent Owner; and

FURTHER ORDERED that the parties' joint requests that the settlement agreement, as filed in each case, be treated as business confidential information and kept separate from the file of the involved patent under the provisions of to 35 U.S.C. § 317(b) and 37 C.F.R. § 42.74(c), are GRANTED.

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AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court of Minnesota on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
13-1172	5/16/2013	of Minnesota

PLAINTIFF	DEFENDANT
Vascular Solutions, Inc.	Boston Scientific Corporation

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	8,048,032	11/1/2011	Vascular Solutions, Inc.
2	8,142,413	3/27/2012	Vascular Solutions, Inc.
3	8,292,850	10/23/2012	Vascular Solutions, Inc.
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
Complaint filed 5/16/2013 Order for Dismissal 8/11/2014 Judgment 8/12/2014

CLERK	(BY) DEPUTY CLERK	DATE
RICHARD D. SLETTEN	A. Murch	11/12/2014

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:	Attorney Docket No.: 2005.86US03
Howard Root et al.	Confirmation No.: 6559
Application No.: 13/359,059	Examiner: Bradley James Osinski
Filed: January 26, 2012	Group Art Unit: 3767

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

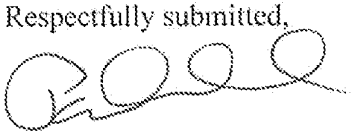
NOTIFICATION OF CHANGE IN STATUS RESULTING IN LOSS OF ENTITLEMENT TO SMALL ENTITY STATUS PURSUANT TO 37 CFR § 1.27(g)(2)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

Applicant hereby asserts that it is no longer eligible to claim small entity status in the above-referenced application.

Respectfully submitted,



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Please grant any extension of time necessary for entry; charge any fee due to Deposit Account No. 16-0631.

Electronic Acknowledgement Receipt

EFS ID:	23252986
Application Number:	13359059
International Application Number:	
Confirmation Number:	6559
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard Root
Customer Number:	24113
Filer:	Paul C. Onderick/Ann Pommier
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86US03
Receipt Date:	19-AUG-2015
Filing Date:	26-JAN-2012
Time Stamp:	15:32:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	2005_86US03_LOSS.pdf	204708 a11365fc5973379810cba55646f6b2f3158f1d2c	no	1
Warnings:					
Information:					

Total Files Size (in bytes):	204708

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.