More specifically, these components can directly influence the torsional compliance characteristics of the device. It is understood that for purposes of this application, "torsional compliance" is intended to mean the angular or rotational flexibility of the shaft along its length. As an example, a shaft with high torsional compliance will transmit less torque or rotation from one end to the other end, while a shaft with low torsional compliance will transmit more torque from one end to the other. A shaft with low torsional compliance will have higher torque transmission characteristics than one with high torsional compliance. As discussed above, certain known extension catheters have high torque transmission characteristics (and thus low torsional compliance characteristics) that can cause sufficient stress on the connection between the proximal shaft and distal tube to cause failure or separation at the connection point. Non-limiting examples of extension catheters having low torsional compliance can include catheters having a proximal shaft comprised of a single elongate member having a solid square or rectangular cross-section, a solid round cross-section, or a round cross-section with a lumen (such as a hypotube).

[0139] In contrast, the use of two or more elongate members in combination with different sheath segment configurations can produce higher torsional compliance (and thus lower torque transmission) than proximal shafts that are not configured as such. More specifically, without being limited by theory, the capability of the two or more elongate members to move independently in relation to each other helps to increase torsional compliance/reduce torque transmission when the manipulation shaft is turned at its proximal end by the user to cause rotation of the distal tube or when torsion is induced in the shaft as a result of pushing (or pulling) the catheter through a guiding catheter and through a tortuous vessel. In a related fashion, a sheath segment that covers only a portion of the length of the elongate members (instead of the entire length thereof) also maintains some independent movement of the elongate members, thereby maintaining lower torque transmission in comparison to any configuration that includes a sheath that covers the entire length of the elongate members. In contrast, in those situations in which it is desirable, the addition of a filler material that acts as a bonding agent in one or more lumens of the sheath segment can decrease the torsional compliance characteristics (and thus increase the torque transmission characteristics), while a filler material that constitutes a lubricant can increase torsional compliance characteristics less than a bonding agent. As discussed above, the amount of filler can also influence the torsional compliance characteristics, including whether the filler fills the entire length of a sheath segment, a portion of the segment, more than one portion of the segment, or more than one segment.

[0140] Thus, it is understood that torsional compliance of any given device or shaft can be determined based on a number of factors, including the number and length of any sheath segments, the number and length of any unsheathed segments, the amount of filler, the type of filler, the cross-sectional shape of the two or more elongate members, the number of elongate members, and other known factors.

[0141] These concepts are best captured in FIG. 6A, which depicts a shaft **80** configuration with round rods **82**, **84** having a sheath segment **86** and an unsheathed segment **87**. The unsheathed segment **87** allows for the independent movement of two round elongate members **82**, **84**, thereby increasing torsional compliance as described above. That is, as shown by the fact that the proximal portions of the elongate members are wound together, the two elongate members can move independently in relation to each other—including being in sliding and rolling contact along their lengths—thereby increasing the torsional compliance of the shaft **80**. In contrast, non-round elongate members would not be capable of rolling or rotating in relation to each other as easily, thereby resulting in decreased torsional compliance as a result of the contact between elongate members being merely slidable in nature (rather than both sliding and rolling/rotating). Further, the sheathed segment **86** reduces the amount of relative movement of the two rods **82**, **84** such that their independent movement in relation to each other is more limited in comparison to the length of rods **82**, **84** in the unsheathed segment **87**, thereby resulting in decreased torsional compliance. Of course, it is understood that the two rods **82**, **84** in the sheathed segment **86** can also be in sliding and rolling contact along their lengths, but it is also understood that the rods **82**, **84** in the sheath **86** are not capable of rolling or rotating in relation to each other as easily as rods **82**, **84** of an unsheathed segment (such as segment **87**). And a filler injected into the segment **86** can further influence the torsional compliance as explained above.

[0142] Further, FIGS. 6B-6F depict various different additional manipulation shaft implementations, wherein each of the different configurations has a different impact on the torque transmission characteristics of the resulting device. More specifically, each of these figures shows a different embodiment of a manipulation shaft **80** having two elongate members **82**, **84**, with each embodiment having a different sheath segment configuration.

[0143] For example, FIG. 6B depicts a manipulation shaft **80** with the two elongate members **82**, **84**, but having no sheath segment. As described above, this shaft **80** would exhibit high torsional compliance (or low torque transmission) for the reasons set forth above.

[0144] FIG. 6C shows a manipulation shaft **80** with two elongate members **82**, **84** and a sheath segment **86** that is disposed around the two elongate members **82**, **84** for a substantial amount of the length of the members **82**, **84**. That is, the sheath segment **86** extends from a proximal portion of the members **82**, **84** to a distal portion of the members **82**, **84**. In this embodiment, the shaft **80** exhibits lower torsional compliance characteristics than any of the other embodiments in FIGS. 6A-6F, because the sheath **86** is disposed around a greater length of the two members **82**, **84** than any other embodiment, thereby limiting the freedom of the two members **82**, **84** to move in relation to each other. Alternatively, the sheath segment **86** can be disposed around the elongate members **82**, **84** for any length of those members **82**, **84**, including the entire length thereof. Further, as is true with any of the embodiments shown in FIGS. 6A-6F and elsewhere in this application, a bonding agent filler injected into the segment **86** will cause even lower torsional compliance characteristics (while a lubricant filler would have torsional compliance characteristics that are not as low as those created by a bonding agent).

[0145] The manipulation shaft **80** embodiments in FIGS. 6D-6F all have at least two sheath segments disposed around two elongate members **82**, **84**. More specifically, FIG. 6D depicts a first or distal sheath segment **88A**, and a second or proximal sheath segment **88B**, with an unsheathed segment

90 between the two segments 88A, 88B. The shaft 80 in FIG. 6E has four sheath segments 92A, 92B, 92C, 92D with three unsheathed segments 94A, 94B, 94C disposed therebetween. Further, FIG. 6F has two sheath segments 96A, 96B with an unsheathed segment 98 between the two segments 96A, 96B. The unsheathed segment 98 in FIG. 6F has a greater length than the unsheathed segment 90 in FIG. 6D, which means that the shaft 80 in FIG. 6F exhibits lower torque transmission than the shaft 80 in FIG. 6D. In a further alternative, the shaft 80 can have a sheath that is disposed around the two elongate members 82, 84 and extends for the entire length of the shaft 80, thus constituting a unitary or non-segmented sheath. Further, it is understood that the sheath or segments can have any length and cover any portion of the length of the shafts. It is also understood that there can be any number of sheath segments or unsheathed segments. In addition, certain embodiments can have at least two segments that are disposed around the at least two elongate members and adjacent to each other such that they in contact with each other such that there are no unsheathed segments between the at least two segments.

[0146] FIGS. 7A-7C depict another embodiment of a catheter 100 with a manipulation shaft 104 that is coupled to the distal tube 102 in an eccentric manner, rather than a concentric manner. That is, the shaft 104 is joined to the distal tube 102 at one point or in one zone of the periphery or circumference of the distal tube 102 or along an extension 142 of the distal tube 102 as discussed in further detail below. For example, in one implementation as shown in FIGS. 7A-7C, the manipulation shaft 104 is coupled to the distal tube 102 at a point or area of the wall 106 of the tube 102.

[0147] The shaft 104 in this embodiment is made up of two rods 108, 110 positioned within the lumen 114 of the sheath 112 disposed around the rods 108, 110, as best shown in FIG. 7C. In this embodiment, the rods 108, 110 are solid (that is, they do not have lumens). Alternatively, as discussed above, the rods 108, 110 can be hypotubes 108, 110, with each having a lumen defined therein, and/or can have a shape other than round.

[0148] As best shown in FIGS. 7A and 7B, this specific implementation has a distal portion of the shaft 104 that is similar to the configuration of FIG. 3A as discussed above, because the shaft 104 is coupled to and integral with the wall 106 of the distal tube 102 at the connection zone 116. Further, as best shown in FIG. 7A, like the device 10 in FIGS. 3A-3C, the two rods 108, 110 extend from the distal portion of the shaft 104 such that the distal portions 118, 120 of the rods 108, 110 extend into the distal tube 102. More specifically, the distal portions 118, 120 are positioned in the wall 106 contralaterally in relation to each other. That is, the distal portion 118 is disposed in the wall 106 on one side of the distal tube 102 while the distal portion 120 is disposed in the wall 106 on the other side of the tube 102 such that the portions 118, 120 are positioned across the lumen 122 from each other. As with every embodiment having contralateral distal portions, the distal portions 118, 120 can be directly opposite each other across the lumen 122, but in other implementations, they are not directly opposite each other.

[0149] Further, as best shown in FIG. 7B, both distal portions 118, 120 (only 120 is visible in FIG. 7B because of the location of distal portion 118 behind distal portion 120 in the figure) have angled portions 124, 126 that extend at an angle in relation to the longitudinal axis of the tube 102 and axial portions 128, 130 that extend axially along that position for some distance as well as shown. Alternatively, the distal portions 118, 120 can have only angled portions (similar to portions 124, 126) and no straight or axial portions. In accordance with one implementation, the positioning and configuration of the distal portions 118, 120 of the rods 108, 110 in the wall 106 of the distal tube 102 enhance the kink resistance of that portion of the tube 102 as well as assisting in more evenly transmitting an axial force to the distal tube 102 in a more even fashion during use of the catheter 100, while maintaining a low torque transmission.

[0150] In this specific implementation, both of the distal portions 118, 120 of the rods 108, 110 have a round configuration. Alternatively, they could have a flat configuration, thereby reducing their profiles within the distal tube 102.

[0151] In addition, in this implementation, as best shown in FIG. 7B, the distal tube 102 has a tapered proximal opening 140 and a proximal extension 142 that is configured to receive the manipulation shaft 104 as shown. In one implementation, the tapered proximal opening 140 provides easier access and insertion for any device being positioned through the lumen 122 of the distal tube 102, while the proximal extension 142 provides enhanced strength to the connection between the manipulation shaft 104 and the distal tube 102.

[0152] According to a further embodiment depicted in FIGS. 8A and 8B, the device 150 has a manipulation shaft 154 that is made up of two rods 156, 158 and a tube 160 positioned between the two rods 156, 158 (as best shown in FIG. 8B). FIG. 8A is a side view, while FIG. 8B is a top view. In this implementation, the shaft 154 has a polymeric sheath segment 162 such as polyester and/or PET that is disposed around the two rods 156, 158 and tube 160. A distal portion of the shaft 154 is coupled to and integral with an outer wall 166 of the distal tube 152 at the connection zone 164, and more specifically is coupled to a proximal extension 186 of the tube 152. Further, the two rods 156, 158 extend distally such that the distal portions 168, 170 of the rods 156, 158 extend into the distal tube 152. The distal portions 168, 170 are positioned in the wall 166 contralaterally in relation to each other. That is, the distal portion 168 is disposed in the wall 166 on one side of the tube 152 while the distal portion 170 is disposed in the wall 166 on the other side of the tube 152 such that the portions 168, 170 are positioned across the lumen 180 from each other. Further, as best shown in FIG. 8A, both distal portions 168, 170 (only 170 is visible in FIG. 8A because of the location of distal portion 168 behind distal portion 170 in the figure) have angled portions 172, 174 that extend at an angle in relation to the longitudinal axis of the tube 152 and axial portions 176, 178 that extend axially along that position for some distance as well as shown. In this specific implementation, both of the distal portions 168, 170 of the rods 156, 158 have a round configuration. Alternatively, they could have a flat configuration, thereby reducing their profiles within the distal tube 152.

[0153] In addition, in this implementation, the tube 160 positioned between the two rods 156, 158 has a proximal end of the tube 160 extending proximally of the distal tube 152 and the distal end extending into the distal tube 152 as shown. It is understood that the proximal end of the tube 160

can be positioned at any point along the length of the manipulation shaft **154**. Alternatively, the proximal end of the tube **160** can extend to the proximal end of the manipulation shaft **154**. According to one embodiment, the tube **160** has a lumen (not shown) in fluid communication with the lumen **182** of the sheath segment **162** and further in fluid communication with the lumen **180** of the distal tube **152**. Alternatively, the tube **160** can have a lumen (not shown) that is not in fluid communication with the lumen **182** or the lumen **180**. In yet another alternative, the tube **160** has no lumen. Further, in this embodiment, two marker bands **184** are positioned around the rods **156**, **158**.

[0154] As mentioned above, in this embodiment, the tube **160** extends distally into the distal tube **152** such that the lumen (not shown) of the tube **160** is in fluid communication with the lumen **180** of the distal tube **152**. Alternatively, the tube **160** extends distally out of the sheath **162** such that the distal end of the tube **160** is positioned in the tapered opening **188** of the distal tube **152** (described in further detail below). In that embodiment, the lumen is in fluid communication with an area external to and proximal to the lumen **180** of the distal tube **152**. In a further alternative, the tube **160** can extend distally to or beyond the distal end of the distal tube **152** such that the lumen (not shown) of the tube **160** is in fluid communication with an area external to and distal to the distal tube **152**. In a further embodiment.

[0155] In addition, in this implementation (like the embodiment depicted in FIGS. **7**A and **7**B), as best shown in FIG. **8**A, the distal tube **152** has a proximal extension **186** configured to receive the manipulation shaft **104** as shown and a tapered proximal opening **188**. The tapered proximal opening **188** in this embodiment has levels of tapering as shown, including a sharp tapered portion **188**A, a curved tapered portion **188**B, an axial portion **188**C, and a second sharp tapered portion **188**D. The tapered opening **188** provides easier access and insertion for any device being positioned through the lumen **180** of the distal tube **152**, while the proximal extension **186** provides enhanced strength to the connection between the manipulation shaft **154** and the distal tube **152**.

[0156] As shown in FIG. **9**A, according to certain implementations, a manipulation shaft **200** can terminate in a proximal fitting **202**. In accordance with one embodiment, the fitting **202** is adapted for connection to a fluid source. In certain embodiments, the fitting **202** is a standard female luer connection that is made from plastic. The fitting **202** can be bonded to the manipulation shaft **200** with adhesive, or it can be insert-molded over the manipulation shaft **200**. In the embodiment shown in FIG. **9**A, there is an optional strain-relief segment **204** disposed between the manipulation shaft **200** and the proximal fitting **202**. The strain relief segment **204** provides a flexible transition from the manipulation shaft **200** to the proximal fitting **202**. In this embodiment, the lumen **206** of the shaft **200** extends through the proximal fitting **202** as shown.

[0157] Alternatively, in FIG. **9**B, the proximal end of the lumen **206** in the shaft **200** does not have an opening. That is, the proximal end of the lumen **206** is not in fluid communication with any opening at the proximal end of the shaft **200**.

[0158] As discussed above, certain proximal shaft implementations have a sheath defining a lumen in which two separate inner elongate members are positioned. For example, the manipulation shaft **220** shown in FIG. **10** has a sheath **226** defining a lumen **228** with two inner elongate members **222**, **224** positioned therein, wherein each of the elongate members **222**, **224** have lumens. In this embodiment, both of the elongate members **222**, **224** have reduced diameter portions **222**A, **224**A as shown. In this exemplary embodiment, each elongate member **222**, **224** has a connection section **222**B, **224**B between the full diameter section **222**C, **224**C and the reduced diameter section **222**A, **224**A that involves a narrowing or neck around the full circumference of the members **222**, **224** as shown.

[0159] Alternatively, the manipulation shaft **240** shown in FIG. **11** has sheath **246** defining a lumen **248** with two inner elongate members **242**, **244** positioned therein. The sheath **240** has a tapered section **246** in which both of the elongate members **242**, **244** have tapered sections **242**B, **244**B as shown. In this exemplary embodiment, each elongate member **242**, **244** has an extended taper from the full diameter section **242**C, **244**C to the reduced diameter section **242**A, **244**A.

[0160] As shown in FIGS. **12**A-**12**C, certain embodiments of a distal tube **260** can have three segments or more of differing flexibilities: low flexibility at the proximal end **264** of the tube **260**, medium flexibility in the middle **266** of the tube **260**, and high flexibility at the distal end **268**. More segments of varying flexibilities can also be used. In fact, the connection zone **270** (the area of overlap in which the manipulation shaft **262** is coupled to the larger tube **260**) has varying flexibility in that zone **270**. The differing flexibilities can be accomplished through combinations of differing materials, configurations, or geometries—as is known in the art (e.g. mesh or coil reinforcing, different PEBAX varieties, etc.). Moreover, different lengths can be selected for the segments **264**, **266**, **268** and the connection zone **270** according to design considerations. This permits more flexibility along a greater length of the device **258** as needed to deal with anticipated curvature in the path the catheter **258** must follow. In another implementation, the at least three segments have differing flexibilities as follows: low flexibility at the proximal end **264**, high flexibility in the middle **266**, and low flexibility at the distal end **268**. Any other combination of flexibilities is also possible.

[0161] As mentioned above, the flexible tube **260** can have radiopaque markers embedded in the tube **260** and/or placed along the length of the tube **260** for various purposes. For example, marker **274** can be used at or near the distal tip **280** of the tube **260** to help the doctor locate the position of the tip **280**. Another marker **276** could be used at or near the proximal end **282** of the tube **260** to assist the doctor in locating that end **282** of the tube **260** relative to the end of the guiding catheter or to assist in visualizing the location of the proximal opening of the tube **260**. In one embodiment, the marker band **276** can be located near the proximal end **282** of the tube but at a position on the tube **260** that is distal to the end **282**, as shown in FIGS. **12**A-**12**C.

[0162] Further, in certain embodiments, a radiopaque marker (not shown) can be located anywhere in or near the connection zone **270** (e.g. on the manipulation shaft **262** in or near the connection zone **270** or in the distal tube **260** in the connection zone **270**). Further, any of the markers **274**, **276**, **278** can be non-cylindrical. For example, one or more of the markers **274**, **276**, **278** can be strips or other known configurations.

[0163] One or more of these markers **274**, **276**, **278** can be helpful to indicate to the doctor or surgeon the location of the

Page 363

proximal end **282** of the tube **260** in relation to the guiding catheter (not shown) so that they do not insert or push the proximal end **282** past the distal end of the guiding catheter. In this regard, certain embodiments include a third marker **278** located at some optimal point along the tube **260** in between the other two markers **274** and **276**, as shown in FIGS. 2B, 12B, and 12C. As best shown in FIG. 2B, the doctor or surgeon can use this third marker **278** to track how far the tube **260** is extending beyond the guiding catheter **12**. That is, the third marker **278** can be used in certain circumstances as a limit indicator. For example, in a specific embodiment having a tube **260** that is 35 cm in length, the third marker band **278** may be located 15 cm from the distal end **280** of the tube **260** in order to indicate this predetermined distance to the doctor, such that the doctor knows the distance that the distal end **280** extends beyond the guide catheter **12**. Depending on the specific configuration of the catheter **258**, the third marker band **278** can be disposed in the low flexibility segment **264**, the middle flexibility segment **266**, or possibly even in the high flexibility segment **268**.

[0164] It is understood that the distal tube **260** can have one, two, three, or more markers as described above. It is further understood that any marker arrangement of one or more markers, including the three marker arrangement, can be used in connection with a variety of catheter configurations, including those having a solid rail (e.g. a flat or round wire) or a hollow rail or proximal section with a lumen, such as a tube. In other implementations, one or more markers can be positioned on the manipulation shaft **262**.

[0165] In further embodiments, the proximal shaft **262** can have greater longitudinal flexibility than the distal tube **260** or any portion thereof.

[0166] According to certain implementations, the proximal shaft **262** can have a lumen **272** that extends along the length of the proximal shaft **262**. As shown, the lumen **272** has an distal opening **273** that is in fluid communication with an area external to and proximal to the distal tube **260**. In alternative embodiments, the shaft **262** can extend distally into the distal tube **260** such that the lumen **272** is in fluid communication with the lumen of the distal tube **260** via the opening **273**. In a further alternative, the shaft **262** can extend distally through the distal tube **260** such that the lumen is in fluid communication with an area external to and distal to the distal tube **260**. In yet another alternative, the proximal shaft **262** has no lumen.

[0167] Other embodiments include additional support structure in the distal tube that can provide mechanical advantage similar to that provided by the support coil. FIG. **13**A depicts a device **300** having a distal tube **302** with a support member **304** positioned in the connection zone **306** that is configured to assume at least some of the mechanical loads. Alternatively, FIG. **13**B depicts another embodiment of a support member **308** positioned in the connection zone **306** of a distal tube **302**, while FIG. **13**C shows a further implementation of a support member **310**. In a further alternative, the tube **302** can have two or more support members. In certain embodiments, the support member (including the support members **304**, **308**, **310** depicted in FIGS. **13**A-13C) can be the distal portion of the rod or tube extending distally from the shaft **312**.

[0168] As mentioned above, certain additional embodiments as disclosed and contemplated herein relate to an improved catheter tip that can be incorporated into any known multi-layer catheter, including any catheter disclosed herein or any other catheter for use in a human patient. As will be explained in further detail below, the various catheter tip embodiments disclosed herein have a protective wrap disposed at the tip of the catheter that eliminates any exposed ends of the tubular layers.

[0169] One embodiment of catheter tube **340** with an improved catheter tip **342** is depicted in FIG. **15**. The tube **340** has a first layer (which, in this example, is also an inner layer) **344** and a second layer (which, in this example, is also an outer layer) **346**. The two layers **344**, **346** are positioned adjacent to each other and are adhered, coupled, or otherwise attached to each other along a substantial length of each. The inner layer **344** also has a protective wrap (also referred to as an "extended portion," "extension," "distal wrap," or "protective tip") **348** that extends beyond the length of the outer layer **346** and, in this implementation, is wrapped around the distal end of the outer layer **346** such that the external portion (also referred to as "outer portion" or "distal portion") of the extended portion **348** extends toward the proximal end of the tube **340** and is positioned against or adjacent to the exterior surface of the outer layer **346**. This configuration creates a fold **350** (also referred to herein as a "distal fold") of the extended portion **348** at the catheter tip **342** that facilitates protection of the tube layers at the tip **342**. In other words, the positioning of the extended portion **348** as shown ensures that the ends of the layers **344**, **346** are not exposed at the distal end of the tube **340**, thereby reducing the risk of delamination and the problems related thereto.

[0170] In this particular embodiment, the protective wrap **348** is integral with and is an extended portion of the inner layer **344**. Alternatively, in any of the catheter tip embodiments disclosed or contemplated herein, the protective wrap (such as protective wrap **348**) can be a separate component that is coupled to the distal ends of the inner layer (in this example, the inner layer **344**) and the outer layer (in this case, the outer layer **346**). In a further alternative, in any of the catheter tip embodiments disclosed or contemplated herein, the protective wrap (such as protective wrap **348**) can be integral with and an extended portion of the outer layer (such as outer layer **346**).

[0171] FIG. **16** shows another embodiment of a catheter tube **360** with an improved catheter tip **362**. The tube **360** has a first (or "inner") layer **364** and a second (outer) layer **366** that are positioned adjacent to each other and are attached to each other along a substantial length thereof. In this implementation, the protective wrap **368** is an extended portion **368** of the inner layer **364** that extends beyond the length of the outer layer **366** and, in this implementation, is folded such that the external portion or outer portion (also referred to herein as the "distal portion") **368**A of the extended portion **368** is positioned against or adjacent to the internal portion or inner portion (also referred to herein as the "proximal portion") **368**B and the distal end **370** of the external portion **368**A is positioned against or attached to the distal end **372** of the outer layer **366**. This configuration creates a fold **374** (also referred to herein as a "distal fold") of the extended portion **368** at the catheter tip **362** that facilitates protection of the tube layers at the tip **362**. Like the embodiment depicted in FIG. **15**, the configuration of the protective wrap **368** as shown ensures that the ends of the

layers **364**, **366** are not exposed at the distal end of the tube **360**, thereby reducing the risk of delamination and the problems related thereto.

[0172] A further implementation of a catheter tube **380** with an improved catheter tip **382** is depicted in FIG. **17**. The tube **380** has a first (inner) layer **384** and a second (outer) layer **386** that are positioned adjacent to each other and are attached to each other along a substantial length thereof. The protective wrap **388** in this embodiment is an extended portion **388** of the inner layer **384** that extends beyond the length of the outer layer **386** and, in this implementation, is wrapped around the distal end of the outer layer **386** such that the external portion of the extended portion **388** extends toward the proximal end of the tube **380** and is positioned against or adjacent to the exterior surface of the outer layer **386**. This configuration creates a fold **390** (also referred to herein as a "distal fold") of the extended portion **388** at the catheter tip **382** that facilitates protection of the tube layers at the tip **382**. However, unlike the embodiment in FIG. **15**, in this implementation, the external portion of the extended portion **388** is positioned in a recess **392** or other type of configuration formed or defined in the external surface of the outer layer **386** such that the external portion of the extended portion **388** is "flush" with the outer layer **386**. In other words, the external portion of the extended portion **388** is positioned in the recess **392** such that the external diameter of the tube **380** along the length in which the external portion of the extended portion **388** is positioned in the recess **392** is the same as (or similar to) the external diameter along the length made up solely of the inner **384** and outer layers **386**.

[0173] In an alternative implementation, the recess (such as recess **392**) can be created by a third layer (not shown), which is an additional outer layer that is external to the outer layer **386** and is positioned to create the recess **392**. In other words, in this alternative, the layer **386** as shown in FIG. **17** is no longer an outer layer but instead is a middle layer that has no recess defined therein. Instead, the third layer is positioned over the middle layer but is shorter than the middle layer, thus leaving a portion of the middle layer exposed near the distal end, thereby creating the recess **392**.

[0174] In this embodiment of FIG. **17**, the placement or disposition of the external portion of the protective wrap **388** in the recess **392** can create a smooth (also referred to as "non-catching" or "non-snagging") outer surface of the tube **380** that reduces or prevents the occurrence of friction or snagging of the outer surface of the tube **380** within a mating (telescopic) second catheter or within a lumen or blood vessel in a patient during advancement or retraction of the tube **380**. In other words, the smooth outer surface means that there is no catch point formed by the protective wrap **388** that could potentially cause difficulties or damage in advancing or removing the device in relation to a patient.

[0175] In accordance with a further implementation, any of the improved catheter tips as discussed above with respect to FIGS. **15-17** or contemplated elsewhere herein can also have variable stiffnesses along the length of the tip. For example, as shown with respect to FIG. **17**, in some embodiments, a distal portion **394** of the distal end of the tube **380** can be relatively stiffer than a proximal portion **396** of the distal end of the tube **380**. In certain specific implementations, the greater stiffness of the distal portion **394** is caused by the composition or materials of the distal portion **394** having a higher durometer than the composition or materials of the proximal portion **396**. Alternatively, the greater stiffness of the distal portion **394** can be accomplished in any known fashion. It is understood that the length of the tube **380** that is considered the distal portion **394** (and thus the proximal portion **396**) can vary, and that the specific lengths depicted in FIG. **17** are merely exemplary.

[0176] One of ordinary skill in the art would understand that any of the above multi-layer catheter embodiments or any other embodiments contemplated herein can have more than two layers. For example, in certain implementations, the catheter can have 3 layers. Alternatively, the catheter can have 4 layers. In further embodiments, the catheter can have 5 or more layers.

[0177] It is further understood that the tubes of the multi-layer catheter embodiments can be made of one or more additional known polymeric, metal, or other materials that are typically used in catheters. Further, any tube embodiment can also include one or more radiopaque markers, including the examples described in further detail below. Further, the various tube implementations can also include a metal braid or coil configuration in the tube for additional reinforcement.

[0178] As discussed above, it is also understood that the catheter tip embodiments disclosed or contemplated herein can be incorporated into any known multi-layer catheter devices. For example, in one implementation, a catheter tip embodiment could be incorporated into a guiding catheter, including, for example, the guiding catheter **12** depicted in FIG. **1** and discussed above. Alternatively, any of the catheter tip embodiments can be incorporated into any extension catheter such as those extension catheter embodiments disclosed or contemplated elsewhere herein. For example, any of the catheter tip embodiments disclosed or contemplated herein can be incorporated into the boosting catheter **10** as shown in FIGS. **2A** and **2B**, the extension catheters depicted in FIGS. **3A-3C** and FIGS. **4A-4B**, catheters having various manipulation shaft implementations such as those depicted in FIGS. **6A-6F**, and the boosting catheters **258** of FIGS. **12A-12C**, and any other catheter embodiments disclosed or contemplated herein. In addition, the various catheter tip embodiments disclosed herein can also be integrated into or combined with any known catheter. Further, it is understood that any of the improved catheter tip embodiments disclosed or contemplated herein can be integrated into or combined into a distal tip, including the distal end of any distal tube, of any of the various catheter implementations, such as guiding catheters, sheaths, delivery catheters (including stent delivery systems), snares, and arthorectomy catheters.

[0179] Further, it is understood that any of the various improved catheter tip embodiments disclosed or contemplated herein can be integrated into or combined with any boosting catheter, including the boosting catheter disclosed and claimed in U.S. application Ser. No. 14/210,572, entitled "Boosting Catheter and Related Systems and Methods," which is hereby incorporated herein by reference in its entirety.

[0180] In addition, any of the various catheter embodiments disclosed herein, including the various implementations having a segmented catheter structure and the various implementations having an improved catheter tip can have an external lubricious coating. The external lubricious coating can be positioned around or integral with an entire length of the distal tube (or any portion thereof), an entire length of the proximal shaft (or any portion thereof), or an entire length of both the distal tube and the proximal shaft (or any

Page 365

portions thereof). In some implementations, the lubricious coating can be hydrophobic, while in other embodiments it can be hydrophilic.

[0181] Further, any of the various catheter embodiments disclosed herein, including the various implementations having a discontinuous or segmented catheter structure and the various implementations having an improved catheter tip, can also have an outer support membrane (also referred to as a "support membrane" or "support layer") disposed around a proximal portion of the distal tube. It is also understood that any embodiment of the support membrane as disclosed or contemplated herein can also be incorporated into any other known catheter. FIG. **18** depicts one embodiment of a catheter **400** in which the distal tube **404** has a support membrane **406** disposed around and coupled to the external wall **408** of the distal tube **404**. More specifically, in this exemplary embodiment, the membrane **406** is disposed around a portion of the wall **408** and extends longitudinally along the length of the tube **404** such that the proximal end of the membrane **406** does not extend to the proximal end **410** of the tube **404**. That is, the membrane **406** is positioned such that it is spaced from the proximal end **410** of the tube **404**. Alternatively, the membrane **406** can extend to the proximal end **410** of the tube **404**. According to certain implementations, the membrane **406** is disposed in the connection zone (or region) of the distal tube **404** in which the manipulation shaft **402** is coupled to the tube **402** (similar to the connection zone **42** discussed above with respect to FIG. **3**A).

[0182] The membrane **406** (and any other membrane embodiment disclosed or contemplated herein) can wrap or otherwise be disposed around a portion of the circumference of the tube **404** as shown. Alternatively, the membrane can be an additional tube or tube layer that is disposed around the entire circumference of the tube **404**. In a further alternative, the membrane can be disposed around ¼, ½, or ¾ of the circumference of the tube **404**. In yet another alternative, as best shown in FIG. **19**, the membrane **406** can be disposed around any amount of the circumference of the tube **404**. That is, the membrane **406** can cover any amount of the circumference of the tube **404** from about 30 degrees to about 360 degrees of the circumference. It is understood that these characteristics can apply to any membrane embodiment disclosed or contemplated herein that is disposed around any tube, including any catheter tube.

[0183] The membrane **406** (and any other membrane embodiment disclosed or contemplated herein) can have any size, shape, or configuration. In certain implementations, the membrane can be circular, oval, or an ellipse. Further, any of the membrane embodiments disclosed or contemplated herein is not necessarily a unitary, uniform component. Instead, any membrane embodiment can have one or more openings defined therein. In certain implementations, the one or more openings can be one or more channels defined in the membrane. Alternatively, membrane can have any pattern, feature, or configuration that forms any shape or shapes.

[0184] The various membrane embodiments disclosed herein (including membrane **406**) can be made of any polymeric or non-polymeric material or any other known material that can be positioned around a catheter tube and is high strength and/or puncture resistant. For example, in one embodiment in which the material is polymeric, the material can be PTFE (etched or non-etched), PET, or PEEK or any other known polymeric material with the appropriate high strength and/or puncture resistance characteristics. In one embodiment, the membrane (such as membrane **406**) has a thickness ranging from about 0.00025 inches to about 0.2 inches. Alternatively, the membrane can have a thickness ranging from about 0.001 inches to about 0.005 inches.

[0185] The membrane **406** (or any other membrane implementation disclosed or contemplated herein) can be attached to the external wall (such as wall **408**) of the tube (such as tube **404**) in a reflow process (in which the tube materials are heated/melted and the membrane is heat bonded to the tube), via adhesive bonding, or any other known method of attachment.

[0186] FIG. **20** shows another embodiment of a catheter **420** with a membrane **426** disposed around the connection zone of the manipulation shaft **422** and the distal tube **424**. In this embodiment, the membrane **426** covers more of the circumference of the tube **424** in comparison to the membrane **406** discussed above and depicted in FIG. **19**. Further, in this implementation, the membrance extends longitudinally along the length of the tube **424** such that the proximal end of the membrane **426** extends to the proximal end **428** of the tube **424**. That is, the proximal end of the membrane **426** is positioned at the proximal end **428** of the tube **424**. Alternatively, the membrane **426** can be spaced from the proximal end **428** of the tube **424**.

[0187] A side view of another embodiment is shown in FIG. **21** in which the membrane **446** is positioned around the connection zone of the manipulation shaft **442** and the distal tube **444** of the catheter **440**.

[0188] As mentioned above, any embodiment of the support membrane can also be incorporated into any other known catheter. For example, in another implementation as depicted in FIG. **22**, the membrane **456** is positioned around the connection zone of the manipulation shaft **452** and the distal tube **454** of the catheter **450**. In this embodiment, the manipulation shaft **452** is a flat or substantially square shaft or wire **452**. Alternatively, the shaft **452** can have any known cross-sectional shape for a known component of a catheter. In further implementations, the shaft **452** can be tapered along some portion of its length or the entire length thereof.

[0189] In a further embodiment as shown in FIG. **23**, the membrane **466** can be positioned around another known catheter. In this implementation, the catheter **460** has a manipulation shaft **462** that can be a solid wire or hollow tube that is further joined to a cylindrical or partially-cylindrical structure **463**. The structure **463** is embedded within, or joined to, the wall at the proximal end of the distal tube **464**. In certain embodiments, the structure **463** can be slotted or have a pattern formed therein to enhance attachment and flexibility. The support membrane **466** is positioned around the circumference or a portion of the circumference of the distal tube **464** in the connection zone extending distally on the distal tube from the structure **463**. In certain embodiments, the support membrane **466** can enhance or strengthen the attachment of the structure **463** and the distal tube **464**.

[0190] In yet another implementation as shown in FIG. **24**, the membrane **476** can be positioned around another known catheter. That is, the membrane **476** is positioned around the connection zone of the manipulation shaft **472** and the distal tube **474** of the catheter **470**. In this embodiment, the manipulation shaft **472** has an extension **478** that extends into and is embedded within the proximal end of the distal

tube **474** as shown. The extension **478** in this embodiment has a configuration or features that strengthen the connection between the manipulation shaft **472** and the tube **474**, thereby reducing the risk of separation of those two components.

[0191] Without being limited by theory, it is believed that the membrane embodiments disclosed herein provide a higher strength bond for the proximal portion of the distal tube that the membrane is disposed around, along with enhanced torque, peel, and shear strength. In those implementations in which the membrane disposed around the proximal portion is disposed around the connection zone of the catheter, the added strength bond can increase tensile strength and help prevent or reduce the risk of delamination, thereby preventing or reducing the risk of separation of the proximal manipulation shaft from the distal tube. That is, the membrane can provide fatigue resistance at the connection zone. In known fatigue testing of known catheters, application of repeated stress to the connection zone of the catheters caused the proximal shaft to separate from the distal tube (which could result in detachment proximal shaft from the distal tube or embolization during use). The membrane embodiments disclosed herein can reduce or prevent the risk of such separation. In addition, the membrane embodiments can also provide enhanced lubricity and additional strain relief properties.

[0192] In certain embodiments as discussed above, the membrane is disposed around a portion of the circumference of the tube, rather than the entire circumference. According to certain implementations, any membrane disposed around less than the entire circumference can be called a "partial circumference membrane." One advantage of a partial circumference membrane made of a high strength material such as those discussed above is that it provides support without fully encircling the tube. It is understood that a membrane made of a high strength material (such as PTFE or PEEK) that fully encircles the catheter tube could cause the catheter tube to malfunction or not function properly. That is, the high strength material positioned entirely around the tube could render that portion of the tube too inflexible or otherwise inoperable for its desired purpose. Thus, in those circumstances, a partial circumference membrane can utilize a high strength material while not rendering the catheter tube hindered or inoperable.

[0193] Further, a partial circumference membrane can also have the advantage of providing the thinnest thickness (or lowest profile) possible when adding an additional layer to a tube. That is, a membrane that encircles the entire circumference of a tube will add more outer diameter to the tube than a partial circumference membrane. As such, any partial circumference membrane can minimize the additional circumference of a tube when the membrane is added thereto.

[0194] Certain additional embodiments as disclosed and contemplated herein relate to an improved proximal portion of a catheter tube that can be incorporated into any known multi-layer catheter, including any catheter disclosed herein or any other catheter for use in a human patient. As will be explained in further detail below, the various improved proximal tube portion embodiments disclosed herein have a protective wrap disposed at the proximal portion of the tube that eliminates any exposed ends of the tubular layers. It is understood that the improved proximal tube portion embodiments are substantially similar to the improved catheter tip embodiments discussed above.

[0195] One embodiment of catheter tube **500** with an improved proximal portion **502** is depicted in FIG. **25**. The tube **500** has a first layer (which, in this example, is also an inner layer) **504** and a second layer (which, in this example, is also an outer layer) **506**. The two layers **504**, **506** are positioned adjacent to each other and are adhered, coupled, or otherwise attached to each other along a substantial length of each. At least a portion of the inner layer **504** is a protective wrap (also referred to as an "extended portion," "extension," "distal wrap," or "protective tip") **508** that extends beyond the length of the outer layer **506** and, in this implementation, is wrapped around at least a portion of the distal end of the outer layer **506** as shown such that the external portion (also referred to as "outer portion" or "distal portion") of the extended portion **508** extends toward the distal end of the tube **500** and is positioned against or adjacent to the exterior surface of the outer layer **506**. This configuration creates a fold **510** (also referred to herein as a "distal fold") of the extended portion **508** along at least a portion of the proximal end **512** of the tube **500** that facilitates protection of the tube layers at the end **512**. In other words, the positioning of the extended portion **508** as shown ensures that the ends of the layers **504**, **506** are not exposed along that portion of the proximal end **512** of the tube **500** covered by the wrap **508**, thereby reducing the risk of delamination and the problems related thereto.

[0196] In this particular embodiment, the protective wrap **508** is integral with and is an extended portion of the inner layer **504**. Alternatively, in any of the improved proximal tube portion embodiments disclosed or contemplated herein, the protective wrap (such as protective wrap **508**) can be a separate component that is coupled to at least a portion of the distal ends of the inner layer (in this example, the inner layer **504**) and the outer layer (in this case, the outer layer **506**). In a further alternative, in any of the proximal tube portion embodiments disclosed or contemplated herein, the protective wrap (such as protective wrap **508**) can be integral with and an extended portion of the outer layer (such as outer layer **506**).

[0197] FIG. **26** shows another embodiment of a catheter tube **520** with an improved proximal tube portion **522**. The tube **520** has a first (or "inner") layer **524** and a second (outer) layer **526** that are positioned adjacent to each other and are attached to each other along a substantial length thereof. In this implementation, the protective wrap **528** is an extended portion **528** of the inner layer **524** that extends beyond the length of the outer layer **526** and, in this implementation, is folded such that the external portion or outer portion (also referred to herein as the "distal portion") **528A** of the extended portion **528** is positioned against or adjacent to the internal portion or inner portion (also referred to herein as the "proximal portion") **528B** along at least a portion of the circumference of the end **536** and the distal end **530** of the external portion **528A** is positioned against or attached to the proximal end **532** of the outer layer **526**. This configuration creates a fold **534** (also referred to herein as a "distal fold") of the extended portion **528** at the proximal end **536** along at least a portion of the end **536** that facilitates protection of the tube layers at the end **536**. Like the embodiment depicted in FIG. **25**, the configuration of the protective wrap **528** as shown ensures that at least a portion of the ends of the layers **524**, **526** are not exposed at the proximal end **536** of the tube **520**, thereby reducing the risk of delamination and the problems related thereto.

[0198] Additional implementations similar to those discussed above with respect to FIGS. 15-17 and any other embodiments contemplated in the discussion above are also contemplated for the proximal tube end improvements. That is, any features or configurations of the improved distal tip embodiments discussed above and depicted in FIGS. 15-17 can also be incorporated into any of the embodiments of the improved proximal portions as discussed above and depicted in FIGS. 25-26. However, in certain embodiments of the improved proximal portion as noted above, the protective wrap does not extend around the entire circumference of the proximal end of the tube. As discussed above, it is also understood that the improved proximal end embodiments disclosed or contemplated herein can be incorporated into any known multi-layer catheter devices. Further, it is understood that any of the various improved proximal end embodiments disclosed or contemplated herein can be integrated into or combined with any boosting catheter, including the boosting catheter disclosed and claimed in U.S. application Ser. No. 14/210,572, entitled "Boosting Catheter and Related Systems and Methods," which is hereby incorporated herein by reference in its entirety.

[0199] While multiple embodiments are disclosed, still other embodiments of the present invention will become apparent to those skilled in the art from the following detailed description, which shows and describes illustrative embodiments of the invention. As will be realized, the invention is capable of modifications in various obvious aspects, all without departing from the spirit and scope of the present invention. Accordingly, the drawings and detailed description are to be regarded as illustrative in nature and not restrictive.

What is claimed is:

1. A catheter comprising:

(a) a distal tube comprising a tubular wall and a tube lumen defined within the tube by the tubular wall;

(b) a support membrane disposed around a portion of the distal tube; and

(c) a proximal shaft operably coupled to a proximal portion of the distal tube, the proximal shaft comprising:

(i) a first elongate member;

(ii) a second elongate member; and

(iii) a first sheath segment disposed around a first length of the first and second elongate members such that the first length of the first and second elongate members is disposed within the first sheath segment,

wherein the first and second elongate members are configured to extend distally into a portion of the distal tube.

2. The catheter of claim 1, wherein the proximal shaft further comprises a second sheath segment disposed around a second length of the first and second elongate members such that the second length of the first and second elongate members is disposed within the second sheath segment, wherein a total length of the first and second sheath segments is less than a total length of the first and second elongate members.

3. The catheter of claim 1, wherein the proximal shaft further comprises a second sheath segment disposed around a second length of the first and second elongate members such that the second length of the first and second elongate members is disposed within the second sheath segment; and at least one unsheathed segment wherein a length of the first and second elongate members is not disposed within the sheath.

4. The catheter of claim 1, wherein the proximal shaft comprises at least one additional sheath segment, wherein each of the at least one additional sheath segments is disposed around a different length of the first and second elongate members.

5. The catheter of claim 4, wherein the proximal shaft comprises at least one unsheathed segment wherein a length of the first and second elongate members is not disposed within the sheath.

6. The catheter of claim 1, wherein at least one of the first and second elongate members defines a lumen within the at least one of the first and second elongate members.

7. The catheter of claim 1, wherein at least one of the first and second elongate members has no lumen.

8. The catheter of claim 1, wherein the first elongate member is configured to extend distally into a first portion of the tubular wall, and further wherein the second elongate member is configured to extend distally into a second portion of the tubular wall.

9. The catheter of claim 1, wherein the proximal shaft further comprises a shaft lumen defined by the first sheath segment.

10. The catheter of claim 9, wherein the proximal shaft further comprises a distal opening in fluid communication with the shaft lumen, whereby the shaft lumen is in fluid communication with the tube lumen.

11. The catheter of claim 10, wherein the shaft lumen is configured to receive fluid such that fluid can be caused to flow distally through the proximal shaft and out of the distal opening.

12. The catheter of claim 10, wherein the proximal shaft is configured to extend distally into a portion of the tubular wall such that the shaft lumen extends distally into the tubular wall and such that the distal opening is in fluid communication with the tube lumen.

13. The catheter of claim 9, wherein the shaft lumen is not in fluid communication with the tube lumen.

14. The catheter of claim 9, wherein the proximal shaft further comprises a distal opening in fluid communication with the shaft lumen, whereby the shaft lumen is in fluid communication with an area external to the catheter.

15. The catheter of claim 9, wherein the proximal shaft further comprises a distal opening in fluid communication with the shaft lumen, whereby the shaft lumen is in fluid communication with an area external to the catheter and proximal to the distal tube.

16. The catheter of claim 9, wherein the proximal shaft further comprises a distal opening in fluid communication with the shaft lumen, whereby the shaft lumen is in fluid communication with an area external to the catheter and distal to the distal tube.

17. The catheter of claim 1, further comprising at least one support member disposed in the proximal portion of the distal tube.

18. The catheter of claim 1, wherein a distal portion of the proximal shaft is at least one support member disposed in the proximal portion of the distal tube.

19. The catheter of claim 1, wherein the proximal shaft comprises a third elongate member.

20. The catheter of claim 19, wherein the proximal shaft comprises at lease one additional elongate member.

21. The catheter of claim 1, further comprising a filler material disposed within at least a portion of the first sheath segment.

22. The catheter of claim 1, further comprising a filler material disposed within at least a portion of the first sheath segment and at least a portion of a second sheath segment.

23. The catheter of claim 1, wherein the first length of the first and second elongate members is an entire length of the first and second elongate members, such that the first sheath segment is disposed around the entire length of the first and second elongate members.

24. The catheter of claim 1, wherein the first length of the first and second elongate members is a portion of an entire length of the first and second elongate members such that the first sheath segment is disposed around the portion of the entire length of the first and second elongate members.

25. The catheter of claim 1, further comprising a second sheath segment disposed around a second length of the first and second elongate members such that the second length of the first and second elongate members is disposed within the second sheath segment, wherein the proximal shaft further comprises a first shaft lumen defined by the first sheath segment and a second shaft lumen defined by the second sheath segment.

26. A catheter comprising:

(a) a distal tube comprising a tubular wall and a tube lumen defined within the tube by the tubular wall;

(b) a support membrane disposed around a portion of the distal tube; and

(c) a proximal shaft operably coupled to a proximal portion of the distal tube, the proximal shaft comprising:

(i) a first elongate member;

(ii) a second elongate member;

(iii) at least one sheath segment disposed around a length of the first and second elongate members such that the length of the first and second elongate members is disposed within the at least one sheath segment; and

(iv) at least one unsheathed segment wherein a length of the first and second elongate members is not disposed within any sheath segment.

wherein the first and second elongate members are configured to extend distally into a portion of the distal tube.

27. The catheter of claim 26, wherein characteristics of the at least one sheath segment determine torsional compliance characteristics of the catheter.

28. The catheter of claim 26, wherein the first and second elongate members are disposed in rolling contact with each other along the unsheathed segment.

29. The catheter of claim 26, wherein the first and second elongate members are disposed in sliding contact with each other along the unsheathed segment.

30. The catheter of claim 26, wherein the first and second elongate members are disposed in rolling and sliding contact with each other along the unsheathed segment.

31. The catheter of claim 26, wherein the first and second elongate members are disposed in rolling contact with each other within the sheath segment.

32. The catheter of claim 26, wherein the first and second elongate members are disposed in sliding contact with each other within the sheath segment.

33. The catheter of claim 26, wherein the first and second elongate members are disposed in rolling and sliding contact with each other within the sheath segment.

34. The catheter of claim 26, wherein characteristics of the at least one unsheathed segment determine torsional compliance characteristics of the catheter.

35. A method of using a extension catheter in combination with a standard guiding catheter to perform a procedure at a predetermined location within the vasculature of a patient, the method comprising:

positioning the standard guiding catheter into a target vessel in the patient;

selecting the extension catheter based on desired torsional compliance characteristics, the extension catheter comprising:

(a) a distal tube comprising a tubular wall and a tube lumen defined within the tube by the tubular wall;

(b) a support membrane disposed around a portion of the distal tube; and

(c) a proximal shaft operably coupled to a proximal portion of the distal tube, the proximal shaft comprising:

(i) a first elongate member;

(ii) a second elongate member;

(iii) at least one sheath segment disposed around a length of the first and second elongate members such that the length of the first and second elongate members is disposed within the at least one sheath segment; and

(iv) at least one unsheathed segment wherein a length of the first and second elongate members is not disposed within any sheath segment.

wherein the torsional compliance characteristics are determined based on the at least one sheath segment and the at least one unsheathed segment;.

inserting the extension catheter into the standard guiding catheter;

urging the extension catheter distally through the standard guiding catheter such that a distal portion of the distal tube extends distally out of the distal end of the standard guiding catheter; and

performing a procedure through the extension catheter and standard guiding catheter.

36. The method of claim 35, wherein an increase in size or number of the at least one sheath segment decreases the torsional compliance characteristics of the catheter.

37. The method of claim 35, wherein an increase in size or number of the at least one unsheathed segment increases the torsional compliance characteristics of the catheter.

38. The method of claim 35, further comprising adding a filler material to at least a portion of the sheath segment, wherein the filler material is a binding material, wherein adding the binding material decreases the torsional compliance characteristics of the catheter.

39. The method of claim 35, further comprising adding a filler material to at least a portion of the sheath segment, wherein the filler material is a lubricant, wherein adding the lubricant increases the torsional compliance characteristics of the catheter.

40. The catheter of claim 1, wherein the support membrane is a partial circumference membrane.

41. The catheter of claim 1, wherein the distal tube further comprises a protective wrap disposed around a portion of a proximal opening of the distal tube.

Page 369

42. The catheter of claim 1, wherein the distal tube comprises a distal portion that has a higher stiffness than a proximal portion.

* * * * *

Page 370

Electronic Patent Application Fee Transmittal					
Application Number:	14984273				
Filing Date:	30-Dec-2015				
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES				
First Named Inventor/Applicant Name:	Howard C. Root				
Filer:	Paul C. Onderick/Michelle Arcand				
Attorney Docket Number:	2005.86USREI7				
Filed as Large Entity					
Filing Fees for Utility under 35 USC 111(a)					
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:					
Extension-of-Time:					

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	1253	1	1400	1400
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	240	240
		Total in USD ($)		**1640**

Page 372

Electronic Acknowledgement Receipt	
EFS ID:	31553432
Application Number:	14984273
International Application Number:	
Confirmation Number:	5700
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard C. Root
Customer Number:	24113
Filer:	Paul C. Onderick/Michelle Arcand
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86USREI7
Receipt Date:	19-JAN-2018
Filing Date:	30-DEC-2015
Time Stamp:	15:40:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1640
RAM confirmation Number	012218INTEFSW15414700
Deposit Account	160631
Authorized User	Paul Onderick
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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		2005_86USREI7_AMEND.pdf	1529004 019ee5cb0ff1b16be14605e70a2b0bb78b600f02	yes	35
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Specification		2	2	
	Claims		3	16	
	Applicant Arguments/Remarks Made in an Amendment		17	35	
Warnings:					
Information:					
2	Extension of Time	2005_86USREI7_EXT.pdf	46313 e2ecf73e006f6bb385382b5a38b1e097f89c0a5b	no	1
Warnings:					
Information:					
3	Transmittal Letter	2005_86USREI7_SIDSTRANSMITTAL.pdf	78277 3610a23c2e65eaf715ea3e7250406afab77a3458	no	2
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	2005_86USREI7_PTO1449.pdf	121908 830c00bb26efffe6b2dea541a75330128dc6ddc7	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					

5	Non Patent Literature	ComplaintJuryTrialDemanded_06082017_NPL.pdf	765976 e445354cfb0d91f23310cbc8caaf105912e609a8	no	6
Warnings:					
Information:					
6	Non Patent Literature	QXMedicalAnswerToCounterclaim_08112017_NPL.pdf	1755089 8c5eaf4484ae23852f1b4d2d6fa38a538f466dd3	no	11
Warnings:					
Information:					
7	Non Patent Literature	FirstAmendedComplaintJurylTrialDemanded_06272017_NPL1.pdf	22840086 1d8eeb843b46e3b3b1a01375e68af26a472409e7	no	135
Warnings:					
Information:					
8	Non Patent Literature	FirstAmendedComplaintJurylTrialDemanded_06272017_NPL2.pdf	23908318 2845fb49996cd52b81966c49e7fd22ce6c4a351d	no	128
Warnings:					
Information:					
9	Non Patent Literature	DefendantsAnswerToPlaintiffsFirstAmendedComplaintAndDefendantsCounterclaim_07212017_NPL.pdf	2945697 58259e3e95b0d0e9f3112c2654ce7975b0300364	no	19
Warnings:					
Information:					
10	Non Patent Literature	QXMedicalPriorArtStatement_10302017_NPL1.pdf	22323211 98fc7fcd48ef0bc40c3fa4f294a368ebbed5a162	no	140
Warnings:					
Information:					
11	Non Patent Literature	QXMedicalPriorArtStatement_10302017_NPL2.pdf	14883621 547be5654c086660bdc50a0fe97a5a36c1d34cbb	no	90
Warnings:					
Information:					

12	Non Patent Literature	QXMedicalPriorArtStatement_10302017_NPL3.pdf	23566888 ba92674d35a2713a3c7462b8a6952a0c77c43f58	no	125
Warnings:					
Information:					
13	Non Patent Literature	DefendantVascularSolutionsInfringementDisclosureAndClaimChart_09012017_NPL1.pdf	23228900 78c79f5e992d8b48a01e524f26ef0c043c743988	no	130
Warnings:					
Information:					
14	Non Patent Literature	DefendantVascularSolutionsInfringementDisclosureAndClaimChart_09012017_NPL2.pdf	25330249 a6be0169d775b963b0885f869d3f8548459c1843	no	131
Warnings:					
Information:					
15	Non Patent Literature	QXMedicalNonInfringementChart_10302017_NPL.pdf	22310105 d62636a74f3ea850a2a70a40641db78c998e4fde	no	137
Warnings:					
Information:					
16	Non Patent Literature	DefendantVascularSolutionsResponsivePriorArtStatement_12082017_NPL1.pdf	25736021 86aaa38a922aeef3ea81a04be57ee0b19586eec8	no	140
Warnings:					
Information:					
17	Non Patent Literature	DefendantVascularSolutionsResponsivePriorArtStatement_12082017_NPL2.pdf	17342435 75399903dfa9585e08477a369bf5950557f4218f	no	90
Warnings:					
Information:					
18	Non Patent Literature	DefendantVascularSolutionsResponsivePriorArtStatement_12082017_NPL3.pdf	18204101 88fe8626981723255969e1854fcd36deca829abc	no	85
Warnings:					
Information:					

19	Non Patent Literature	LtrToMerrillFromVitt_NPL.pdf	9711376 b887fea96994d6efb9a98e8bd6942cfc98a0a08c	no	108
Warnings:					
Information:					
20	Fee Worksheet (SB06)	fee-info.pdf	32877 799ab9c83b88ffb5b54ebe7033aaca00698d6107	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	256660452		

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.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/984,273	Filing Date 12/30/2015	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ 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).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	01/19/2018	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 45	Minus	** 45	= 0	X $100 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $460 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						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 number found in the appropriate box in column 1.

LIE
VIOLA ROGERS

This collection of information is required by 37 CFR 1.16. 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,273	12/30/2015	Howard C. Root	2005.86USREI7	5700

24113 7590 01/24/2018

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

EXAMINER	
WILLIAMS, CATHERINE SERKE	

ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
01/24/2018	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Applicant-Initiated Interview Summary	Application No.	Applicant(s)	
	14/984,273	ROOT ET AL.	
	Examiner	Art Unit	
	CATHERINE S. WILLIAMS	3993	

All participants (applicant, applicant's representative, PTO personnel):

(1) *CATHERINE S. WILLIAMS*.

(2) *Paul Onderick*.

(3) *Cary Wehner*.

(4) *Eileen Lillis*.

Date of Interview: *10 January 2018*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☒112 ☒102 ☒103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *25 and 38*.

Identification of prior art discussed: *Adams, Kraus, Solar*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

See Continuation Sheet.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/Catherine S. Williams/	/cew/ /EDL/

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Page 381

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Mr. Onderick began by discussing the recapture rejections and indicating that the surrendered subject matter would be written back into the claims. Additionally, he indicated that a Terminal Disclaimer would be filed once allowable subject matter was indicated and if still applicable. Further, the 112 rejections would be addressed through discussion of the figures and indication of disclosure therein. Finally, the 102 and 103 rejections were discussed with respect to the prior art. Specifically, the side opening with respect to the coaxial lumen was discussed. Mr. Onderick indicated that new/amended claim language would be persued with respect to the side opening being coaxial with the lumen of the reinforced segment. Ex. Williams expressed concern as to how a side opening could be both on the side and coaxial with the segment and drew attention to Kraus teaching a side opening in fig. 5. Mr. Onderick drew attention to fig. 4 of the instant patent as showing the side lumen being coaxial unlike Kraus. Additionally, attention was drawn to col. 6, ll. 50-68 of the subject patent as disclosing the structure of the side opening. Ex. Lillis indicated that the first mention of a side open in the patent specification occurred in claim 3. Ex. Williams indicated that the language of col. 6 would be most helpful in defining the invnetion over the prior art. Other formal matters were discussed including the ADS and Consent of Assignee. No indication of allowability was given .

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:	Attorney Docket No.: 2005.86USREI7
Root et al.	Confirmation No.: 5700
Application No.: 14/984,273	Examiner: Catherine Serke Williams
Filed: December 30, 2015	Group Art Unit: 3993

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

REQUEST FOR CORRECTED FILING RECEIPT

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

Commissioner:

Applicant notes the following errors in the official Filing Receipt mailed March 25, 2016:

Applicant(s)

~~VASCULAR SOLUTIONS, INC., Minneapolis, MN, Assignee (with 37 CFR 1.172 Interest);~~

Teleflex Innovations S.à.R.L., Grand Duchy, LU, Assignee (with 37 CFR 1.172 Interest);

Assignment for Published Patent Application

~~VASCULAR SOLUTIONS, INC., Minneapolis, MN~~

Teleflex Innovations S.à.R.L., Grand Duchy, LU

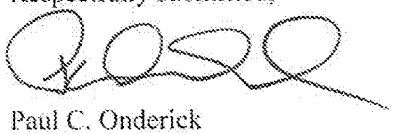
Page 383

Domestic Priority data as claimed by applicant

This application is a CON of 14/195,435 03/03/2014 PAT RE46116
which is a CON of 14/070,161 11/01/2013 PAT RE45380
which is a REI of 13/359,059 01/26/2012 PAT 8292850
which 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
This application is a REI of 13/359,059 01/26/2012 PAT 8292850
which 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

Enclosed is a photocopy of the filing receipt with the corrections required marked. Applicant requests issuance of a corrected filing receipt.

Respectfully submitted,



Paul C. Onderick
Registration No. 45354

Customer No. 24113
Patterson Thuente 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.

Page 384

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
14/984,273	12/30/2015	3761	3260	2005.86USRE17	21	2

CONFIRMATION NO. 5700

UPDATED FILING RECEIPT

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

Date Mailed: 03/25/2016

Receipt is acknowledged of this reissue 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**

Inventor(s)

Howard C. Root, Tonka Bay, MN;
Gregg Sutton, Plymouth, MN;
Jeffrey M. Welch, Maple Grove, MN;
Jason M. Garrity, Lima, NY;

Applicant(s) Teleflex Innovations S.à.R.L., Grand Duchy, LU, Assignee (with 37 CFR 1.142 Interest);
~~VASCULAR SOLUTIONS, INC., Minneapolis, MN, Assignee (with 37 CFR 1.172 Interest);~~

Assignment For Published Patent Application

~~VASCULAR SOLUTIONS, INC., Minneapolis, MN~~ Teleflex Innovations S.à.R.L., Grand Duchy, LU

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

Domestic Priority data as claimed by applicant

This application is a CON of 14/195,435 03/03/2014 PAT RE46116
which is a CON of 14/070,161 11/01/2013 PAT RE45380
which is a REI of 13/359,059 01/26/2012 PAT 8292850
which 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

This application is a REI of 13/359,059 01/26/2012 PAT 8292850
which 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 for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 01/21/2016
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/984,273**
Projected Publication Date: None, application is not eligible for pre-grant publication
Non-Publication Request: No
Early Publication Request: No
Title

COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

Preliminary Class

604

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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

Page 386

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 (1-866-999-4258).

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).

---

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Page 388

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Howard	C.	Root	

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

City	Tonka Bay	State/Province	MN	Country of Residence	US

Mailing Address of Inventor:

Address 1	25 Fairhope Avenue		
Address 2			
City	Tonka Bay	State/Province	MN
Postal Code	55331	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Gregg		Sutton	

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

City	Plymouth	State/Province	MN	Country of Residence	US

Mailing Address of Inventor:

Address 1	18400 31st Avenue North		
Address 2			
City	Plymouth	State/Province	MN
Postal Code	55447	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jeffrey	M.	Welch	

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

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

Mailing Address of Inventor:

Address 1	8723 Cornstock Lane North		
Address 2			
City	Maple Grove	State/Province	MN
Postal Code	55311	Country i	US

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jason	M.	Garrity	

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

City	Lima	State/Province	NY	Country of Residence i	US

Mailing Address of Inventor:

Address 1	2838 Livonia Center Road		
Address 2			
City	Lima	State/Province	NY
Postal Code	14485	Country i	US

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

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	24113		
Email Address	onderick@ptslaw.com	Add Email	Remove Email
Email Address	pedersen@ptslaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES		
Attorney Docket Number	2005.86USREI7	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

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.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	24113		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim 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.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Patented ~~Pending~~			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	~~continuation of reissued of~~	14/195435	2014-03-03	RE46116	2016-08-23

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Prior Application Status	Patented ~~Pending~~			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/195435	~~continuation of reissued of~~	14/070161	2013-11-01	RE45380	2015-02-17
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/070161	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/359059	Division of	12/824734	2010-06-28	8142413	2012-03-27
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12/824734	Division of	11/416629	2006-05-03	8048032	2011-11-01
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/359059	Division of	12/824734	2010-06-28	8142413	2012-03-27
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12/824734	Division of	11/416629	2006-05-03	8048032	2011-11-01

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Remove

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

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Applicant Information:

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

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

○ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
◉ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	~~VASCULAR SOLUTIONS, INC.~~ Teleflex Innovations S.à.R.L.		
Mailing Address Information For Applicant:			
Address 1	~~6464 Sycamore Court North~~ 560A, rue de Neudorf		
Address 2			
City	~~Minneapolis~~ Grand Duchy	**State/Province**	~~MN~~
Country	~~US~~ LU	Postal Code	~~55369~~ L-2220
Phone Number		Fax Number	
Email Address			

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

Assignee Information including Non-Applicant Assignee Information:

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

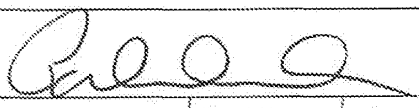
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature				Date (YYYY-MM-DD)	2018-11-25
First Name	Paul	Last Name	Onderick	Registration Number	45354

Additional Signature may be generated within this form by selecting the Add button.

Page 396

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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 the Freedom of Information Act requires disclosure of these records.

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 CooperationTreaty.

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 inspections 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.

EFS Web 2.2.12

Page 398

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Howard C. Root et al.

Application No./Patent No.: 14/984,273 Filed/Issue Date: December 30, 2015

Titled: Coaxial Guide Catheter for Interventional Cardiology Procedures

Teleflex Innovations S.à.R.L., a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Howard C. Root et al. To: Vascular Solutions, Inc.

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: Vascular Solutions, Inc. To: Vascular Solutions LLC

   The document was recorded in the United States Patent and Trademark Office at

   Reel _____, Frame _____, or for which a copy thereof is attached.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(c)

3. From: Vascular Solutions LLC To: Teleflex Innovations S.à.R.L.

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

_____ 1-25-2018
Signature Date

Paul C. Onderick 45354
Printed or Typed Name Title or Registration Number

Page 400

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.

United States Patent and Trademark Office

Electronic Patent Assignment System

Confirmation Receipt

Your assignment has been received by the USPTO.
The coversheet of the assignment is displayed below:

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

SUBMISSION TYPE:	CORRECTIVE ASSIGNMENT
NATURE OF CONVEYANCE:	Corrective Assignment to correct the NAME OF ASSIGNEE (TYPOGRAPHICAL ERROR IN ASSIGNMENT DOCUMENT) previously recorded on Reel 027729 Frame 0760. Assignor(s) hereby confirms the ASSIGNEE'S NAME SHOULD BE VASCULAR SOLUTIONS, INC.

CONVEYING PARTY DATA

Name	Execution Date
HOWARD ROOT	05/22/2006
GREGG SUTTON	05/22/2006
JEFFREY M. WELCH	05/18/2006
JASON M. GARRITY	05/18/2006

RECEIVING PARTY DATA

Name:	VASCULAR SOLUTIONS, INC.
Street Address:	6464 SYCAMORE COURT NORTH
City:	MINNEAPOLIS
State/Country:	MINNESOTA
Postal Code:	55369

PROPERTY NUMBERS Total: 1

Property Type	Number

Application Number:	13359059

CORRESPONDENCE DATA

Fax Number:	(612)349-9266
Phone:	612-349-5745
Email:	pommier@ptslaw.com

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Correspondent Name:	PAUL C. ONDERICK
Address Line 1:	80 SOUTH 8TH STREET
Address Line 2:	4800 IDS CENTER
Address Line 4:	MINNEAPOLIS, MINNESOTA 55402

ATTORNEY DOCKET NUMBER:	2005.86US03
NAME OF SUBMITTER:	ANN POMMIER
Signature:	/Ann Pommier/
Date:	01/17/2018

Total Attachments: 8
source=2005.86US03 - Corrective Assignment#page1.tif
source=2005.86US03 - Corrective Assignment#page2.tif
source=2005.86US03 - Corrective Assignment#page3.tif
source=2005.86US03 - Corrective Assignment#page4.tif
source=2005.86US03 - Corrective Assignment#page5.tif
source=2005.86US03 - Corrective Assignment#page6.tif
source=2005.86US03 - Corrective Assignment#page7.tif
source=2005.86US03 - Corrective Assignment#page8.tif

RECEIPT INFORMATION

EPAS ID:	PAT4780093
Receipt Date:	01/17/2018

Return to home page

| .HOME | INDEX| SEARCH | eBUSINESS | CONTACT US | PRIVACY STATEMENT

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

SUBMISSION TYPE:	CORRECTIVE ASSIGNMENT
NATURE OF CONVEYANCE:	Corrective Assignment to correct the NAME OF ASSIGNEE (TYPOGRAPHICAL ERROR IN ASSIGNMENT DOCUMENT) previously recorded on Reel 027729 Frame 0760. Assignor(s) hereby confirms the ASSIGNEE'S NAME SHOULD BE VASCULAR SOLUTIONS, INC.

CONVEYING PARTY DATA

Name	Execution Date
HOWARD ROOT	05/22/2006
GREGG SUTTON	05/22/2006
JEFFREY M. WELCH	05/18/2006
JASON M. GARRITY	05/18/2006

RECEIVING PARTY DATA

Name:	VASCULAR SOLUTIONS, INC.
Street Address:	6464 SYCAMORE COURT NORTH
City:	MINNEAPOLIS
State/Country:	MINNESOTA
Postal Code:	55369

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	13359059

CORRESPONDENCE DATA

Fax Number: (612)349-9266
Phone: 612-349-5745
Email: pommier@ptslaw.com
Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.
Correspondent Name: PAUL C. ONDERICK
Address Line 1: 80 SOUTH 8TH STREET
Address Line 2: 4800 IDS CENTER
Address Line 4: MINNEAPOLIS, MINNESOTA 55402

ATTORNEY DOCKET NUMBER:	2005.86US03

Page 404

NAME OF SUBMITTER:	ANN POMMIER
Signature:	/Ann Pommier/
Date:	01/17/2018

Total Attachments: 8
source=2005.86US03 - Corrective Assignment#page1.tif
source=2005.86US03 - Corrective Assignment#page2.tif
source=2005.86US03 - Corrective Assignment#page3.tif
source=2005.86US03 - Corrective Assignment#page4.tif
source=2005.86US03 - Corrective Assignment#page5.tif
source=2005.86US03 - Corrective Assignment#page6.tif
source=2005.86US03 - Corrective Assignment#page7.tif
source=2005.86US03 - Corrective Assignment#page8.tif

RECEIPT INFORMATION

EPAS ID:	PAT4780093
Receipt Date:	01/17/2018

ASSIGNMENT

WHEREAS, we, Howard Root of Excelsior, Minnesota; Gregg Sutton of Maple Grove, Minnesota; Jeffrey M. Welch of Maple Grove, Minnesota; and Jason M. Garrity of Minneapolis Minnesota, have invented certain new and useful improvements in COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES, for which an application for Letters Patent of the United States has made, said application having been executed on even date herewith, and which may be identified in the United States Patent Office by Application No. 11/416,629, filed May 3, 2006.

WHEREAS, Vascular Solutions, Inc. ("Assignee"), a business entity organized and existing under the laws of the State of Minnesota, and having its principal offices at 6464 Sycamore Court, Minneapolis, Minnesota, is desirous of acquiring the entire right, title and interest in and to said invention, said application and in, to and under any and all Letters Patent to be obtained therefor;

NOW, THEREFORE, for and in consideration of One Dollar ($1.00) and other good and valuable consideration to us in hand paid by said Assignee, the receipt of which is hereby acknowledged, we have sold, assigned and transferred, and by these presents do hereby sell, assign and transfer unto the said Assignee, its successors and assigns, our entire right, title and interest in and to said invention, said application, all applications claiming priority to said application including all divisions, continuations or renewals thereof, and the Letters Patent, both foreign and domestic, that may or shall issue, therefrom including all reissues or extensions of such patents including all of our rights under the International Convention, and we do hereby authorize and request the Commissioner of Patents to issue said Letters Patent to the above mentioned Assignee in accordance herewith.

We hereby authorize the above mentioned Assignee, its successors and assigns, or anyone it may properly designate, to insert in this instrument the date of execution and/or filing date and application number of said application when ascertained.

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

Upon said consideration we do hereby covenant and agree with the said Assignee, its successors and assigns, that we will not execute in writing or do any act whatsoever conflicting with these presents, and that we or our executors or administrators will at any time upon request, without further or additional consideration, but at the expense of the said Assignee, its successors and assigns, execute such additional writings and do such additional acts as said Assignee, its successors and assigns, may deem necessary or desirable to perfect the Assignee's enjoyment of this grant, and render all necessary assistance in making application for and obtaining original, divisional, reissued or extended Letters Patent of the United States, or of any and all foreign

Page 406

countries on said invention, and in enforcing any rights occurring as a result of such applications or patents, by giving testimony in any proceedings or transactions involving such applications or patents.

IN WITNESS WHEREOF, we have hereunto set our hands and affixed our seal as dated below.

Date: May 22, 2006

Howard ROOT

Subscribed and sworn to before me
this 22nd day of May, 2006

Notary Public

[Notary Seal] MOLLY PATRICIA WOODS NOTARY PUBLIC – MINNESOTA MY COMMISSION EXPIRES 1-31-10

Date: 5/22/06

Gregg SUTTON

Subscribed and sworn to before me
this 22nd day of May, 2006

Notary Public

[Notary Seal] MOLLY PATRICIA WOODS NOTARY PUBLIC – MINNESOTA MY COMMISSION EXPIRES 1-31-10

Date: 5/18/06

Jeffrey M. WELCH

Subscribed and sworn to before me
this 18th day of May, 2006

Page 407

Molly P. Woods
Notary Public

[Notary Seal]
MOLLY PATRICIA WOODS
NOTARY PUBLIC – MINNESOTA
MY COMMISSION EXPIRES 1-31-12

Date: 5-18-06

Jason M. GARRITY

Subscribed and sworn to before me
this 18 day of May, 2006

Molly P. Woods
Notary Public

[Notary Seal]
MOLLY PATRICIA WOODS
NOTARY PUBLIC – MINNESOTA
MY COMMISSION EXPIRES 1-31-12

Page 408

UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

FEBRUARY 22, 2012

PTAS

ALLISON GOETTE
80 SOUTH 8TH STREET
4800 IDS CENTER
MINNEAPOLIS, MN 554022100

501825481

UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT RECORDATION BRANCH OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE ASSIGNMENT RECORDATION BRANCH AT 571-272-3350. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, MAIL STOP: ASSIGNMENT RECORDATION BRANCH, P.O. BOX 1450, ALEXANDRIA, VA 22313.

RECORDATION DATE: 02/20/2012 REEL/FRAME: 027729/0760
NUMBER OF PAGES: 4

BRIEF: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).

DOCKET NUMBER: 2005.86US03

ASSIGNOR:
ROOT, HOWARD DOC DATE: 05/23/2006

ASSIGNOR:
SUTTON, GREGG DOC DATE: 05/22/2006

ASSIGNOR:
WELCH, JEFFREY M. DOC DATE: 05/18/2006

ASSIGNOR:
GARRITY, JASON M. DOC DATE: 05/18/2006

ASSIGNEE:
VASCULAR SOLUTIONS, INC.
6464 SYCAMORE COURT NORTH
MINNEAPOLIS, MINNESOTA 55369

APPLICATION NUMBER: 13359059 FILING DATE: 01/26/2012
PATENT NUMBER: ISSUE DATE:
TITLE: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

P.O. Box 1450, Alexandria, Virginia 22313-1450 - WWW.USPTO.GOV

ASSIGNMENT RECORDATION BRANCH
PUBLIC RECORDS DIVISION

Page 410

501825481 02/20/2012

PATENT ASSIGNMENT

Electronic Version v1.1
Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
Howard Root	05/23/2006
Gregg Sutton	05/22/2006
Jeffrey M. Welch	05/18/2006
Jason M. Garrity	05/18/2006

RECEIVING PARTY DATA

Name:	Vascular Solutions, Inc.
Street Address:	6464 Sycamore Court North
City:	Minneapolis
State/Country:	MINNESOTA
Postal Code:	55369

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	13359059

OP $40.00 13359059

CORRESPONDENCE DATA

Fax Number: (612)349-9266
Phone: 612-252-1559
Email: goette@ptslaw.com
Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.
Correspondent Name: Allison Goette
Address Line 1: 80 South 8th Street
Address Line 2: 4800 IDS Center
Address Line 4: Minneapolis, MINNESOTA 554022100

ATTORNEY DOCKET NUMBER:	2005.86US03
NAME OF SUBMITTER:	Allison Goette

Total Attachments: 3
source=2005_86US03_Assignment#page1.tif
source=2005_86US03_Assignment#page2.tif
source=2005_86US03_Assignment#page3.tif

Page 411

PATENT ASSIGNMENT

Electronic Version v1.1
Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
Howard Root	05/23/2006
Gregg Sutton	05/22/2006
Jeffrey M. Welch	05/18/2006
Jason M. Garrity	05/18/2006

RECEIVING PARTY DATA

Name:	Vascular Solutions, Inc.
Street Address:	6464 Sycamore Court North
City:	Minneapolis
State/Country:	MINNESOTA
Postal Code:	55369

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	13359059

CORRESPONDENCE DATA

Fax Number: (612)349-9266
Phone: 612-252-1559
Email: goette@ptslaw.com
Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent via US Mail.
Correspondent Name: Allison Goette
Address Line 1: 80 South 8th Street
Address Line 2: 4800 IDS Center
Address Line 4: Minneapolis, MINNESOTA 554022100

ATTORNEY DOCKET NUMBER:	2005.86US03
NAME OF SUBMITTER:	Allison Goette

Page 412

Signature:	/Allison Goette/
Date:	02/20/2012

Total Attachments: 3
source=2005_86US03_Assignment#page1.tif
source=2005_86US03_Assignment#page2.tif
source=2005_86US03_Assignment#page3.tif

RECEIPT INFORMATION

EPAS ID:	PAT1858995
Receipt Date:	02/20/2012
Fee Amount:	$40

ASSIGNMENT

WHEREAS, we, Howard Root of Excelsior, Minnesota; Gregg Sutton of Maple Grove, Minnesota; Jeffrey M. Welch of Maple Grove, Minnesota; and Jason M. Garrity of Minneapolis Minnesota, have invented certain new and useful improvements in COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES, for which an application for Letters Patent of the United States has made, said application having been executed on even date herewith, and which may be identified in the United States Patent Office by Application No. 11/416,629, filed May 3, 2006.

WHEREAS, Vascular Solutions ("Assignee"), a business entity organized and existing under the laws of the State of Minnesota, and having its principal offices at 6464 Sycamore Court, Minneapolis, Minnesota, is desirous of acquiring the entire right, title and interest in and to said invention, said application and in, to and under any and all Letters Patent to be obtained therefor;

NOW, THEREFORE, for and in consideration of One Dollar ($1.00) and other good and valuable consideration to us in hand paid by said Assignee, the receipt of which is hereby acknowledged, we have sold, assigned and transferred, and by these presents do hereby sell, assign and transfer unto the said Assignee, its successors and assigns, our entire right, title and interest in and to said invention, said application, all applications claiming priority to said application including all divisions, continuations or renewals thereof, and the Letters Patent, both foreign and domestic, that may or shall issue, therefrom including all reissues or extensions of such patents including all of our rights under the International Convention, and we do hereby authorize and request the Commissioner of Patents to issue said Letters Patent to the above mentioned Assignee in accordance herewith.

We hereby authorize the above mentioned Assignee, its successors and assigns, or anyone it may properly designate, to insert in this instrument the date of execution and/or filing date and application number of said application when ascertained.

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

Upon said consideration we do hereby covenant and agree with the said Assignee, its successors and assigns, that we will not execute in writing or do any act whatsoever conflicting with these presents, and that we or our executors or administrators will at any time upon request, without further or additional consideration, but at the expense of the said Assignee, its successors and assigns, execute such additional writings and do such additional acts as said Assignee, its successors and assigns, may deem necessary or desirable to perfect the Assignee's enjoyment of this grant, and render all necessary assistance in making application for and obtaining original, divisional, reissued or extended Letters Patent of the United States, or of any and all foreign

Page 414

countries on said invention, and in enforcing any rights occurring as a result of such applications or patents, by giving testimony in any proceedings or transactions involving such applications or patents.

IN WITNESS WHEREOF, we have hereunto set our hands and affixed our seal as dated below.

Date: May 22, 2006

Howard ROOT

Subscribed and sworn to before me
this 22nd day of May, 2006

Molly P. Woods
Notary Public

[Notary Seal]

MOLLY PATRICIA WOODS
NOTARY PUBLIC – MINNESOTA
MY COMMISSION EXPIRES 1-31-12

Date: 5/22/06

Gregg SUTTON

Subscribed and sworn to before me
this 22nd day of May, 2006

Molly P. Woods
Notary Public

[Notary Seal]

MOLLY PATRICIA WOODS
NOTARY PUBLIC – MINNESOTA
MY COMMISSION EXPIRES 1-31-12

Date: 5/18/06

Jeffrey M. WELCH

Subscribed and sworn to before me
this 18th day of May, 2006

Page 415

Molly P. Woods
Notary Public

[Notary Seal]
MOLLY PATRICIA WOODS
NOTARY PUBLIC – MINNESOTA
MY COMMISSION EXPIRES 1-31-10

Date: 5-18-06

Jason M. GARRITY

Subscribed and sworn to before me
this 18 day of May, 2006

Molly P. Woods
Notary Public

[Notary Seal]
MOLLY PATRICIA WOODS
NOTARY PUBLIC – MINNESOTA
MY COMMISSION EXPIRES 1-31-10

Page 416

Office of the Minnesota Secretary of State
Certificate of Conversion

I, Steve Simon, Secretary of State of Minnesota, certify that: the documentation required to effectuate a conversion by the entity listed below from the law under which the entity was previously governed to the law under which it is governed after the issuance of this certificate, on the date listed and has been approved pursuant to the procedures required in the chapter indicated.

Conversion Filed Pursuant to Minnesota Statutes, Chapter: 302A

Home Jurisdiction and Name of Converting Entity:

Minnesota: Vascular Solutions, Inc.

After Conversion, Entity is governed by Minnesota Statutes, Chapter: 322C

Home Jurisdiction and Name of Entity after the Effective Date of Conversion:

Minnesota: Vascular Solutions LLC

This Certificate has been issued on: 08/08/2017

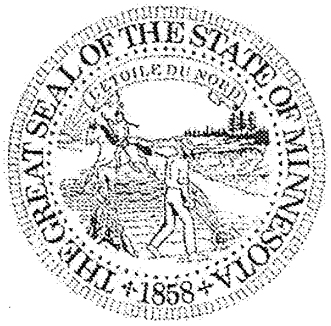
Steve Simon
Secretary of State
State of Minnesota

Office of the Minnesota Secretary of State
Certificate of Organization

I, Steve Simon, Secretary of State of Minnesota, do certify that: The following business entity has duly complied with the relevant provisions of Minnesota Statutes listed below, and is formed or authorized to do business in Minnesota on and after this date with all the powers, rights and privileges, and subject to the limitations, duties and restrictions, set forth in that chapter.

The business entity is now legally registered under the laws of Minnesota.

Name:	Vascular Solutions LLC
File Number:	960473300051
Minnesota Statutes, Chapter:	322C
This certificate has been issued on:	06/08/2017



Steve Simon
Secretary of State
State of Minnesota

Page 418

9604733

9L-421

Office of the Minnesota Secretary of State
Articles of Conversion
Minnesota Statutes, Chapter's 302A & 322B

Read the instruction before completing this form.

Filing Fee: $55 for expedited service in-person, $35 if submitted by mail

The following type of organization is being converted into another organization and was approved as required by Chapter 302A or Chapter 322B.

1. Check the appropriate box for this conversion filing:

☒ Business Corporation (Domestic) governed under Chapter 302A converting to a Limited Liability Company (Domestic) under Chapter 322C.
☐ Business Corporation (Domestic) governed under Chapter 302A converting to a Limited Liability Company (Foreign).
☐ Business Corporation (Domestic) governed under Chapter 302A to a Business Corporation (Foreign).
☐ Business Corporation (Foreign) converting to a Business Corporation (Domestic) under Chapter 302A.
☐ Business Corporation (Foreign) converting to a Limited Liability Company (Domestic) under Chapter 322C.

☐ Limited Liability Company (Domestic) governed under Chapter 322B converting to a Business Corporation (Domestic) under Chapter 302A.
☐ Limited Liability Company (Domestic) governed under Chapter 322B converting to a Limited Liability Company (Foreign).
☐ Limited Liability Company (Domestic) governed under Chapter 322B converting to a Business Corporation (Foreign).
☐ Limited Liability Company (Foreign) converting to a Business Corporation (Domestic) under Chapter 302A.

2. Name of Organization before the Conversion is: (Required)

Vascular Solutions, Inc.

3. Home Jurisdiction of Organization before the Conversion is: Minnesota

Page 419

Office of the Minnesota Secretary of State
Articles of Conversion
Minnesota Statutes, Chapter's 302A & 322B

4. Name of the Organization after the Conversion shall be: (Required)

Vascular Solutions LLC

5. Home Jurisdiction of Organization after the Conversion shall be: Minnesota

6. The time the Conversion is effective under the governing statute of the Converted Organization is:

At the time of filing.

If the converting organization is a domestic organization, the plan of conversion was approved under Section 302A.684. If the converting organization is a foreign organization, the conversion was approved as required by the governing statue of the converted organization.

7. The Terms and Conditions of the Proposed Conversion are:

All shares of the converting entity automatically prior to the conversion shall be converted to membership interests in the converted entity.

If no Terms and Conditions are listed, the undersigned personally certifies that there are no Terms and Conditions

8. A Converted Organization that is a foreign organization and not authorized to transact business in this state appoints the secretary of state as its agent for service of process for purposes of enforcing a debt, obligation, or other liability under this subdivision. The street address of an office that the secretary of state may use for the purposes of section 302A.691, subdivision 3 or 322B.791, subdivision 3 is:

Not Applicable.

9. Include a copy of the Articles of Incorporation or Articles of Organization with the Articles and Plan of Conversion. (Required).

Office of the Minnesota Secretary of State
Articles of Conversion
Minnesota Statutes, Chapter's 302A & 322B

10. I, the undersigned, certify that I am signing this document as the person whose signature is required, or as agent of the person(s) whose signature would be required who has authorized me to sign this document on his/her behalf, or in both capacities. I further certify that I have completed all required fields, and that the information in this document is true and correct and in compliance with the applicable chapter of Minnesota Statutes. I understand that by signing this document I am subject to the penalties of perjury as set forth in Section 609.48 as if I had signed this document under oath.

Authorized Signature of Individual on Behalf of the Converting Company or Authorized Agent (Required)

Email Address for Official Notices
Enter an email address to which the Secretary of State can forward official notices required by law and other notices.

☒ Check here to have your email address excluded from requests for bulk data, to the extent allowed by Minnesota law.

List the name and daytime phone number of a person who can be contacted about this form.
Dwayne Ritchie 1.610.225.6905
Contact Name and Phone Number

Entities that own, lease or have any financial interest in agricultural land or land capable of being farmed must registered with the Minnesota Department of Agriculture's Corporate Farm Program.

Page 421

Office of the Minnesota Secretary of State

Minnesota Limited Liability Company | Articles of Organization

Minnesota Statutes, Chapter 322C

Read the instructions before completing this form.
Filing Fee: $155 for expedited service in-person and online filings, $135 if by mail

Note: A professional organization governed under Chapter 319B must include an attachment with the following information: (This information is only required if this is a professional organization.)

1. Statement that the Minnesota firm elects to operate and acknowledges that it is subject to *Minnesota Statutes*, Chapter 319B.01 to 319B.12.
2. List the professional service the organization is authorized to provide under *Minnesota Statutes*, Chapter 319B, subd 19.

The undersigned organizer(s), in order to form a Limited Liability Company under *Minnesota Statutes*, Chapter 322C adopt the following:

Article I – Name of Limited Liability Company (Required)

Vascular Solutions LLC

(The company name must include the words Limited Liability Company or the abbreviation LLC)

Article II - Registered Office Address and Agent (A Registered Office Address is Required)

2345 Rice Street	Roseville	MN	55113
Street Address *(A PO Box by itself is not acceptable)*	City	State	Zip Code

Registered Agent at the above address is: Corporation Service Company

Article III – Duration

The period of duration for this limited liability company shall be perpetual.

Article IV – Organizers (Required)

I, the undersigned, certify that I am signing this document as the person whose signature is required, or as agent of the person(s) whose signature would be required who has authorized me to sign this document on his/her behalf, or in both capacities. I further certify that I have completed all required fields, and that the information in this document is true and correct and in compliance with the applicable chapter of Minnesota Statutes. I understand that by signing this document I am subject to the penalties of perjury as set forth in Section 609.48 as if I had signed this document under oath.

John R. Deren	6464 Sycamore Court North	Maple Grove	MN	55369
Organizer's Name	Street Address	City	State	Zip

Signature

August 8, 2017
Date

Organizer's Name	Street Address	City	State	Zip

Signature

Date

Email Address for Official Notices

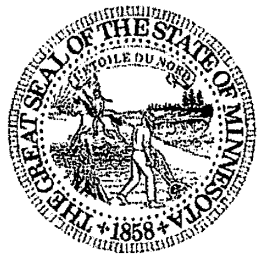
Enter an email address to which the Secretary of State can forward official notices required by law and other notices, including this submission:

☐ Check here to have your email address excluded from requests for bulk data, to the extent allowed by Minnesota law.

List a name and daytime phone number of a person who can be contacted about this form:

DWAYNE RITCHIE	1. 610. 225. 6905

Entities that own, lease, or have any financial interest in agricultural land or land capable of being farmed must register with the MN Dept. of Agriculture's Corporate Farm Program.



File Numbers

96047330003

960473300051

9L-421

STATE OF MINNESOTA
OFFICE OF THE SECRETARY OF STATE
FILED

8/8/2017 11:59:00 PM

Steve Simon

Secretary of State

Page 423

PATENT AND TRADEMARK ASSIGNMENT

TELEFLEX INNOVATIONS S.À R.L.

and

VASCULAR SOLUTIONS LLC

This Patent and Trademark Assignment is made and entered into by and between Teleflex Innovations S.à r.l., a private limited liability company (*société à responsabilité limitée*) formed and existing under the laws of the Grand Duchy of Luxembourg, having its registered office at 560A, rue de Neudorf, L-2220 Luxembourg, Grand Duchy of Luxembourg, and registered with the Luxembourg trade and companies register (*Registre de Commerce et des Sociétés de Luxembourg*) under registration number B 216223 (hereinafter referred to as "Teleflex Sarl"), and Vascular Solutions LLC, a limited liability company formed and existing under the laws of the State of Minnesota, United States of America, having its registered office at 2345 Rice Str #230, Roseville, MN 55113, United States of America, and registered with the Minnesota Secretary of State under corporate charter number 960473300051 (hereinafter referred to as "Vascular Solutions") (collectively, the "Parties" and individually, a "Party").

Pursuant to agreements existing between Teleflex Sarl and Vascular Solutions as of November 22, 2017, and subject to the terms, rights and obligations of such agreements, the Parties confirm and agree that Vascular Solutions has assigned and does hereby assign to Teleflex Sarl all right, title and interest in and to the patents and patent applications and trademarks and trademark applications listed on Exhibit A attached hereto, and to any continuations, continuations-in-part, divisionals, reissues, or other patents or patent applications claiming priority to any of the patents or patent applications listed on Exhibit A.

Vascular Solutions and Teleflex Sarl hereby confirm and agree that with respect to certain intent-to-use trademarks and pending intent-to-use trademark applications filed with the United States Patent and Trademark Office, the Parties have entered into a separate Trademark Acquisition Agreement effective as of the same date hereof.

Vascular Solutions and Teleflex Sarl further agree that Teleflex Sarl may record this document with any relevant government agency in the world, and that Vascular Solutions and Teleflex Sarl will cooperate to so record Teleflex Sarl's rights.

[Signature pages follow]

Page 424

TELEFLEX INNOVATIONS S.À R.L.

By: Jacob Elguicze
Its: Manager, Category A

11/22/17
Date

NOTARY

Name: _____

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Pamela L. Carr, Notary Public
Tredyffrin Twp. Montgomery County
My commission expires April 08, 2018

[SEAL]

By: Luc Sunnen
Its: Manager, Category B

Date

NOTARY

Name: _____

[SEAL]

Page 425

TELEFLEX INNOVATIONS S.À R.L.

_____ _____

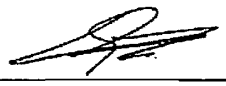
By: Jacob Elguicze
Its: Manager, Category A

Date

NOTARY

_____

Name: _____ [SEAL]



28/11/2017

By: Luc Sunnen
Its: Manager, Category B

Date

NOTARY

_____

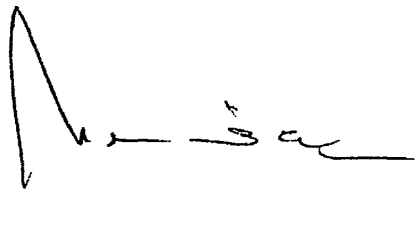
Name: _____ [SEAL]

THE UNDERSIGNED NOTARY
CERTIFIES THE SIGNATURE OF

24 NOV. 2017

.....

SUNNEN LUC.....



Page 426

VASCULAR SOLUTIONS LLC

Gregg Winter

By: Gregg W. Winter
Its: Vice President

11/22/17
Date

NOTARY

Pamela L. Carr

Name: COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Pamela L. Carr, Notary Public
Tredyffrin Twp, Montgomery County
My commission expires April 08, 2018

[SEAL]

Page 427

EXHIBIT A

Patents								
Vascular Solutions Ref.	Title	Country	Application No.	Official Filing Date	Publication No.	Patent No.	Issue Date	Status
VSI-0997-US01	APPARATUS FOR USE IN CANNULATION OF BLOOD VESSELS	U.S.	07/296,272	1/11/1989		4887606	12/19/1989	Expired
VSI-0985-US01	IN VIVO ULTRASONIC SYSTEM WITH ANGIOPLASTY AND ULTRASONIC CONTRAST IMAGING	U.S.	07/449,465	12/12/1989		5163421	11/17/1992	Expired
VSI-0995-US01	APPARATUS FOR THE CANNULATION OF BLOOD VESSELS	U.S.	07/813,123	12/23/1991		5259385	11/9/1993	Expired
VSI-0984-US01	ULTRASONIC TRANSMISSION APPARATUS	U.S.	07/842,529	2/27/1992		5269297	12/14/1993	Abandoned
VSI-0994-US01	FLOW MONITOR AND VASCULAR ACCESS SYSTEM WITH CONTINUOUSLY VARIABLE FREQUENCY CONTROL	U.S.	07/901,466	6/19/1992		5259386	11/9/1993	Expired
VSI-0995-CA01	APPARATUS FOR THE CANNULATION OF BLOOD VESSELS	Canada	2085912	12/21/1992				Abandoned
VSI-0995-EP01	APPARATUS FOR THE CANNULATION OF BLOOD VESSELS	EP	92121687.5	12/21/1992	548872	548872	6/25/1997	Abandoned

Page 428

VSI-0996-US01	SYRINGE WITH ULTRASOUND EMITTING TRANSDUCER FOR FLOW-DIRECTED CANNULATION OF ARTERIES AND VEINS	U.S.	08/003,203	1/12/1993		5311871	5/17/1994	Expired
VSI-0988-US01	VASCULAR SEALING DEVICE	U.S.	08/067,213	5/25/1993		5383896	1/24/1995	Abandoned
VSI-0994-EP01	FLOW MONITOR AND VASCULAR ACCESS SYSTEM WITH CONTINUOUSLY VARIABLE FREQUENCY CONTROL	EP	93109712.5	6/17/1993	574923	574923	10/9/2002	Abandoned
VSI-0998-US01	COAXIAL CABLE VASCULAR ACCESS SYSTEM FOR USE IN VARIOUS NEEDLES	U.S.	08/102,607	8/5/1993		5484416	1/16/1996	Expired
VSI-0994-US02	FLOW MONITOR AND VASCULAR ACCESS SYSTEM WITH CONTINUOUSLY VARIABLE FREQUENCY CONTROL	U.S.	08/142,151	10/25/1993		5363852	11/15/1994	Expired
VSI-0998-CA01	COAXIAL CABLE VASCULAR ACCESS SYSTEM	Canada	2168781	8/4/1994				Abandoned
VSI-0998-EP01	COAXIAL CABLE VASCULAR ACCESS SYSTEM FOR USE IN VARIOUS NEEDLES	EP	94924111.1	8/4/1994	712294	712294	1/2/2003	Abandoned
VSI-0988-US02	VASCULAR SEALING DEVICE	U.S.	08/303,088	9/8/1994				Abandoned
VSI-0989-US01	VASCULAR SEALING APPARATUS	U.S.	08/549,430	10/27/1995				Abandoned

Page 429

VSI-0990-US01	VASCULAR SEALING APPARATUS AND METHOD	U.S.	08/549,332	10/27/1995		5626601	5/6/1997	Abandoned
VSI-0988-US03	VASCULAR SEALING DEVICE	U.S.	08/832,600	3/31/1997		5957952	9/28/1999	Expired
VSI-0990-US02	VASCULAR SEALING APPARATUS AND METHOD	U.S.	08/850,477	5/5/1997		5868778	2/9/1999	Expired
VSI-0986-US01	ULTRASOUND TRANSMISSION APPARATUS AND METHOD OF USING SAME	U.S.	08/858,247	5/19/1997		5971949	10/26/1999	Abandoned
VSI-0989-US02	VASCULAR SEALING APPARATUS	U.S.	08/877,255	6/17/1997		6017359	1/25/2000	Abandoned
VSI-0991-US01	THROMBIN AND COLLAGEN PROCOAGULANT AND PROCESS FOR MAKING THE SAME	U.S.	09/031,847	2/27/1998		5951583	9/14/1999	Expired
VSI-0987-US01	ULTRASOUND TRANSMISSION APPARATUS HAVING A TIP	U.S.	09/321,268	5/27/1999		6241703	6/5/2001	Abandoned
VSI-0991-US02	THROMBIN AND COLLAGEN PROCOAGULANT AND PROCESS FOR MAKING THE SAME	U.S.	09/345,889	7/1/1999				Abandoned
VSI-0989-US03	Vascular sealing apparatus	U.S.	09/491,108	1/25/2000		6296658	10/2/2001	Abandoned
VSI-1014-USPR	SMALL DIAMETER SNARE	U.S.	60/188,390	3/10/2000				Expired
VSI-1014-DEEP	SURGICAL SNARE APPARATUS	Germany	1916539.8	3/9/2001	1263336	1263336	2/18/2004	Abandoned
VSI-1014-EP01	SURGICAL SNARE APPARATUS	EP	1916539.8	3/9/2001	1263336	1263336	2/18/2004	Abandoned
VSI-1014-ESEP	SURGICAL SNARE APPARATUS	Spain	1916539.8	3/9/2001	1263336	1263336	2/18/2004	Abandoned

Page 430

VSI-1014-FREP	SURGICAL SNARE APPARATUS	France	1916539.8	3/9/2001	1263336	1263336	2/18/2004	Abandoned
VSI-1014-GBEP	SURGICAL SNARE APPARATUS	United Kingdom	1916539.8	3/9/2001	1263336	1263336	2/18/2004	Abandoned
VSI-1014-IEEP	SURGICAL SNARE APPARATUS	Ireland	1916539.8	3/9/2001	1263336	1263336	2/18/2004	Abandoned
VSI-1014-ITEP	SURGICAL SNARE APPARATUS	Italy	1916539.8	3/9/2001	1263336	1263336	2/18/2004	Abandoned
VSI-1014-US01	SMALL DIAMETER SNARE	U.S.	09/803,308	3/9/2001	20010031970	6554842	4/29/2003	Issued
VSI-1014-WO01	SURGICAL SNARE APPARATUS	PCT	PCT/US2001/007680	3/9/2001	WO 2001/067967			Expired
VSI-1044-US01	METHOD AND APPARATUS FOR COAGULATION AND CLOSURE OF PSEUDOANEURYSMS	U.S.	09/943,584	8/30/2001	20030045835			Abandoned
VSI-1042-US01	TISSUE TRACT SEALING DEVICE	U.S.	10/007,786	12/7/2001	20020091411	6840952	1/11/2005	Abandoned
VSI-1043-US01	TISSUE TRACT SEALING DEVICE	U.S.	10/145,179	5/13/2002	20030009194			Abandoned
VSI-1033-US01	Guide wire control catheters for crossing occlusions and related methods of use	U.S.	10/301,779	11/22/2002	20040102719			Abandoned
VSI-1016-IT01	Two-lumen suction catheter for distal protection in a percutaneous intervention	Italy	MI2002A002666	12/17/2002		1.02E+14	10/18/2007	Issued
VSI-1004-US01	VASCULAR ACCESS CLOSURE SYSTEM	U.S.	10/452,826	6/2/2003	20040243052	7488340	2/10/2009	Issued
VSI-1018-US01	MEDICAL DEVICE PACKAGE	U.S.	29/182,858	6/2/2003		D489973	5/18/2004	Issued

Page 431

VSI-1016-US01	TWO-LUMEN CATHETER FOR DISTAL PROTECTION IN PERCUTANEOUS CORONARY AND PERIPHERICAL INTERVENTION	U.S.	10/462,079	6/13/2003	20040116900	7025751	4/11/2006	Issued
VSI-1020-US01	DEVICES AND METHODS FOR CROSSING A CHRONIC TOTAL OCCLUSION	U.S.	10/653,879	9/2/2003	20050049574	7763012	7/27/2010	Issued
VSI-1033-EP01	GUIDE WIRE CONTROL CATHETERS FOR CROSSING OCCLUSIONS AND RELATED METHODS OF USE	EP	3783618.6	11/18/2003	1562666			Abandoned
VSI-1033-JP01	GUIDE WIRE CONTROL CATHETERS FOR CROSSING OCCLUSIONS AND RELATED METHODS OF USE	Japan	2004-555478	11/18/2003		4546250		Abandoned
VSI-1033-WO01	GUIDE WIRE CONTROL CATHETERS FOR CROSSING OCCLUSIONS AND RELATED METHODS OF USE	PCT	PCT/US2003/036783	11/18/2003	WO 2004/047901			Expired
VSI-1035-USPR	SMALL-DIAMETER SNARE	U.S.	60/551,313	3/8/2004				Expired
VSI-0993-US01	Laser fiber for endovenous therapy having a shielded distal tip	U.S.	10/879,701	6/29/2004	20050288655			Abandoned
VSI-1020-EP01	DEVICES AND METHODS FOR CROSSING A CHRONIC TOTAL OCCLUSION	EP	4781984.2	8/19/2004	EP1660151			Abandoned

Page 432

VSI-1020-EP02	DEVICES AND METHODS FOR CROSSING A CHRONIC TOTAL OCCLUSION	EP	7023966	8/19/2004	EP1897581			Abandoned
VSI-1020-JP01	DEVICES AND METHODS FOR CROSSING A CHRONIC TOTAL OCCLUSION	Japan	2006-525359	8/19/2004		4680907		Abandoned
VSI-1020-WO01	DEVICES AND METHODS FOR CROSSING A CHRONIC TOTAL OCCLUSION	PCT	PCT/US2004/027405	8/19/2004	WO 2005/021061			Expired
VSI-0999-USPR	NEEDLE AND PROBE ASSEMBLY	U.S.	60/628,809	11/17/2004				Expired
VSI-1012-US01	ABDOMINAL TISSUE SUPPORT FOR FEMORAL PUNCTURE PROCEDURES	U.S.	11/029,908	1/5/2005	20060149177	7455649	11/25/2008	Abandoned
VSI-1035-EP01	SMALL-DIAMETER SNARE	EP	5724826.2	3/7/2005		EP1722697	11/22/2006	Abandoned
VSI-1035-US01	SMALL-DIAMETER SNARE	U.S.	11/074,827	3/7/2005	2005-0234474			Abandoned
VSI-1035-WO01	SMALL-DIAMETER SNARE	PCT	PCT/US2005/007361	3/7/2005	WO 2005/087119			Expired
VSI-0999-US01	GUIDED HYPODERMIC CANNULA	U.S.	11/084,491	3/18/2005	2006-0106315			Abandoned
VSI-0999-CA01	GUIDED HYPODERMIC CANNULA	Canada	2587604	11/16/2005				Abandoned
VSI-1010-US01	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	U.S.	11/416,629	5/3/2006	20070260219	8048032	11/1/2011	Issued

Page 433

VSI-1036-US01	SYSTEM AND METHOD FOR REMOVAL OF MATERIAL FROM A BLOOD VESSEL USING A SMALL DIAMETER CATHETER	U.S.	11/583,873	10/19/2006	2007-0118165			Abandoned
VSI-1008-US01	SMALL DIAMETER INTRAVASCULAR CATHETER WITH SCREW TIP AND LIMITED TORSIONAL DISPLACEMENT	U.S.	11/585,371	10/24/2006	20080172008	7981091	7/19/2011	Issued
VSI-0992-USPR	Shaped introducer for vascular intervention	U.S.	60/860,678	11/21/2006				Expired
VSI-0993-US02	Laser fiber for endovenous therapy having a shielded distal tip	U.S.	11/648,086	12/29/2006	20070179486			Abandoned
VSI-1019-US01	GUIDEWIRE TIPPED LASER FIBER	U.S.	11/860,880	9/25/2007	20090082760	8298215	10/30/2012	Issued
VSI-1036-WO01	SYSTEM AND METHOD FOR REMOVAL OF MATERIAL FROM A BLOOD VESSEL USING A SMALL DIAMETER CATHETER	PCT	PCT/US2007/022216	10/18/2007	WO 2008/051431			Expired
VSI-0992-US01	Shaped Introducer For Vascular Access	U.S.	11/942,635	11/19/2007	20080125715			Abandoned
VSI-1038-US01	SYSTEM AND METHOD FOR REMOVAL OF MATERIAL FROM A BLOOD VESSEL USING A SMALL DIAMETER CATHETER	U.S.	12/098,201	4/4/2008	2008-0228209			Abandoned
VSI-1040-US01	GUIDE WIRE RETENTION AND POSITIONING APPARATUS	U.S.	12/148,681	4/21/2008	2009-0264864			Abandoned
VSI-1006-	HEMOSTATIC CLIP	U.S.	61/073,622	6/18/2008				Expired

Page 434

USPR								
VSI-1039-US01	GUIDE WIRE AND CATHETER MANAGEMENT DEVICE	U.S.	12/217,852	7/8/2008	2010-0006738			Abandoned
VSI-1000-US01	GUIDE WIRE LOADING METHOD AND APPARATUS	U.S.	12/218,031	7/9/2008	2010-0010376 A1	8206321	6/26/2012	Issued
VSI-1015-US01	CONVERTIBLE GUIDEWIRE SYSTEM AND METHODS	U.S.	12/204,583	9/4/2008	20100056955	8083690	12/27/2011	Issued
VSI-1033-US02	GUIDE WIRE CONTROL CATHETER FOR CROSSING OCCLUSIONS AND RELATED METHODS OF USE	U.S.	12/207,391	9/9/2008	20090005755			Abandoned
VSI-1037-US01	SYSTEM AND METHOD FOR REMOVAL OF MATERIAL FROM A BLOOD VESSEL	U.S.	12/275,822	11/21/2008	2010-0131000			Abandoned
VSI-1006-US01	HEMOSTATIC CLIP	U.S.	12/483,698	6/12/2009	2009/0318881	8246585	8/21/2012	Issued
VSI-1001-US01	GUIDE WIRE LOADING METHOD AND APPARATUS WITH TOWEL ATTACHMENT MECHANISM	U.S.	12/498,965	7/7/2009	2010-0010377 A1	8231550	7/31/2012	Issued
VSI-1017-US01	GUIDEWIRE AND CATHETER MANAGEMENT DEVICE	U.S.	12/498,985	7/7/2009	20100010475	8523824	9/3/2013	Issued
VSI-1001-EP01	GUIDE WIRE LOADING METHOD AND APPARATUS WITH TOWEL ATTACHMENT MECHANISM	EP	9795106.5	7/8/2009	2310078			Abandoned

Page 435

VSI-1001-WO01	GUIDE WIRE LOADING METHOD AND APPARATUS WITH TOWEL ATTACHMENT MECHANISM	PCT	PCT/US2009/049912	7/8/2009	WO 2010/006031 A1			Expired
VSI-1039-EP01	GUIDE WIRE AND CATHETER MANAGEMENT DEVICE	EP	9795110.7	7/8/2009	EP2313133			Abandoned
VSI-1039-JP01	GUIDE WIRE AND CATHETER MANAGEMENT DEVICE	Japan	2011-517563	7/8/2009				Abandoned
VSI-1039-WO01	GUIDE WIRE AND CATHETER MANAGEMENT DEVICE	PCT	PCT/US2009/049919	7/8/2009	WO 2010/006037			Expired
VSI-1013-US01	METAL VASCULAR APERTURE CLOSURE DEVICE	U.S.	12/501,998	7/13/2009	20110009900	8192456	6/5/2012	Issued
VSI-1013-US02	METAL VASCULAR APERTURE CLOSURE DEVICE	U.S.	12/502,034	7/13/2009	20110009901	8252022	8/28/2012	Issued
VSI-1010-US02	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	U.S.	12/824,734	6/28/2010	20100324567	8142413	3/27/2012	Issued
VSI-1002-US01	GUIDE WIRE LOADING METHOD AND APPARATUS WITH TOWEL ATTACHMENT MECHANISM AND RETAINING MEMBER	U.S.	12/831,630	7/7/2010	2010-0274158 A1	8366638	2/5/2013	Issued
VSI-1003-USPR	HAND HELD VEIN REMOVAL DEVICE	U.S.	61/449,334	3/4/2011				Expired

Page 436

VSI-1028-US01	VASCULAR INTRODUCER INCLUDING EXPANDABLE PASSAGE MEMBER	U.S.	13/191,889	7/27/2011	20130030369			Abandoned
VSI-1007-US01	Elongated Expandable Member for Occluding Varicose Veins	U.S.	13/310,503	12/2/2011	2013/0144323	8758427	6/24/2014	Issued
VSI-1010-US03	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	U.S.	13/359,059	1/26/2012	20120165756	8292850	10/23/2012	Inactive
VSI-1003-US01	HAND HELD VEIN REMOVAL DEVICE	U.S.	13/410,440	3/2/2012	20120226297	8834500	9/16/2014	Issued
VSI-1007-CA01	Elongated Expandable Member for Occluding Varicose Veins	Canada	2817242	11/1/2012				Pending
VSI-1007-DEEP	Elongated Expandable Member for Occluding Varicose Veins	Germany	12801657.3	11/1/2012		2673014	5/4/2016	Issued
VSI-1007-EP01	Elongated Expandable Member for Occluding Varicose Veins	EP	12801657.3	11/1/2012	2673014	2673014	5/4/2016	Issued
VSI-1007-GBEP	Elongated Expandable Member for Occluding Varicose Veins	United Kingdom	12801657.3	11/1/2012		2673014	5/4/2016	Issued
VSI-1007-IEEP	Elongated Expandable Member for Occluding Varicose Veins	Ireland	12801657.3	11/1/2012		2673014	5/4/2016	Issued
VSI-1007-NOEP	Elongated Expandable Member for Occluding Varicose Veins	Norway	12801657.3	11/1/2012		2673014	5/4/2016	Issued
VSI-1007-WO01	Elongated Expandable Member for Occluding Varicose Veins	PCT	PCT/US2012/063101	11/1/2012	2013-081768			Expired
VSI-1021-US01	VASCULAR DILATOR SYSTEMS, KITS, AND METHODS	U.S.	13/784,073	3/4/2013	20140249562	9078991	7/14/2015	Issued

Page 437

VSI-1029-USPR	DRAINAGE OR FEEDING CATHETER ASSEMBLY	U.S.	61/780,832	3/13/2013				Expired
VSI-1010-USRE1	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	U.S.	14/070,161	11/1/2013		RE45380	2/17/2015	Issued
VSI-1022-USPR	SYSTEM AND METHOD FOR FREEZE-DRYING AND PACKAGING	U.S.	61/912,281	12/5/2013				Expired
VSI-1023-USPR	ELONGATE EXPANDABLE MEMBER FOR OCCLUDING VASCULAR VESSEL	U.S.	61/945,699	2/27/2014				Expired
VSI-1010-USRE2	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	U.S.	14/195,385	3/3/2014		RE45760	10/20/2015	Issued
VSI-1010-USRE3	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	U.S.	14/195,413	3/3/2014		RE45776	10/27/2015	Issued
VSI-1010-USRE4	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	U.S.	14/195,435	3/3/2014		RE46116	8/23/2016	Issued
VSI-1029-US01	DRAINAGE OR FEEDING CATHETER ASSEMBLY	U.S.	14/206,940	3/12/2014	20140276628	9522253	12/20/2016	Issued
VSI-1007-US02	Elongated Expandable Member for Occluding Varicose Veins	U.S.	14/298,066	6/6/2014	2014-0350590	9351736	5/31/2016	Issued

Page 438

VSI-1025-USPR	GUIDEWIRES AND METHODS FOR PERCUTANEOUS OCCLUSION CROSSING	U.S.	62/022,024	7/8/2014				Expired
VSI-1024-USPR	GUIDEWIRE CAPTURE	U.S.	62/048,734	9/10/2014				Expired
VSI-1026-USPR	PERFUSION CATHETER	U.S.	62/048,726	9/10/2014				Expired
VSI-1030-USPR	THROMBECTOMY ASSEMBLY AND METHOD	U.S.	62/048,736	9/10/2014				Expired
VSI-1031-USPR	GUIDEWIRE CATHETER	U.S.	62/048,741	9/10/2014				Abandoned
VSI-1032-USPR	CATHETER	U.S.	62/061,781	10/9/2014				Expired
VSI-1027-USPR	PERFUSION CATHETERS AND RELATED METHODS	U.S.	62/078,240	11/11/2014				Expired
VSI-1022-US01	SYSTEM AND METHOD FOR FREEZE-DRYING AND PACKAGING	U.S.	14/553,722	11/25/2014	20150158652	9561893	2/7/2017	Issued
VSI-1049-USPR	Closure Device for Sealing Percutaneous Opening in a Vessel	U.S.	62/114,101	2/10/2015				Expired
VSI-1033-US03	GUIDE WIRE CONTROL CATHETER FOR CROSSING OCCLUSIONS AND RELATED METHODS OF USE	U.S.	14/619,730	2/11/2015	20150151081			Abandoned
VSI-1023-US01	ELONGATE EXPANDABLE MEMBER FOR OCCLUDING VASCULAR VESSEL	U.S.	14/630,291	2/24/2015	20150238196			Abandoned
VSI-1045-USPR	Stenotic Region Scoring Assembly and Method	U.S.	62/129,997	3/9/2015				Expired
VSI-1032-US01	CATHETER	U.S.	14/673,966	3/31/2015	20160101262	9636477	5/2/2017	Issued

Page 439

VSI-1048-USPR	Magnetically-Driven Delivery Assembly and Method	U.S.	62/147,008	4/14/2015				Expired
VSI-1050-USPR	RESORBABLE EMBOLIZATION SPHERES	U.S.	62/148,889	4/17/2015				Expired
VSI-1051-USPR	RESORBABLE EMBOLIZATION SPHERES	U.S.	62/148,899	4/17/2015				Abandoned
VSI-1025-US01	GUIDEWIRES AND METHODS FOR PERCUTANEOUS OCCLUSION CROSSING	U.S.	14/697,819	4/28/2015	20160008584			Published
VSI-1024-US01	GUIDEWIRE CAPTURE	U.S.	14/709,531	5/12/2015	20160066933			Published
VSI-1047-USPR	Guidewire Fixation	U.S.	62/166,259	5/26/2015				Expired
VSI-1052-USPR	CATHETER CUTTING DEVICE	U.S.	62/166,274	5/26/2015				Expired
VSI-1028-US02	VASCULAR INTRODUCER INCLUDING EXPANDABLE PASSAGE MEMBER	U.S.	14/734,967	6/9/2015	20150265310			Abandoned
VSI-1021-US02	VASCULAR DILATOR SYSTEMS, KITS, AND METHODS	U.S.	14/735,974	6/10/2015	20150297875			Abandoned
VSI-1047-USPR2	Guidewire Fixation	U.S.	62/190,879	7/10/2015				Expired
VSI-1053-USPR	FLUID DELIVERY OR REMOVAL SYSTEM	U.S.	62/203,439	8/11/2015				Expired
VSI-1054-USPR	CATHETER TIP	U.S.	62/203,431	8/11/2015				Expired
VSI-1026-CN01	PERFUSION CATHETERS AND RELATED METHODS	China	201580060554.3	9/10/2015	CN107072666A			Published
VSI-1026-CN02	PERFUSION CATHETERS AND RELATED METHODS	China	201710468567.5	9/10/2015	CN107296638A			Published

Page 440

VSI-1026-EP01	PERFUSION CATHETERS AND RELATED METHODS	EP	15770712.6	9/10/2015	3125781			Published
VSI-1026-HKCN	PERFUSION CATHETERS AND RELATED METHODS	Hong Kong	17109379.3	9/10/2015				Pending
VSI-1026-HKCN2	PERFUSION CATHETERS AND RELATED METHODS	Hong Kong		9/10/2015				Unfiled
VSI-1026-JP01	PERFUSION CATHETERS AND RELATED METHODS	Japan	2016-515958	9/10/2015	2016-536026	6097447	2/24/2017	Issued
VSI-1026-JP02	PERFUSION CATHETERS AND RELATED METHODS	Japan	2017-28336	9/10/2015	2017-109131			Published
VSI-1026-US01	PERFUSION CATHETERS AND RELATED METHODS	U.S.	14/850,095	9/10/2015	20160066932			Published
VSI-1026-WO01	PERFUSION CATHETERS AND RELATED METHODS	PCT	PCT/US2015/049356	9/10/2015	WO 2016/040579			Expired
VSI-1030-CA01	CAPTURE ASSEMBLY AND METHOD	Canada	2955841	9/10/2015		2955841	6/27/2017	Issued
VSI-1030-DEEP	CAPTURE ASSEMBLY AND METHOD	Germany	15767400.3	9/10/2015		3125789	8/30/2017	Issued
VSI-1030-EP01	CAPTURE ASSEMBLY AND METHOD	EP	15767400.3	9/10/2015	3125789	3125789	8/30/2017	Issued
VSI-1030-ESEP	CAPTURE ASSEMBLY AND METHOD	Spain	15767400.3	9/10/2015		3125789	8/30/2017	Issued
VSI-1030-FREP	CAPTURE ASSEMBLY AND METHOD	France	15767400.3	9/10/2015		3125789	8/30/2017	Issued
VSI-1030-GBEP	CAPTURE ASSEMBLY AND METHOD	United Kingdom	15767400.3	9/10/2015		3125789	8/30/2017	Issued
VSI-1030-ITEP	CAPTURE ASSEMBLY AND METHOD	Italy	15767400.3	9/10/2015		3125789	8/30/2017	Issued
VSI-1030-US01	CAPTURE ASSEMBLY AND METHOD	U.S.	14/849,774	9/10/2015	20160066931	9351747	5/31/2016	Issued

Page 441

VSI-1030-WO01	CAPTURE ASSEMBLY AND METHOD	PCT	PCT/US2015/049299	9/10/2015	WO 2016/040550			Expired
VSI-1054-US01	CATHETER TIP	U.S.	14/860,997	9/22/2015	20160101261	9782561	10/10/2017	Issued
VSI-1046-USPR	PATH CREATION THROUGH OCCLUSION	U.S.	62/257,777	11/20/2015				Expired
VSI-1010-USRE5	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	U.S.	14/984,273	12/30/2015				Pending
VSI-1045-US01	Stenotic Region Scoring Assembly and Method	U.S.	14/991,065	1/8/2016	20160262789			Published
VSI-1055-USPR	SYSTEM AND METHOD FOR FREEZE-DRYING AND PACKAGING	U.S.	62/279,955	1/18/2016				Expired
VSI-1048-US01	Magnetically-Driven Delivery Assembly and Method	U.S.	15/004,012	1/22/2016	20160302796			Published
VSI-1049-CA01	Closure Device for Sealing Percutaneous Opening in a Vessel	Canada	2975309	2/10/2016				Pending
VSI-1049-CN01	Closure Device for Sealing Percutaneous Opening in a Vessel	China	201680009204.9	2/10/2016	CN107249475A			Pending
VSI-1049-EP01	Closure Device for Sealing Percutaneous Opening in a Vessel	EP	16712553.3	2/10/2016				Pending
VSI-1049-HKCN	Closure Device for Sealing Percutaneous Opening in a Vessel	Hong Kong	17111871.2	2/10/2016				Pending
VSI-1049-JP01	Closure Device for Sealing Percutaneous Opening in a Vessel	Japan	2017-539600	2/10/2016				Pending

Page 442

VSI-1049-US01	Closure Device for Sealing Percutaneous Opening in a Vessel	U.S.	15/040,023	2/10/2016	20160228109			Published
VSI-1049-WO01	Closure Device for Sealing Percutaneous Opening in a Vessel	PCT	PCT/US2016/017238	2/10/2016	WO 2016/130610			Expired
VSI-1052-US01	CATHETER CUTTING DEVICE	U.S.	15/063,575	3/8/2016	20160346946			Published
VSI-1056-USPR	PACING GUIDEWIRE	U.S.	62/310,044	3/18/2016				Expired
VSI-1050-US01	RESORBABLE EMBOLIZATION SPHERES	U.S.	15/131,534	4/18/2016				Pending
VSI-1053-US01	FLUID DELIVERY OR REMOVAL SYSTEM	U.S.	15/144,879	5/3/2016	20170043139			Published
VSI-1030-US02	CAPTURE ASSEMBLY AND METHOD	U.S.	15/148,038	5/6/2016	20160242798			Published
VSI-1047-CA01	Guidewire Fixation	Canada	2974544	5/24/2016				Allowed
VSI-1047-CN01	Guidewire Fixation	China	201680011318.7	5/24/2016	CN107275160A			Published
VSI-1047-EP01	Guidewire Fixation	EP	16728179.9	5/24/2016				Pending
VSI-1047-HKCN	Guidewire Fixation	Hong Kong	17111832.0	5/24/2016				Pending
VSI-1047-JP01	Guidewire Fixation	Japan	2017-542898	5/24/2016				Pending
VSI-1047-US01	Guidewire Fixation	U.S.	15/163,044	5/24/2016	20160346515			Published
VSI-1047-WO01	Guidewire Fixation	PCT	PCT/US2016/033904	5/24/2016	WO 2016/191415			Expired
VSI-1056-USPR2	PACING GUIDEWIRE	U.S.	62/346,214	6/6/2016				Expired
VSI-1056-USPR3	PACING GUIDEWIRE	U.S.	62/378,258	8/23/2016				Expired
VSI-1046-US01	PATH CREATION THROUGH OCCLUSION	U.S.	15/254,386	9/1/2016	20170143355			Published

Page 443

VSI-1057-USPR	METHODS FOR FACILITATING REVASCULARIZATION OF OCCLUSION	U.S.	62/401,964	9/30/2016				Expired
VSI-1026-US02	PERFUSION CATHETERS AND RELATED METHODS	U.S.	15/296,183	10/18/2016	20170050003			Published
VSI-1057-US01	METHODS FOR FACILITATING REVASCULARIZATION OF OCCLUSION	U.S.	15/340,026	11/1/2016				Pending
VSI-1055-US01	SYSTEM AND METHOD FOR FREEZE-DRYING AND PACKAGING	U.S.	15/343,381	11/4/2016	20170203871			Published
VSI-1058-USPR	GUIDE EXTENSION CATHETER	U.S.	62/431,911	12/9/2016				Pending
VSI-1056-USPR4	PACING GUIDEWIRE	U.S.	62/436,750	12/20/2016				Expired
VSI-1058-USPR2	GUIDE EXTENSION CATHETER	U.S.	62/440,438	12/30/2016				Pending
VSI-1022-US02	SYSTEM AND METHOD FOR FREEZE-DRYING AND PACKAGING	U.S.	15/399,643	1/5/2017	20170113824			Published
VSI-1032-US02	CATHETER	U.S.	15/441,352	2/24/2017	20170156750			Published
VSI-1056-US01	PACING GUIDEWIRE	U.S.	15/455,254	3/10/2017	20170266433			Published
VSI-1056-US02	PACING GUIDEWIRE	U.S.	15/455,265	3/10/2017	20170266434			Published
VSI-1056-WO01	PACING GUIDEWIRE	PCT	PCT/US2017/021719	3/10/2017	2017/160610			Published
VSI-1058-US01	GUIDE EXTENSION CATHETER	U.S.	15/581,176	4/28/2017				Pending
VSI-1060-US01	METHODS FOR EXCHANGING DEVICES	U.S.	15/646,206	7/11/2017				Pending
VSI-1050-US02	RESORBABLE EMBOLIZATION SPHERES	U.S.	15/664,358	7/31/2017				Pending

Page 444

VSI-1061-US01	CATHETER	U.S.	15/686,962	8/25/2017				Pending
VSI-1062-US01	Methods for Exchanging Devices	U.S.	15/727,243	10/6/2017				Pending
VSI-1064-USPR	Lumen Reentry Catheter Assembly and Related Methods	U.S.	62/577,283	10/26/2017				Pending
VSI-1026-EP02	PERFUSION CATHETERS AND RELATED METHODS	EP						Unfiled
VSI-1063-USPR	GUIDE EXTENSION CATHETER	U.S.						Unfiled

Trademarks

Vascular Solutions Ref.	Mark	Country	Application No.	Official Filing Date	Registration No.	Registration Date	Status
N/A	ACOLYSIS	U.S.	75/256,292	3/12/1997	2,517,658	12/11/2001	Registered
N/A	ACOLYSIS SYSTEM	U.S.	75/224,177	1/8/1997	2,186,712	9/1/1998	Registered
N/A	ACOLYSIS SYSTEM THERAPEUTIC ULTRASOUND THROMBOLYSIS & Device (Stylized)	U.S.	75/256,769	3/13/1997	2,186,818	9/1/1998	Registered
N/A	AUTO-FILL	U.S.	78/329,341	11/18/2003	2,894,004	10/12/2004	Registered
N/A	DRAIN-EDGE	U.S.	85/025,691	4/28/2010	4,132,425	4/24/2012	Registered
N/A	DRAINER	U.S.	85/066,819	6/18/2010	3,972,115	5/31/2011	Registered
N/A	D-STAT	U.S.	78/102,841	1/15/2002	2,754,442	8/19/2003	Registered
N/A	FLUENT	U.S.	86/654,688	6/8/2015	5,129,777	1/24/2017	Registered
N/A	GREBSET	U.S.	77/840,407	10/2/2009	3,790,069	5/18/2010	Registered
N/A	GUARDIAN	U.S.	78/416,607	5/11/2004	3,115,047	7/11/2006	Registered
N/A	GUIDELINER	U.S.	77/706,364	4/3/2009	3,797,195	6/1/2010	Registered
N/A	GUIDELINER	EU					Unfiled
N/A	GUIDELINER	United Kingdom					Unfiled
N/A	GUIDELINER	Canada					Unfiled
N/A	GUIDELINER	Japan					Unfiled

Page 445

N/A	LANGSTON	U.S.	78/455,490	7/23/2004	3,024,795	12/6/2005	Registered
N/A	LANGSTON	EU					Unfiled
N/A	LANGSTON	United Kingdom					Unfiled
N/A	LANGSTON	Canada					Unfiled
N/A	MINNIE	U.S.	77/818,971	9/2/2009	3,752,325	2/23/2010	Registered
N/A	PD ACCESS	U.S.	75/100,302	5/8/1996	2,327,005	3/7/2000	Registered
N/A	PIGGYBACK	U.S.	77/840,531	10/2/2009	3,858,113	10/5/2010	Registered
N/A	PRONTO	U.S.	78/181,211	11/4/2002	3,353,155	12/11/2007	Registered
N/A	REPLAS	U.S.	86/604,593	4/21/2015	5,256,745	8/1/2017	Registered
N/A	SMARTNEEDLE	U.S.	75/620,674	1/13/1999	2,568,826	5/14/2002	Registered
N/A	SPECTRE	U.S.	87/207,092	10/18/2016	5,267,675	8/15/2017	Registered
N/A	THROMBI-GEL (Stylized)	U.S.	77/450,693	4/17/2008	3,632,771	6/2/2009	Registered
N/A	THROMBIX	U.S.	78/139,033	6/26/2002	3,032,755	12/20/2005	Registered
N/A	TRAPLINER	U.S.	86/830,610	11/24/2015	5,200,901	5/9/2017	Registered
N/A	TURNPIKE	U.S.	86/327,454	7/2/2014	4,721,667	4/14/2015	Registered
N/A	TURNPIKE	EU					Unfiled
N/A	TURNPIKE	United Kingdom					Unfiled
N/A	TURNPIKE	Canada					Unfiled
N/A	TWIN-PASS	U.S.	78/602,796	4/6/2005	3,122,103	7/25/2006	Registered
N/A	TWIN-PASS	EU					Unfiled
N/A	TWIN-PASS	United Kingdom					Unfiled
N/A	TWIN-PASS	Canada					Unfiled
N/A	VARI-LASE	U.S.	78/217,901	2/23/2003	2,846,854	5/25/2004	Registered
N/A	VENTURE	U.S.	78/378,442	3/4/2004	3,700,341	10/20/2009	Registered

PTO/AIA/53 (09-12)
Approved for use through 01/31/2020. 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.

REISSUE APPLICATION: CONSENT OF ASSIGNEE; STATEMENT OF NON-ASSIGNMENT	Docket Number (Optional) 2005.86USREI7

This is part of the application for a reissue patent based on the original patent identified below.

Name of Patentee(s)
Howard C. Root et al.

Patent Number	Date Patent Issued
8,292,850 B2	October 23, 2012

Title of Invention
COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

1. [X] Filed herein is a statement under 37 CFR 3.73(c). (Form PTO/AIA/96)

2. [ ] Ownership of the patent is in the inventor(s), and no assignment of the patent is in effect.

One of boxes 1 or 2 above must be checked. If multiple assignees, complete this form for each assignee. If box 2 is checked, skip the next entry and go directly to "Name of Assignee."

The written consent of all assignees and inventors owning an undivided interest in the original patent is included in this application for reissue.

The assignee(s) owning an undivided interest in said original patent is/are_____, and the assignee(s) consents to the accompanying application for reissue.

Name of assignee/inventor (if not assigned)
Teleflex Innovations S.à R.L.

Signature	Date
J. Elguicze /	9 January 2018

Typed or printed name and title of person signing for assignee (if assigned)

Jacob Elguicze, Manager - Category A / Luc Sunnen, Manager - Category B

This collection of information is required by 37 CFR 1.172. 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 6 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA..
Document Description: Power of Attorney

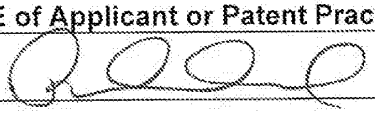
PTO/AIA/82A (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/984,273
Filing Date	December 30, 2015
First Named Inventor	Howard C. Root
Title	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
Art Unit	3993
Examiner Name	Catherine Serke Williams
Attorney Docket Number	2005.86USREI7

SIGNATURE of Applicant or Patent Practitioner

Signature		Date (Optional)	1-25-2018
Name	Paul C. Onderick	Registration Number	45354
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. 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 1.11 and 1.14. This collection is estimated to take 3 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 24113

OR

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 24113

OR

[ ]

Firm or individual name		
Address		
City	State	Zip
Country		
Telephone	Email	

Assignee name and address: Teleflex Innovations S.à.r.l.
560A, rue de Neudorf, L-2220 Luxembourg, LU

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Signature	Date 17 October 2017
Name Jacob Elgiczar	Telephone 610-225-6900
Title Manager, Category A	

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Page 449

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 24113

OR

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 24113

OR

[ ]

Firm or individual name		
Address		
City	State	Zip
Country		
Telephone	Email	

Assignee name and address: Teleflex Innovations S.à.r.l.
560A, rue de Neudorf, L-2220 Luxembourg, LU

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Signature	Date 10/20/2009
Name Luc Sunnen	Telephone
Title Category B Manager	

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Page 450

PTO/AIA/26 (04-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 2005.86USREI7

In re Application of: Howard C. Root, Gregg Sutton, Jeffrey M. Welch, and Jason M. Garrity

Application No.: 14/984,273

Filed: December 30, 2015

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

The applicant, Teleflex Innovations S.à.R.L., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. RE45,380 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 45,354

PCO — 1-25-2018
Signature — Date

Paul C. Onderick
Typed or printed name

Attorney of Record — 612-349-5766
Title — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

Page 451

PTO/AIA/26 (04-14)
Approved for use through 07/31/2016. OMB 0651-0031
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.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 2005.86USREI7

In re Application of: Howard C. Root, Gregg Sutton, Jeffrey M. Welch, and Jason M. Garrity

Application No.: 14/984,273

Filed: December 30, 2015

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

The applicant, Teleflex Innovations S.à.R.L., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. RE45,760 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

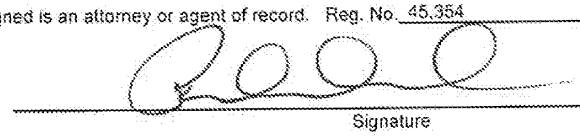
expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 45,354



Signature

1-25-2018
Date

Paul C. Onderick
Typed or printed name

Attorney of Record
Title

612-349-5766
Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. 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 1.11 and 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Page 452

PTO/AIA/26 (04-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 2005.86USREI7

In re Application of: Howard C. Root, Gregg Sutton, Jeffrey M. Welch, and Jason M. Garrity

Application No.: 14/984,273

Filed: December 30, 2015

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

The applicant, Teleflex Innovations S.à.R.L., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. RE45,776 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

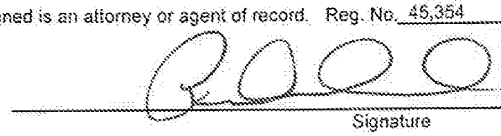
expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 46,354



Signature

1-25-2018

Date

Paul C. Onderick

Typed or printed name

Attorney of Record

Title

612-349-5766

Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

Page 453

PTO/AIA/26 (04-14)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 2005.86USREI7

In re Application of: Howard C. Root, Gregg Sutton, Jeffrey M. Welch, and Jason M. Garrity

Application No.: 14/984,273

Filed: December 30, 2015

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

The applicant, Teleflex Innovations S.à.R.L., owner of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of **prior patent** No. RE46,116 as the term of said **prior patent** is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the applicant does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee.

I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 45,354

Signature — Date: 1-25-2018

Paul C. Onderick
Typed or printed name

Attorney of Record
Title

612-349-5786
Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.321. 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 1.11 and 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal				
Application Number:	14984273			
Filing Date:	30-Dec-2015			
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES			
First Named Inventor/Applicant Name:	Howard C. Root			
Filer:	Paul C. Onderick/Michelle Arcand			
Attorney Docket Number:	2005.86USREI7			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
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:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	1814	4	160	640
		Total in USD ($)		**640**

Page 456

Electronic Acknowledgement Receipt	
EFS ID:	31606851
Application Number:	14984273
International Application Number:	
Confirmation Number:	5700
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard C. Root
Customer Number:	24113
Filer:	Paul C. Onderick/Michelle Arcand
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86USREI7
Receipt Date:	25-JAN-2018
Filing Date:	30-DEC-2015
Time Stamp:	15:26:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$640
RAM confirmation Number	012618INTEFSW15275301
Deposit Account	160631
Authorized User	Paul Onderick
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Request for Corrected Filing Receipt	2005_86USREI7_REQCORRECTFR.pdf	228731 b2097d5e80f5d53eaa9e4ee07aca3f1d41ae12d7	no	2
Warnings:					
Information:					
2	Request for Corrected Filing Receipt	2005_86USREI7_MARKEDFR.pdf	814049 4bbfb2231692ca43e2e87617953669fd79ab2ee0	no	4
Warnings:					
Information:					
3	Application Data Sheet	2005_86USREI7_SADS.pdf	1055582 8d6467a1238836bdf02d6871eae727ef9ab11fee	no	10
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
4	Assignee showing of ownership per 37 CFR 3.73	2005_86USREI7_Statement373c.pdf	451811 888d406fe708eb057dc5644f99136222f6a593b	no	3
Warnings:					
Information:					
5	Assignee showing of ownership per 37 CFR 3.73	2005_86USREI7_373ATTACHMENT.pdf	2957400 b073578c456e333df72bdf5348d99464c3be9dcd	no	45
Warnings:					
Information:					
6	Miscellaneous Incoming Letter	2005_85USREI7_ConsentOfAssignee.pdf	70104 532a117c67e21bd790fee08f4f829ab5f0412287	no	1
Warnings:					

Information:					
7	Power of Attorney	2005_86USREI7_POA.pdf	582285 435914a1469df5364909484059ed7f2abb8499fe	no	3
Warnings:					
Information:					
8	Terminal Disclaimer Filed	2005_86USREI7_TDRE45380.pdf	398653 d0949835c6a3167f5802890db09a607551e2ae1d	no	1
Warnings:					
Information:					
9	Terminal Disclaimer Filed	2005_86USREI7_TDRE45760.pdf	400336 6a0549d7c8d64f866bf9999cc89a35aeed923372	no	1
Warnings:					
Information:					
10	Terminal Disclaimer Filed	2005_86USREI7_TDRE45776.pdf	398117 c89df8050fd4c797e5dd14f37f1b48d1aebcd72d	no	1
Warnings:					
Information:					
11	Terminal Disclaimer Filed	2005_86USREI7_TDRE46116.pdf	396198 0bc02378f3e93c3423b7eac29e344a797d20e803	no	1
Warnings:					
Information:					
12	Fee Worksheet (SB06)	fee-info.pdf	30667 1e4b04458b4260187d65bcfb2e9eda49d76156a2	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	7783933		

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.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	14/984,273	ROOT ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 1/25/18	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:
4/Tds all approved. Lawana Hixon

U.S. Patent and Trademark Office

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.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,273	12/30/2015	Howard C. Root	2005.86USREI7	5700

24113 7590 05/30/2018

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

EXAMINER	
WILLIAMS, CATHERINE SERKE	

ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
05/30/2018	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Office Action Summary	Application No. 14/984,273	Applicant(s) ROOT ET AL.	
	Examiner CATHERINE S. WILLIAMS	Art Unit 3993	AIA (First Inventor to File) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/25/18*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ 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.

4)☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *25-45* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☒ Claim(s) *25-45* is/are allowed.

7)☐ Claim(s) _____ is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

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)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *1/19/18*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

The present application is being examined under the pre-AIA first to invent provisions. [1]

QUAYLE ACTION

This application is in condition for allowance except for the following formal matters as detailed below. Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 25 USPQ 74, 453 O.G. 213, (Comm'r Pat. 1935). A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Consent of Assignee

A proper Consent of Assignee was filed on 1/25/18. The previous objection has been withdrawn.

Application Data Sheet

The Application Data Sheet (ADS) filed on 1/25/18 is defective because the "Domestic Priority Information" section contains errors. Specifically:

- The ADS must include the continuity claim of the 14/195435 application as a reissue of application No. 13/359059 on its own line on a corrected ADS. (See sample ADS below)

[1] It is noted that while the examination of the current reissue application falls under the pre-AIA first to invent provisions due to the filing date of US Patent No. 8,292,850; the application for reissue filing date is after September 16, 2012 and therefore is subject to the reissue rule changes enacted under the Leahy-Smith American Invents Act (AIA), see Federal Register, Vol. 77, No. 157, pg. 48820, August 16, 2012.

Page 464

- The ADS filed 1/25/18 did not include the instant application number in the title bar of the ADS forms. It is highly recommended that the corrected ADS include the instant application number on each page of the corrected ADS in order to be correctly matched with the instant application.
- Additionally, please use the instant reissue application number instead of a blank field as shown below.

Correction of the ADS is required in response to this Office action including markings with respect to the current filing receipt on record (see copy below). The sample ADS provided below includes the correct marking with respect to the current filing receipt. All markings must be with respect to this filing receipt.

The correction of the ADS must be accompanied by a Request for a Corrected Filing Receipt in order for the added continuity data to be included on any Reissue Patent.

CURRENT DOMESTIC PRIORITY DATA ON RECORD (clipped from filing receipt 3/25/16)

Domestic Priority data as claimed by applicant
This application is a CON of 14/195,435 03/03/2014
which is a CON of 14/070,161 11/01/2013 PAT RE45380
which is a REI of 13/359,059 01/25/2012 PAT 8292850
which 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

Page 465

SAMPLE ADS, DOMESTIC BENEFIT SECTION (includes correct markings with respect to the information on current filing receipt, shown above)

Domestic Benefit/National Stage Information:

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.
When referring to the current application, please leave the application number blank.

Prior Application Status	Patented ~~Pending~~				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/984273	Continuation of	14/196435	2014-03-03	RE46116	2016-08-23
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/984273	reissued of	13/356059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/196435	Continuation of	14/070161	2013-11-01	RE45380	2015-02-17
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/196435	reissued of	13/356059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/070161	reissued of	13/356059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/356059	Division of	12/824734	2010-06-28	8142413	2012-03-27
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12/824734	Division of	11/418629	2006-05-03	8048032	2011-11-01

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Amendment to the Specification

A proper amendment to the specification was filed 1/19/18. The previous objection has been withdrawn.

Information Disclosure Statement

The Information Disclosure Statements ('IDS') filed 1/19/18 has been entered into the file and all document have been reviewed. Any court proceedings listed on the IDS forms have been reviewed; however, they are not documents that will be printed on the front page of a Reissued Patent.

Recapture

The rejection of claims 25-45 under 35 U.S.C. 251 as being an impermissible recapture of broadened claimed subject matter surrendered in the application for the patent upon which the present reissue is based has been withdrawn in light of applicant's amendment to the claims filed 1/19/18.

Double Patenting

The rejection of claims 25-45 on the grounds of nonstatutory double patenting as being unpatentable over the claims of U.S. Patent Nos. RE45,380; RE45,760; RE45,776; and RE46,116 has been withdrawn in light of the four (4) terminal disclaimers filed 1/25/18 which have been approved.

Claim Rejections - 35 USC § 112

The rejection of claims 25-45 under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement has been withdrawn in light of applicant's arguments filed 1/19/18.

Claim Rejections - 35 USC § 102

The rejection of claims 25, 29, 33-34 and 36-37 under pre-AIA 35 U.S.C. 102(b) as being anticipated by US 5,527,292 to Adams et al. ("Adams") has been withdrawn in light of the amendment to the claims filed 1/19/18.

The rejection of claims 38 and 40-45 under pre-AIA 35 U.S.C. 102(b) as being anticipated by US 5,578,009 to Kraus et al. ("Kraus") has been withdrawn in light of the amendment to the claims filed 1/19/18.

Claim Rejections - 35 USC § 103

The rejection of claims 25-26, 29-32 and 35-40 under pre-AIA 35 U.S.C. 103(a) as being unpatentable over US 2003/0195546 to Solar et al. ("Solar") in view of Adams has been withdrawn in light of the amendment to the claims filed 1/19/18.

The rejection of claims 27-28 under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Adams in further view of US 5,562,620 to Klein et al. ("Klein") has been withdrawn in light of the amendment to the claims filed 1/19/18.

The rejection of claims 27-28 under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Solar in view of Adams in further view of Klein has been withdrawn in light of the amendment to the claims filed 1/19/18.

Allowable Subject Matter

Claims 25-45 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 25 and claims 26-37 and 42 that depend therefrom and independent claim 38 and claims 39-41 and 43-45 that depend therefrom, the prior art fails to teach at least defining a side opening portion, including forming, in a proximal to distal direction, an arcuate cross-sectional shape and a hemi cylindrical cross-sectional shape. The prior art most similar is to Solar. However, Solar only discloses transversely extending holes 21 through the side wall that do not include the claimed arcuate cross-sectional shape and hemi cylindrical cross section shape in a proximal to distal direction.

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."

Page 469

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CATHERINE S. WILLIAMS whose telephone number is (571)272-4970. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lillis Eileen can be reached on 571/272-6928. 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.

/Catherine S. Williams/
Primary Examiner
Central Reexamination Unit 3993

Conferees: /JLG/ and /EDL/

Page 470

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14984273	ROOT ET AL.
	Examiner	Art Unit
	CATHERINE S WILLIAMS	3993

✓	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	07/07/2017	07/07/2017	05/11/2018						
	1	-		-						
	2	-		-						
	3	-		-						
	4	-		-						
	5	-		-						
	6	-		-						
	7	-		-						
	8	-		-						
	9	-		-						
	10	-		-						
	11	-		-						
	12	-		-						
	13	-		-						
	14	-		-						
	15	-		-						
	16	-		-						
	17	-		-						
	18	-		-						
	19	-		-						
	20	-		-						
	21	-		-						
	22	-		-						
	23	-		-						
	24	-		-						
	25	✓		=						
	26	✓		=						
	27	✓		=						
	28	✓		=						
	29	✓		=						
	30	✓		=						
	31	✓		=						
	32	✓		=						
	33	✓		=						
	34	✓		=						
	35	✓		=						
	36	✓		=						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14984273	ROOT ET AL.
	Examiner	Art Unit
	CATHERINE S WILLIAMS	3993

✓	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	07/07/2017	07/07/2017	05/11/2018						
	37	✓		=						
	38	✓		=						
	39	✓		=						
	40	✓		=						
	41	✓		=						
	42	✓		=						
	43	✓		=						
	44	✓		=						
	45	✓		=						
	46									
	47									
	48									
	49									
	50									
	51									
	52									
	53									
	54									
	55									

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.S.W/

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	1	of	1	Attorney Docket Number	2005.86USREI7

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]
		QXMédical, LLC v. Vascular Solutions, Inc., Complaint - Jury Trial Demanded, dated June 8, 2017, 6 pages.	
		QXMédical, LLC v. Vascular Solutions, Inc., QXMédical, LLC Answer to Counterclaim, dated August 11, 2017, 11 pages.	
		QXMédical, LLC v. Vascular Solutions, Inc., First Amended Complaint - Jury Trial Demanded, dated June 27, 2017, 263 pages.	
		QXMédical, LLC v. Vascular Solutions, Inc., Defendant's Answer to Plaintiff's First Amended Complaint and Defendant's Counterclaims, dated July 21, 2017, 19 pages.	
		QXMédical, LLC v. Vascular Solutions, Inc., QXMédical, LLC Prior Art Statement, dated October 30, 2017, 355 pages.	
		QXMédical, LLC v. Vascular Solutions, Inc., Defendant Vascular Solutions, Inc.'s Infringement Disclosure and Claim Chart, dated September 1, 2017, 220 pages.	
		QXMédical, LLC v. Vascular Solutions, Inc., QXMédical, LLC Non-Infringement Chart, dated October 30, 2017, 137 pages.	
		QXMédical, LLC v. Vascular Solutions, Inc., Defendant Vascular Solutions, Inc.'s Responsive Prior Art Statement, dated December 8, 2017, 315 pages.	
		Letter to Merrill from Vitt, QXMédical, LLC Boosting Catheter, dated May 30, 2017, 108 pages.	

EXAMINER SIGNATURE	/CATHERINE S WILLIAMS/	DATE CONSIDERED	05/01/2018

*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.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Page 473

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14984273	ROOT ET AL.
	Examiner	Art Unit
	CATHERINE S WILLIAMS	3993

CPC- SEARCHED		
Symbol	Date	Examiner
A61M 25/01; 25/0102; 25/0067-0069; 2025/0681; 25/005,0051,0052; 25/0053-0054; 25/0141; 25/007; 2025/008,0081	7/7/17	CSW
updated	5/11/18	CSW

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
none		7/717	CSW

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
reviewed prosecution history of US Pat.8,292,850 including applications 14/070,161; 12/824,734; 11/416,629; 14/195,385; 14/195,413	7/717	CSW
see search history		
updated	5/11/18	CSW

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
none	A61M 25/01; 25/0102; 25/0067-0069; 2025/0681; 25/005,0051,0052; 25/0053-0054; 25/0141; 25/007; 2025/008,0081	7/7/17	CSW
updated		5/11/18	CSW

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:	Attorney Docket No.: 2005.86USREI7
Root et al.	Confirmation No.: 5700
Application No.: 14/984,273	Examiner: Catherine Serke Williams
Filed: December 30, 2015	Group Art Unit: 3993

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

RESPONSE TO EX PARTE QUAYLE ACTION

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

Commissioner:

INTRODUCTORY COMMENTS

In response to the Office Action of May 30, 2018, amendment to the above-identified patent application is requested.

The present amendment comprises the following sections:

A. Listing of Claims

B. Remarks

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

LISTING OF CLAIMS

A detailed listing of all claims that are, or were, in the present application, irrespective of whether the claim(s) remain(s) under examination in the application is presented below. The claims are presented in ascending order and each includes one status identifier. Those claims not cancelled or withdrawn but amended by the current amendment utilize the following notations for amendment: 1. deleted matter is shown by strikethrough for six or more characters and double brackets for five or fewer characters; and 2. added matter is shown by underlining.

Page 476

1. (Cancelled) 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 structure 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 rail structure without a lumen 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

Page 477

portion extends proximally through the hemostatic valve in common with interventional cardiology devices that are insertable into the guide catheter.

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

Page 478

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

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

8. (Cancelled) 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. (Cancelled) 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. (Cancelled) 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.

Page 479

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

12. (Cancelled) 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 structure 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

Page 480

a substantially rigid portion proximal of, connected to, and more rigid along a longitudinal axis than, the flexible tip portion and defining a rail structure without a lumen 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. (Cancelled) 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. (Cancelled) 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.

Page 481

15. (Cancelled) 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. (Cancelled) The system of claim 12, the device further comprising a radiopaque marker proximate the distal portion of the flexible tip portion.

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

18. (Cancelled) 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. (Cancelled) 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.

Page 482

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

Page 483

Please add new claims 25-45 as follows:

25. (New) A method of forming a device adapted for use with a standard guide catheter having a continuous lumen extending for a predefined length, the method comprising:

providing a flexible tip segment having a lumen therethrough;

providing a reinforced segment having a lumen therethrough, including one or more metallic elements covered with a polymer, and extending from a proximal end portion to a distal end portion;

providing a substantially rigid segment extending from a proximal end portion to a distal end portion, wherein the substantially rigid segment is more rigid along a longitudinal axis than the flexible tip segment;

defining a side opening portion, including forming, in a proximal to distal direction, an arcuate cross-sectional shape and a hemicylindrical cross-sectional shape;

eccentrically positioning the distal end portion of the substantially rigid segment relative to a longitudinal axis of the proximal end portion of the reinforced segment; and

coaxially aligning the distal end portion of the reinforced segment and a proximal end portion of the flexible tip segment,

wherein providing the substantially rigid segment, the reinforced segment, and the flexible tip segment includes forming a device length that is longer than the predefined length of the continuous lumen of the guide catheter such that when a distal end portion of the flexible tip segment is extended distally of a distal end of the guide catheter, the proximal end portion of the substantially rigid segment extends proximally of a proximal end of the guide catheter.

Page 484

26. (New) The method of claim 25, further comprising extending the side opening portion for a distance along a longitudinal axis of the device such that the side opening portion is accessible from a longitudinal side, defined transverse to the longitudinal axis, along the distance.

27. (New) The method of claim 25, wherein providing the substantially rigid segment includes providing one or more relief openings at its distal end portion.

28. (New) The method of claim 27, wherein the one or more relief openings include a first relief opening and a second relief opening, the openings spaced apart from one another.

29. (New) The method of claim 25, wherein providing the substantially rigid segment includes forming or obtaining a hypotube or a metal rail structure.

30. (New) The method of claim 25, wherein providing the substantially rigid segment and the reinforced segment includes, starting at the distal end portion of the reinforced segment and moving proximally toward the proximal end portion of the substantially rigid segment, forming or obtaining at least a first device portion having a first flexural modulus and a second device portion having a second flexural modulus, the second flexural modulus greater than the first flexural modulus.

Page 485

31. (New) The method of claim 25, wherein providing the reinforced segment includes covering one or more braided or coiled metallic elements with the polymer.

32. (New) The method of claim 31, wherein a length of the one or more braided or coiled metallic elements is in a range of 20 centimeters to 30 centimeters.

33. (New) The method of claim 25, wherein providing the reinforced segment includes forming or obtaining a reinforced segment including a lumen having a uniform inner diameter that is about one French smaller than an inner diameter of the continuous lumen of the guide catheter.

34. (New) The method of claim 33, wherein the lumen of the reinforced segment is greater than or equal to 0.056 inches and the continuous lumen of the guide catheter is greater than or equal to 0.070 inches.

35. (New) The method of claim 25, wherein providing one or both of the reinforced segment and the flexible tip segment includes lining the lumens thereof with polytetrafluoroethylene.

36. (New) The method of claim 25, wherein providing the flexible tip segment includes providing an atraumatic bumper formed of a polymer or an elastomeric material.

Page 486

37. (New) The method of claim 36, wherein providing the flexible tip segment includes covering a marker band with the polymer or the elastomeric material.

38. (New) A method of forming a device adapted for use with a standard guide catheter having a continuous lumen extending for a predefined length, the method comprising:

providing a flexible tip segment having a lumen therethrough;

providing a reinforced segment including one or more metallic elements covered with a polymer and having a lumen for coaxial alignment with the lumen of the flexible tip segment;

providing a substantially rigid segment extending from a proximal end portion to a distal end portion, wherein the substantially rigid segment is more rigid along a longitudinal axis than the flexible tip segment;

defining a side opening portion, including forming, in a proximal to distal direction, an arcuate cross-sectional shape and a hemicylindrical cross-sectional shape, the side opening portion extending for a distance along a longitudinal axis of the device such that the side opening is accessible from a longitudinal side, defined transverse to the longitudinal axis, to receive a balloon catheter and stent; and

arranging, in a proximal to distal direction, the substantially rigid segment, the side opening portion, the reinforced segment, and the flexible tip segment such that when the flexible tip segment is extended distally of a distal end of the guide catheter, the proximal end portion of the substantially rigid segment extends proximally of a proximal end of the guide catheter and the side opening portion is positioned within the continuous lumen of the guide catheter.

Page 487

39. (New) The method of claim 38, wherein providing the substantially rigid segment, defining the side opening, and providing the reinforced segment includes, starting at a distal end portion of the reinforced segment and moving proximally toward the proximal end portion of the substantially rigid segment, forming or obtaining at least a first device portion having a first flexural modulus, a second device portion having a second flexural modulus greater than the first flexural modulus, and a third device portion having a third flexural modulus greater than the second flexural modulus.

40. (New) The method of claim 38, wherein defining the side opening portion includes providing an angled entrance into the lumen of the reinforced segment.

41. (New) The method of claim 38, wherein defining the side opening includes forming an arcuate cross-sectional shape having a length of about 15 centimeters.

42. (New) The method of claim 25, further comprising defining the side opening portion in the substantially rigid segment.

43. (New) The method of claim 38, wherein defining the side opening portion includes forming a concave track.

Page 488

44. (New) The method of claim 38, wherein defining the side opening portion includes forming a first inclined sidewall, forming a second inclined sidewall, and separating the first inclined sidewall and the second inclined sidewall by a non-inclined region.

45. (New) The method of claim 38, wherein providing the substantially rigid segment, defining the side opening portion, providing the reinforced segment, and providing the flexible tip segment includes forming a device cross-sectional size and shape configured to be passed, at least in part, into the continuous lumen of the guide catheter.

Page 489

REMARKS

Claims 25-45 are pending. Claims 25-45 are allowed. By this Amendment, no claims are cancelled, no claims are amended and no new claims are added.

Allowed claims

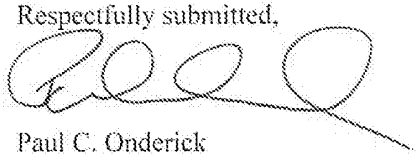
Applicant thanks the Examiner for the indication that claims 25-45 are allowed and that all other issues in the application have been addressed and rejections and objections overcome except for the need to file a further updated Application Data Sheet.

With this response, Applicant files an updated Application Data Sheet in conformance with the Examiner's comments. Accordingly, Applicant respectfully submits that the application is in condition for allowance.

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



Paul C. Onderick
Registration No. 45354

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

Page 490

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Howard	C.	Root	

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

City	Tonka Bay	State/Province	MN	Country of Residence	US

Mailing Address of Inventor:

Address 1	25 Fairhope Avenue		
Address 2			
City	Tonka Bay	State/Province	MN
Postal Code	55331	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Gregg		Sutton	

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

City	Plymouth	State/Province	MN	Country of Residence	US

Mailing Address of Inventor:

Address 1	18400 31st Avenue North		
Address 2			
City	Plymouth	State/Province	MN
Postal Code	55447	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jeffrey	M.	Welch	

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

City	Maple Grove	State/Province	MN	Country of Residence	US

Mailing Address of Inventor:

Address 1	8723 Cornstock Lane North		
Address 2			
City	Maple Grove	State/Province	MN
Postal Code	55311	Country	US

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jason	M.	Garrity	

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

City	Lima	State/Province	NY	Country of Residence	US

Mailing Address of Inventor:

Address 1	2838 Livonia Center Road		
Address 2			
City	Lima	State/Province	NY
Postal Code	14485	Country	US

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

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	24113		
Email Address	onderick@ptslaw.com	Add Email	Remove Email
Email Address	pedersen@ptslaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES		
Attorney Docket Number	2005.86USREI7	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

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.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	24113		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim 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.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Patented	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/984273	Continuation of	14/195435	2014-03-03	RE46116	2016-08-23

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/984273	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/195435	Continuation of	14/070161	2013-11-01	RE45380	2015-02-17
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/195435	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/070161	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/359059	Division of	12/824834	2010-06-28	8142413	2012-03-27
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12/824734	Division of	11/416629	2006-05-03	8048032	2011-11-01
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/984273	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/359059	Division of	12/824734	2010-06-28	8142413	2012-03-27
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12/824734	Division of	11/416629	2006-05-03	8048032	2011-11-01
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.					

Foreign Priority Information:

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

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

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
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 contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Applicant Information:

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

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

○ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
◉ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:	
If the Applicant is an Organization check here.	☒
Organization Name	Teleflex Innovations S.à.R.L.

Mailing Address Information For Applicant:

Address 1	560A, rue de Neudorf		
Address 2			
City	Grand Duchy	**State/Province**	
Country LU		Postal Code	L-2220
Phone Number		Fax Number	
Email Address			

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

Assignee Information including Non-Applicant Assignee Information:

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

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
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 contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Paul Onderick/			Date (YYYY-MM-DD)	2018-07-02
First Name	Paul	Last Name	Onderick	Registration Number	45354

Additional Signature may be generated within this form by selecting the Add button.

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
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 contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Page 499

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 the Freedom of Information Act requires disclosure of these records.

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 CooperationTreaty.

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 inspections 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.

EFS Web 2.2.13

Page 500

Electronic Acknowledgement Receipt	
EFS ID:	33063395
Application Number:	14984273
International Application Number:	
Confirmation Number:	5700
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard C. Root
Customer Number:	24113
Filer:	Paul C. Onderick/Michelle Arcand
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86USREI7
Receipt Date:	02-JUL-2018
Filing Date:	30-DEC-2015
Time Stamp:	12:17:12
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		2005_86USREI7_RESPONSE.pdf	817447 bd0cd8c35747d97083554472cb11f7ac78fa1e74	yes	16

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Response after Ex Parte Quayle Action	1	1
	Claims	2	15
	Applicant Arguments/Remarks Made in an Amendment	16	16

Warnings:					
Information:					
2	Application Data Sheet	2005_86USREI7_SADS.pdf	143868 d687b0f177105c49dc0f94ece3b81511a18fa4ed	no	10
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
		Total Files Size (in bytes):	961315		

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.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/984,273	Filing Date 12/30/2015	☐ To be Mailed

ENTITY: ☐ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ 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).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	01/19/2018	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 21	Minus	** 21	=	X $ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	***3	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT	07/02/2018	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 21	Minus	** 21	=	X $ =	
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

* 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 number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Page 503

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.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,273	12/30/2015	Howard C. Root	2005.86USREI7	5700

24113 7590 08/02/2018
PATTERSON THUENTE PEDERSEN, P.A.
80 SOUTH 8TH STREET
4800 IDS CENTER
MINNEAPOLIS, MN 55402-2100

EXAMINER	
WILLIAMS, CATHERINE SERKE	

ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
08/02/2018	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Examiner-Initiated Interview Summary	Application No. 14/984,273	Applicant(s) ROOT ET AL.	
	Examiner CATHERINE S. WILLIAMS	Art Unit 3993	

All participants (applicant, applicant's representative, PTO personnel):

(1) *CATHERINE S. WILLIAMS*. (3)_____.

(2) *Paul Onderick*. (4)_____.

Date of Interview: *27 July 2018*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *none*.

Identification of prior art discussed: *none*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Ex. Williams called Mr. Onderick to provide explanation of errors still occuring in the ADS submitted 7/02/18. The examiner stated that the ADS hasn't been entered since 1) applicant did not filed a request for corrected filing receipt; and 2) the corrections to the applicant information was not underlined. Ex. Williams explained that even though the applicant information corrections were submitted in a previous ADS those changes were never made due to other errors with that ADS. Therefore, the applicant information should still be underlined and bracketed since those changese still need to be made. The examiner also stressed to file a request for corrected filing receipt. Attached are sample Domestic Benefit and Applicant sections of the ADS filled out with the appropriate underlinings and brackets/strikethroughs with respect to the current filing receipt of record. .

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☒ Attachment

/Catherine S. Williams/ Primary Examiner CRU 3993	

Application Data Sheet

The Application Data Sheet (ADS) filed on 7/2/18 is not complete with all the changes needed in both the Domestic Priority and Applicant sections. Please find below sample Domestic Benefit and Applicant sections for copying on a newly submitted PTO/AIA14 in order to make the changes by the office.

The correction of the ADS must be accompanied by a Request for a Corrected Filing Receipt in order for the added continuity data to be included on any Reissue Patent.

CURRENT DOMESTIC PRIORITY DATA ON RECORD (clipped from filing receipt 3/25/16)

Domestic Priority data as claimed by applicant
This application is a CON of 14/195,435 03/03/2014
which is a CON of 14/070,161 11/01/2013 PAT RE45380
which is a REI of 13/359,059 01/26/2012 PAT 8292850
which 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

SAMPLE ADS, DOMESTIC BENEFIT SECTION and APPLICANT SECTION (includes correct markings with respect to the information on current filing receipt, shown above)

Page 506

Domestic Benefit/National Stage Information:

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.
When referring to the current application, please leave the application number blank.

Prior Application Status: Patented ~~Pending~~ Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/984273	Continuation of	14/195435	2014-03-03	RE46116	2016-08-23

Prior Application Status: Patented Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/984273	reissued of	13/359059	2012-01-26	8292850	2012-10-23

Prior Application Status: Patented Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/195435	Continuation of	14/070161	2013-11-01	RE45380	2015-02-17

Prior Application Status: Patented Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/195435	reissued of	13/359059	2012-01-26	8292850	2012-10-23

Prior Application Status: Patented Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/070161	reissued of	13/359059	2012-01-26	8292850	2012-10-23

Prior Application Status: Patented Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/359059	Division of	12/824734	2010-06-28	8142413	2012-03-27

Prior Application Status: Patented Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12/824734	Division of	11/416829	2006-05-03	8048032	2011-11-01

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Applicant Information:

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

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

○ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
◉ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	~~VASCULAR SOLUTIONS, INC.~~ Teleflex Innovations S.à.R.L.		
Mailing Address Information For Applicant:			
Address 1	~~6464 Sycamore Court North~~ 560A, rue de Neudorf		
Address 2			
City	~~Minneapolis~~ Grand Duchy	**State/Province**	~~MN~~
Country ~~US~~ LU		Postal Code	~~55369~~ L-2220
Phone Number		Fax Number	
Email Address			

Page 508

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:	Attorney Docket No.: 2005.86USREI7
Root et al.	Confirmation No.: 5700
Application No.: 14/984,273	Examiner: Catherine Serke Williams
Filed: December 30, 2015	Group Art Unit: 3993

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

REQUEST FOR CORRECTED FILING RECEIPT

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

Commissioner:

Applicant notes the following errors in the official Filing Receipt mailed March 25, 2018:

Applicant(s)

~~VASCULAR SOLUTIONS, INC., Minneapolis, MN~~

Teleflex Innovations S.à.R.L., Grand Duchy, LU

Assignment For Published Patent Application

~~VASCULAR SOLUTIONS, INC., Minneapolis, MN~~

Teleflex Innovations S.à.R.L., Grand Duchy, LU

Domestic Priority data as claimed by applicant

This application is a CON of 14/195,435 03/03/2014 PAT RE46116
and is a REI of 13/359,059 01/26/2012 PAT 8292850
14/195,435 ~~which~~ is a CON of 14/070,161 11/01/2013 PAT RE45380
and is a REI of 13/359,059 01/26/2012 PAT 8292850
14/070,161 ~~which~~ is a REI of 13/359,059 01/26/2012 PAT 8292850
which 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

Page 509

Enclosed is a photocopy of the filing receipt with the corrections required marked. Applicant requests issuance of a corrected filing receipt.

The form and content of the Supplemental Application Data Sheet are based on the Examiner's comments during the Telephone Interview with the undersigned on July 27, 2018 and the instructions provided by the Examiner in the subsequently issued Telephone Interview Summary mailed on August 2, 2018. Accordingly the format of the Supplemental Application Datasheet is in reliance upon the instructions of the Examiner and an effort by Applicant to accurately present the chain of priority of this Reissue Application.

Respectfully submitted,

Paul C. Onderick
Registration No. 45354

Customer No. 24113
Patterson Thuente 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.

Page 510

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
14/984,273	12/30/2015	3761	3260	2005.86USREI7	21	2

CONFIRMATION NO. 5700

UPDATED FILING RECEIPT

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

Date Mailed: 03/25/2016

Receipt is acknowledged of this reissue 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**

Inventor(s)
Howard C. Root, Tonka Bay, MN;
Gregg Sutton, Plymouth, MN;
Jeffrey M. Welch, Maple Grove, MN;
Jason M. Garrity, Lima, NY;

Applicant(s) Teleflex Innovations S.à.R.L., Grand Duchy, LU
~~VASCULAR SOLUTIONS, INC., Minneapolis, MN~~, Assignee (with 37 CFR 1.172 interest);

Assignment For Published Patent Application
~~VASCULAR SOLUTIONS, INC., Minneapolis, MN~~
Teleflex Innovations S.à.R.L., Grand Duchy, LU

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

Domestic Priority data as claimed by applicant
~~This application is a CON of 14/195,435 03/03/2014~~
~~which is a CON of 14/070,161 11/01/2013 PAT RE45380~~
~~which is a REI of 13/359,059 01/26/2012 PAT 8292850~~
~~which 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~~

This application is a CON of 14/195,435 03/03/2014 PAT RE46116
and is a REI of 13/359,059 01/26/2012 PAT 8292850
14/195,435 is a CON of 14/070,161 11/01/2013 PAT RE45380
and is a REI of 13/359,059 01/26/2012 PAT 8292850
14/070,161 is a REI of 13/359,059 01/26/2012 PAT 8292850
which 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 for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 01/21/2016
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/984,273**
Projected Publication Date: None, application is not eligible for pre-grant publication
Non-Publication Request: No
Early Publication Request: No
Title

COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

Preliminary Class

604

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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 (1-866-999-4258).

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).

---

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Page 514

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Howard	C.	Root	

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

City	Tonka Bay	State/Province	MN	Country of Residence	US

Mailing Address of Inventor:

Address 1	25 Fairhope Avenue		
Address 2			
City	Tonka Bay	State/Province	MN
Postal Code	55331	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Gregg		Sutton	

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

City	Plymouth	State/Province	MN	Country of Residence	US

Mailing Address of Inventor:

Address 1	18400 31st Avenue North		
Address 2			
City	Plymouth	State/Province	MN
Postal Code	55447	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jeffrey	M.	Welch	

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

City	Maple Grove	State/Province	MN	Country of Residence	US

Mailing Address of Inventor:

Address 1	8723 Cornstock Lane North		
Address 2			
City	Maple Grove	State/Province	MN
Postal Code	55311	Country	US

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jason	M.	Garrity	

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

City	Lima	State/Province	NY	Country of Residence	US

Mailing Address of Inventor:

Address 1	2838 Livonia Center Road		
Address 2			
City	Lima	State/Province	NY
Postal Code	14485	Country	US

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

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	24113		
Email Address	onderick@ptslaw.com	Add Email	Remove Email
Email Address	pedersen@ptslaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES		
Attorney Docket Number	2005.86USREI7	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

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.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	24113		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim 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.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Patented ~~Pending~~	Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/984273	Continuation of	14/195435	2014-03-03	RE46116	2016-08-23

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/984273	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/195435	Continuation of	14/070161	2013-11-01	RE45380	2015-02-17
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/195435	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/070161	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/359059	Division of	12/824734	2010-06-28	8142413	2012-03-27
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12/824734	Division of	11/416629	2006-05-03	8048032	2011-11-01

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove			
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Applicant Information:

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

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
◉ ~~Person to whom the inventor is obligated to assign.~~	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	~~VASCULAR SOLUTIONS, INC.~~ Teleflex Innovations S.à.R.L.		
Mailing Address Information For Applicant:			
Address 1	~~6464 Sycamore Court North~~ 560A, rue de Neudorf		
Address 2			
City	~~Minneapolis~~ Grand Duchy	**State/Province**	~~MN~~
Country	~~US~~ LU	Postal Code	~~55369~~ L-2220
Phone Number		Fax Number	
Email Address			

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

Assignee Information including Non-Applicant Assignee Information:

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

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Paul Onderick/			Date (YYYY-MM-DD)	2018-08-28
First Name	Paul	Last Name	Onderick	Registration Number	45354

Additional Signature may be generated within this form by selecting the Add button.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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 the Freedom of Information Act requires disclosure of these records.

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 CooperationTreaty.

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 inspections 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.

Electronic Acknowledgement Receipt	
EFS ID:	33563690
Application Number:	14984273
International Application Number:	
Confirmation Number:	5700
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard C. Root
Customer Number:	24113
Filer:	Paul C. Onderick/Michelle Arcand
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86USREI7
Receipt Date:	28-AUG-2018
Filing Date:	30-DEC-2015
Time Stamp:	16:08:36
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 Corrected Filing Receipt	2005_86USREI7_REQCORRECTFR.pdf	233304 5f5247002c2a672f00b1261a58eedb792162d11d	no	2

Warnings:

Information:					
2	Request for Corrected Filing Receipt	2005_86USREI7_MARKEDFR.pdf	813893 30286d47c8c04f65424d4c06f9d4fe5e4cc616eb	no	4
Warnings:					
Information:					
3	Application Data Sheet	2005_86USREI7_SADS.pdf	683423 9b86004ac5323d73cfcfb06a428389cfd1f1cfaf	no	10
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
			Total Files Size (in bytes):	1730620	

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
14/984,273	12/30/2015	3993	3260	2005.86USREI7	21	2

CONFIRMATION NO. 5700

CORRECTED FILING RECEIPT

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

Date Mailed: 09/17/2018

Receipt is acknowledged of this reissue 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**

Inventor(s)

Howard C. Root, Tonka Bay, MN;
Gregg Sutton, Plymouth, MN;
Jeffrey M. Welch, Maple Grove, MN;
Jason M. Garrity, Lima, NY;

Applicant(s)

Teleflex Innoovations S.a.R.L., Grand Duchy, LUXEMBOURG, Assignee (with 37 CFR 1.172 Interest);

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

Domestic Priority data as claimed by applicant

This application is a CON of 14/195,435 03/03/2014 PAT RE46116
and is a REI of 13/359,059 01/26/2012 PAT 8292850
and said 14/195,435 03/03/2014
is a CON of 14/070,161 11/01/2013 PAT RE45380
and is a REI of 13/359,059 01/26/2012 PAT 8292850
and said 14/070,161 11/01/2013
is a REI of 13/359,059 01/26/2012 PAT 8292850
which 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 for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Page 527

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 01/21/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/984,273**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

Title

COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

Preliminary Class

604

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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 (1-866-999-4258).

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).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor

community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Page 530

Litigation Search Report CRU 3999

Reissue Serial No. 14/984,273

To: Catherine Williams Location: CRU Art Unit: 3993 Date: 09/19/2018	From: Renee Preston Location: CRU 3999 REM 4C75 Phone: (571) 272-1607 Renee.preston@uspto.gov

Search Notes

U.S. Patent No. 8,292,850

1) I performed a KeyCite Search in Westlaw, which retrieves all history on the patent including any litigation.

2) I performed a search on the patent in Lexis CourtLink for any open dockets or closed cases.

3) I performed a search in Lexis in the Federal Courts and Administrative Materials databases for any cases found.

4) I performed a search in Lexis in the IP Journal and Periodicals database for any articles on the patent.

5) I performed a search in Lexis in the news databases for any articles about the patent or any articles about litigation on this patent.

Litigation: No cases found

Status	Description	Court	Docket Number
Closed	Vascular Solutions, Inc. V. Boston Scientific Corporation	US-DIS-MND	0:12cv1172
Closed	Boston Scientific Corporation Vs. Vascular Solutions, Inc.	US-PTO-ALE	IPR2014-00762
Closed	Boston Scientific Corporation Vs. Vascular Solutions, Inc.	US-PTO-ALE	IPR2014-00763
Closed	Vascular Solutions, Inc. v. Boston Scientific Corporation	US-APP-CAFED	14-1185

Page 531

References Cited Items (28)

Title	Date	Type
1. COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES Out Of Plan US PAT 8142413	Jun 28, 2010	Patents
2. GUIDEWIRE ASSEMBLY INCLUDING A REPEATABLY INFLATABLE OCCLUSIVE BALLOON ON A GUIDEWIRE ENSHEATHED WITH A SPIRAL COIL Out Of Plan US PAT APP 20050182437	May 04, 2004	Patents
3. ENHANCED CATHETER WITH ALIGNMENT MEANS Out Of Plan US PAT APP 20030195546	May 02, 2003	Patents
4. COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES Out Of Plan US PAT APP 20070260219	May 03, 2006	Patents
5. APPARATUS AND METHODS FOR STRAIGHTENING ANGLED TISSUE CUTTING INSTRUMENTS Out Of Plan US PAT APP 20040127927	Sep 16, 2002	Patents
6. TELESCOPING GUIDE CATHETER WITH PEEL-AWAY OUTER SHEATH Out Of Plan US PAT 7697996	Sep 28, 2006	Patents
7. GUIDEWIRE EXCHANGE CATHETER Out Of Plan US PAT 4932413	Mar 13, 1989	Patents
8. RAPID EXCHANGE CATHETER AND METHODS FOR DELIVERY OF VASO-OCCLUSIVE DEVICES Out Of Plan US PAT 6689144	Feb 08, 2002	Patents
9. SMALL GAUGE NEEDLE CATHETERIZATION APPARATUS Out Of Plan US PAT APP 20050004523	Jun 29, 2004	Patents
10. COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES Out Of Plan US PAT APP 20100324567	Jun 28, 2010	Patents
11. SUPPORT SYSTEM FOR CATHETER Out Of Plan US PAT 5098412	Nov 01, 1990	Patents
12. VERSATILE INTERVENTIONAL CORONARY GUIDING CATHETER Out Of Plan US PAT 6860876	May 09, 2003	Patents
13. INNER AND OUTER TELESCOPING CATHETER DELIVERY SYSTEM Out Of Plan US PAT 7717899	Jan 28, 2002	Patents
14. LARGE-DIAMETER INTRODUCER SHEATH HAVING HEMOSTASIS VALVE AND REMOVABLE STEERING MECHANISM Out Of Plan US PAT 6338725	Sep 23, 1998	Patents
15. CATHETER TO CANNULATE THE CORONARY SINUS Out Of Plan US PAT 6638268	Apr 06, 2001	Patents
16. DEFLECTABLE TELESCOPING GUIDE CATHETER Out Of Plan US PAT 6755812	Dec 11, 2001	Patents
17. EXCHANGE CATHETER AND METHOD OF USE Out Of Plan US PAT 6159195	Feb 19, 1998	Patents
18. GUIDE CATHETER WITH BACKUP SUPPORT SYSTEM Out Of Plan US PAT 6595952	Jan 04, 2001	Patents

Title	Date	Type
19. METHOD AND APPARATUS FOR INTRALUMINAL PROSTHESIS DELIVERY Out Of Plan US PAT 5776141	Aug 26, 1996	Patents
20. ADJUSTABLE LENGTH CATHETER ASSEMBLY Out Of Plan US PAT 6706018	Dec 04, 2001	Patents
21. MULTISEGMENTED GUIDING CATHETER FOR USE IN MEDICAL CATHETER SYSTEMS Out Of Plan US PAT 5656263	May 18, 1995	Patents
22. NON-FLUSH OVER-THE-WIRE CATHETER DEVICES Out Of Plan US PAT 6610068	Sep 22, 2000	Patents
23. CATHETER FOR ANGIOPLASTY WITH SOFT CENTERING TIP Out Of Plan US PAT 5122125	Apr 25, 1990	Patents
24. RAPID EXCHANGE CATHETER Out Of Plan US PAT 5472425	Apr 22, 1994	Patents
25. ANGIOPLASTY GUIDE CATHETER Out Of Plan US PAT 6475195	May 01, 2000	Patents
26. ANGIOPLASTY GUIDING CATHETERS AND METHODS FOR PERFORMING ANGIOPLASTY Out Of Plan US PAT 4813930	Oct 13, 1987	Patents
27. COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES Out Of Plan US PAT 8048032	May 03, 2006	Patents
28. CATHETER ASSEMBLY AND METHOD OF PERFORMING PERCUTANEOUS TRANSLUMINAL CORONARY ANGIOPLASTY Out Of Plan US PAT 4832028	Feb 27, 1987	Patents

Citing References (68)

Treatment	Title	Date	Type	Depth	Headnote(s)
Examined by	1. Petition for Inter Partes Review Under 37 C.F.R. s 42.100 Out Of Plan BOSTON SCIENTIFIC CORPORATION and Boston Scientific Scimed, Inc., Petitioner, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 2048405, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	May 16, 2014	Administrative Filing		---
Examined by	2. Petition for Inter Partes Review Under 37 C.F.R. s 42.100 Out Of Plan BOSTON SCIENTIFIC CORPORATION and Boston Scientific Scimed, Inc., Petitioner, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 2048406, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	May 16, 2014	Administrative Filing		---
Examined by	3. Corrected Petition for Inter Partes Review Under 37 C.F.R. s 42.100 Out Of Plan BOSTON SCIENTIFIC CORPORATION and Boston Scientific Scimed, Inc., Petitioner, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 2057683, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	May 16, 2014	Administrative Filing		---
Examined by	4. Boston Scientific Corporation's First Amended Answer to Amended Complaint and Counterclaims Out Of Plan VASCULAR SOLUTIONS, INC., Plaintiff-Counter Defendant, v. BOSTON SCIENTIFIC CORPORATION, Defendant- Counter Plaintiff. Boston Scientific Corporation a... 2014 WL 7670633, *1+ , D.Minn. (Trial Pleading)	May 27, 2014	Petition		---
Examined by	5. Boston Scientific Corporation's Answer to Amended Complaint and Counterclaims Out Of Plan VASCULAR SOLUTIONS, INC., Plaintiff-Counter Defendant, v. BOSTON SCIENTIFIC CORPORATION, Defendant- Counter Plaintiff. Boston Scientific Corporation a... 2013 WL 10104255, *1+ , D.Minn. (Trial Pleading)	July 11, 2013	Petition		---
Examined by	6. Amended Complaint Out Of Plan VASCULAR SOLUTIONS, INC., Plaintiff, v. BOSTON SCIENTIFIC CORPORATION, Defendant. 2013 WL 10104253, *1+ , D.Minn. (Trial Pleading)	May 28, 2013	Petition		---
Examined by	7. Complaint Out Of Plan VASCULAR SOLUTIONS, INC., Plaintiff, v. BOSTON SCIENTIFIC CORPORATION, Defendant. 2013 WL 2300225, *1+ , D.Minn. (Trial Pleading)	May 16, 2013	Petition		---

Treatment	Title	Date	Type	Depth	Headnote(s)
Discussed by	**8. Vascular Solutions Inc.'s Answer to Counterclaim Plaintiffs' Amended Counterclaims** Out Of Plan VASCULAR SOLUTIONS, INC., Plaintiff, v. BOSTON SCIENTIFIC CORPORATION, Defendant. Boston Scientific Corporation and Boston Scientific Scimed, Inc., Co... 2014 WL 7670585, *1+ , D.Minn. (Trial Pleading)	June 13, 2014	Petition		----
Discussed by	**9. Plaintiff Vascular Solutions, Inc.'s Answer to the Counterclaim of Boston Scientific Corporation and Boston Scientific Scimed, Inc.** Out Of Plan VASCULAR SOLUTIONS, INC., Plaintiff and Counterclaim Defendant, v. BOSTON SCIENTIFIC CORPORATION, Defendant and Counterclaim Plaintiff. Boston Scienti... 2013 WL 10104217, *1+ , D.Minn. (Trial Pleading)	Aug. 22, 2013	Petition		----
Cited by	**10. Joint Motion to Terminate Inter Partes Review Pursuant to 35 U.S.C. s 317(a) and 37 C.F.R. ss 42.72 and 42.74** Out Of Plan BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886434, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		----
Cited by	**11. Petitioners' August 8, 2014 Updated Exhibit List** Out Of Plan BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886436, *1 , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		----
Cited by	**12. Joint Motion to Terminate Inter Partes Review Pursuant to 35 U.S.C. s 317(a) and 37 C.F.R. ss 42.72 and 42.74** Out Of Plan BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886437, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		----
Cited by	**13. Petitioners' August 8, 2014 Updated Exhibit List** Out Of Plan BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886439, *1 , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		----
Cited by	**14. Petitioner's Motion to Expunge** Out Of Plan BOSTON SCIENTIFIC CORPORATION and Boston Scientific Scimed, Inc., Petitioner, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 2048403, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	May 16, 2014	Administrative Filing		----

Treatment	Title	Date	Type	Depth	Headnote(s)
Cited by	**15. Petition for Inter Partes Review Under 37 C.F.R. s 42.100** Out Of Pkw BOSTON SCIENTIFIC CORPORATION and Boston Scientific Scimed, Inc., Petitioner, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 2048407, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	May 16, 2014	Administrative Filing		—
Cited by	**16. Petition for Inter Partes Review under 37 C.F.R. s 42.100** Out Of Pkw BOSTON SCIENTIFIC CORPORATION and Boston Scientific Scimed, Inc., Petitioner, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 2048408, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	May 16, 2014	Administrative Filing		—
Cited by	**17. Petition for Inter Partes Review Under 37 C.F.R. s 42.100** Out Of Pkw BOSTON SCIENTIFIC CORPORATION and Boston Scientific Scimed, Inc., Petitioner, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 1977978, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	May 15, 2014	Administrative Filing		—
Cited by	**18. Defendants' Second Amended Answer to Plaintiff's Second Amended Complaint and Defendants' Second Amended Counterclaims** Out Of Pkw QXME#DICAL, LLC, Plaintiff and Counterclaim-Defendant, v. VASCULAR SOLUTIONS LLC and Teleflex Innovations S.a#.r.l., Defendants and Counterclaim-Plain... 2018 WL 1919261, *1+ , D.Minn. (Trial Pleading)	Feb. 13, 2018	Petition		—
Cited by	**19. Defendant's Amended Answer to Plaintiff's First Amended Complaint and Defendants' First Amended Counterclaims** Out Of Pkw QXME#DICAL, LLC, Plaintiff, v. VASCULAR SOLUTIONS LLC, Defendant. Vascular Solutions LLC and Teleflex Innovations S.a#.r.l., Counterclaim Plaintiffs, ... 2018 WL 1919260, *1+ , D.Minn. (Trial Pleading)	Jan. 22, 2018	Petition		—
Cited by	**20. Defendant's Answer to Plaintiff's First Amended Complaint and Defendant's Counterclaims** Out Of Pkw QXME#DICAL, LLC, Plaintiff and Counterclaim Defendant, v. VASCULAR SOLUTIONS, INC., Defendant and Counterclaim Plaintiff. 2017 WL 8941407, *1+ , D.Minn. (Trial Pleading)	July 21, 2017	Petition		—
Cited by	**21. Rule 26(f) Report** Out Of Pkw VASCULAR SOLUTIONS, INC., Plaintiff, v. BOSTON SCIENTIFIC CORPORATION, Defendant. Boston Scientific Corporation, Boston Scientific Scimed, Inc., Count... 2013 WL 10104121, *1+ , D.Minn. (Trial Filing)	Sep. 25, 2013	Filing		—
Mentioned by	**22. Coaxial guide catheter for interventional cardiology procedures** LitAlert P2013-21-07	May 16, 2013	Lit Alert		—

Treatment	Title	Date	Type	Depth	Headnote(s)
Mentioned by	**23.** Coaxial guide catheter for interventional cardiology procedures LitAlert P2014-15-01	May 16, 2013	Lit Alert		----
Mentioned by	**24.** Joint Motion to Terminate Inter Partes Review Pursuant to 35 U.S.C. s 317(a) and 37 C.F.R. ss 42.72 and 42.74 Out Of Files BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886425, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		----
Mentioned by	**25.** Joint Request to File Settlement Agreement as Business Confidential Information Pursuant to 35 U.S.C. s 317(b) and 37 C.F.R. s 42.74(c) Out Of Files BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886426, *1 , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		----
Mentioned by	**26.** Joint Motion to Terminate Inter Partes Review Pursuant to 35 U.S.C. s 317(a) and 37 C.F.R. ss 42.72 and 42.74 Out Of Files BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886428, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		----
Mentioned by	**27.** Joint Request to File Settlement Agreement as Business Confidential Information Pursuant to 35 U.S.C. s 317(b) and 37 C.F.R. s 42.74(c) Out Of Files BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886429, *1 , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		----
Mentioned by	**28.** Joint Motion to Terminate Inter Partes Review Pursuant to 35 U.S.C. s 317(a) and 37 C.F.R. ss 42.72 and 42.74 Out Of Files BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886431, *1+ , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		----
Mentioned by	**29.** Joint Request to File Settlement Agreement as Business Confidential Information Pursuant to 35 U.S.C. s 317(b) and 37 C.F.R. s 42.74(c) Out Of Files BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886432, *1 , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		----

Treatment	Title	Date	Type	Depth	Headnote(s)
Mentioned by	**30.** Joint Request to File Settlement Agreement as Business Confidential Information Pursuant to 35 U.S.C. s 317(b) and 37 C.F.R. s 42.74(c) Out Of Plan BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886435, *1 , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		---
Mentioned by	**31.** Joint Request to File Settlement Agreement as Business Confidential Information Pursuant to 35 U.S.C. s 317(b) and 37 C.F.R. s 42.74(c) Out Of Plan BOSTON SCIENTIFIC CORP. and Boston Scientific Scimed, Inc., Petitioners, v. VASCULAR SOLUTIONS, INC., Patent Owner. 2014 WL 3886438, *1 , Patent Tr. & App. Bd. (Administrative Filing)	Aug. 08, 2014	Administrative Filing		---
---	**32.** SYSTEM FOR INCREASING BACKUP SUPPORT FOR E.G. CATHETERS INSERTED INTO CORONARY ARTERIES FROM AORTA, HAS RIGID PORTION WITH PROXIMAL PORTION WHOSE PORTION EXTENDS PROXIMALLY THROUGH VALVE WITH CARDIOLOGY DEVICES INSERTED INTO CATHETER Out Of Plan DWPI 2012-H25198+	May 03, 2006	DWPI	---	---
---	**33.** RF 046464/0638 Out Of Plan	July 02, 2018	Assignments	---	---
---	**34.** RF 045762/0636 Out Of Plan	Mar. 29, 2018	Assignments	---	---
---	**35.** RF 045739/0625 Out Of Plan	Mar. 27, 2018	Assignments	---	---
---	**36.** RF 045085/0401 Out Of Plan	Jan. 17, 2018	Assignments	---	---
---	**37.** RF 027973/0984 Out Of Plan	Apr. 02, 2012	Assignments	---	---
---	**38.** RF 027729/0760 Out Of Plan	Feb. 20, 2012	Assignments	---	---
---	**39.** PatStat 8292850	Apr. 19, 2016	Patent Status Files	---	---
---	**40.** PatStat 8292850	Feb. 17, 2015	Patent Status Files	---	---
---	**41.** PatStat 8292850	June 24, 2014	Patent Status Files	---	---
---	**42.** PatStat 8292850	June 24, 2014	Patent Status Files	---	---
---	**43.** PatStat 8292850	May 27, 2014	Patent Status Files	---	---
---	**44.** PatStat 8292850	Mar. 04, 2014	Patent Status Files	---	---
---	**45.** PatStat 8292850	Feb. 06, 2013	Patent Status Files	---	---

Treatment	Title	Date	Type	Depth	Headnote(s)
---	**47.** GUIDE CATHETER EXTENSION DEVICE AND METHODS OF USE FOR CARDIOLOGY PROCEDURES Out Of Plan WO 2017019900 A1 , WIPO PCT Application	Feb. 02, 2017	Patents	---	---
---	**48.** METHODS AND DEVICES FOR TRANSCAROTID ACCESS Out Of Plan US PAT 10039906 , U.S. PTO Utility	Aug. 07, 2018	Patents	---	---
---	**49.** GUIDE EXTENSION CATHETER Out Of Plan US PAT 9993613 , U.S. PTO Utility	June 12, 2018	Patents	---	---
---	**50.** DELIVERY SYSTEM FOR OCULAR IMPLANT Out Of Plan US PAT 9907697 , U.S. PTO Utility	Mar. 06, 2018	Patents	---	---
---	**51.** TRANSCAROTID NEUROVASCULAR CATHETER Out Of Plan US PAT 9861783 , U.S. PTO Utility	Jan. 09, 2018	Patents	---	---
---	**52.** RAPID ASPIRATION THROMBECTOMY SYSTEM AND METHOD Out Of Plan US PAT 9820761 , U.S. PTO Utility	Nov. 21, 2017	Patents	---	---
---	**53.** GUIDE EXTENSION CATHETER Out Of Plan US PAT 9764118 , U.S. PTO Utility	Sep. 19, 2017	Patents	---	---
---	**54.** RAPID ASPIRATION THROMBECTOMY SYSTEM AND METHOD Out Of Plan US PAT 9681882 , U.S. PTO Utility	June 20, 2017	Patents	---	---
---	**55.** METHODS AND DEVICES FOR TRANSCAROTID ACCESS Out Of Plan US PAT 9662480 , U.S. PTO Utility	May 30, 2017	Patents	---	---
---	**56.** METHODS AND SYSTEMS FOR TREATMENT OF ACUTE ISCHEMIC STROKE Out Of Plan US PAT 9561345 , U.S. PTO Utility	Feb. 07, 2017	Patents	---	---
---	**57.** TRANSCAROTID NEUROVASCULAR CATHETER Out Of Plan US PAT 9492637 , U.S. PTO Utility	Nov. 15, 2016	Patents	---	---
---	**58.** GUIDE EXTENSION CATHETER Out Of Plan US PAT 9486611 , U.S. PTO Utility	Nov. 08, 2016	Patents	---	---
---	**59.** COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES Out Of Plan US PAT RE46116+ , U.S. PTO Reissue	Aug. 23, 2016	Patents	---	---
---	**60.** METHODS AND DEVICES FOR TRANSCAROTID ACCESS Out Of Plan US PAT 9399118 , U.S. PTO Utility	July 26, 2016	Patents	---	---

Treatment	Title	Date	Type	Depth	Headnote(s)
----	**61.** COLLARLESS GUIDE EXTENSION CATHETER Out Of Plan US PAT 9352123 , U.S. PTO Utility	May 31, 2016	Patents	----	----
----	**62.** TRANSCAROTID NEUROVASCULAR CATHETER Out Of Plan US PAT 9265512 , U.S. PTO Utility	Feb. 23, 2016	Patents	----	----
----	**63.** METHODS AND DEVICES FOR TRANSCAROTID ACCESS Out Of Plan US PAT 9241699 , U.S. PTO Utility	Jan. 26, 2016	Patents	----	----
----	**64.** COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES Out Of Plan US PAT RE45776+ , U.S. PTO Reissue	Oct. 27, 2015	Patents	----	----
----	**65.** COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES Out Of Plan US PAT RE45760+ , U.S. PTO Reissue	Oct. 20, 2015	Patents	----	----
----	**66.** BOOSTING CATHETER AND RELATED SYSTEMS AND METHODS Out Of Plan US PAT 9144662 , U.S. PTO Utility	Sep. 29, 2015	Patents	----	----
----	**67.** GUIDE EXTENSION CATHETER Out Of Plan US PAT 8996095 , U.S. PTO Utility	Mar. 31, 2015	Patents	----	----
----	**68.** COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES Out Of Plan US PAT RE45380+ , U.S. PTO Reissue	Feb. 17, 2015	Patents	----	----
----	**69.** GUIDE CATHETER EXTENSION DEVICE AND METHODS OF USE FOR CARDIOLOGY PROCEDURES Out Of Plan US PAT APP 20170028170 , U.S. PTO Application	Feb. 02, 2017	Patents	----	----

Select Category
Cases 0

Results for: 8292850 *or* 8,292,850

Actions

Filters

Cases

Clear

Filter Results

Cases (0)

No documents found in **Cases**.

Try the following:

Remove one or more filters: **Cases**

Run your search again in **Everything**.

Modify your search (edit or remove some search terms or add synonyms).

Check for spelling errors.

Use the options available from the **Actions** menu above to modify your search.

Note: Some content may not be visible based on the restrictions of your subscription.

LexisNexis

User Name: RENEE PRESTON
Date and Time: Wednesday, September 19, 2018 8:03:00 AM EDT
Job Number: 73836872

Documents (13)

1. *U.S. Patents Awarded to Inventors in Minnesota (Oct. 30)*
Client/Matter: -None-
Search Terms: 8292850 or 8,292,850
Search Type: Terms and Connectors
Narrowed by:

Content Type	Narrowed by
News	-None-

2. *PTO Litigation Center Report - May 16, 2014*
Client/Matter: -None-
Search Terms: 8292850 or 8,292,850
Search Type: Terms and Connectors
Narrowed by:

Content Type	Narrowed by
News	-None-

3. *Vascular Solutions Assigned Patent*
Client/Matter: -None-
Search Terms: 8292850 or 8,292,850
Search Type: Terms and Connectors
Narrowed by:

Content Type	Narrowed by
News	-None-

4. *Vascular files patent infringement complaint against Boston Scientific*
Client/Matter: -None-
Search Terms: 8292850 or 8,292,850
Search Type: Terms and Connectors
Narrowed by:

Content Type	Narrowed by
News	-None-

5. *Vascular Files Patent Infringement Complaint Against Boston Scientific; Tesaro Demonstrate ...*
Client/Matter: -None-
Search Terms: 8292850 or 8,292,850
Search Type: Terms and Connectors

Narrowed by:

Content Type	Narrowed by
News	-None-

6. *Vascular Solutions Files Lawsuit Against Boston Scientific*

Client/Matter: -None-

Search Terms: 8292850 or 8,292,850

Search Type: Terms and Connectors

Narrowed by:

Content Type	Narrowed by
News	-None-

7. *Vascular Solutions Files Lawsuit Against Boston Scientific*

Client/Matter: -None-

Search Terms: 8292850 or 8,292,850

Search Type: Terms and Connectors

Narrowed by:

Content Type	Narrowed by
News	-None-

8. *Vascular Solutions Files Patent Infringement Complaint Against Boston Scientific*

Client/Matter: -None-

Search Terms: 8292850 or 8,292,850

Search Type: Terms and Connectors

Narrowed by:

Content Type	Narrowed by
News	-None-

9. *Vascular Solutions Files Patent Infringement Complaint Against Boston Scientific.*

Client/Matter: -None-

Search Terms: 8292850 or 8,292,850

Search Type: Terms and Connectors

Narrowed by:

Content Type	Narrowed by
News	-None-

10. *Vascular Solutions Files Patent Infringement Complaint Against Boston Scientific*

Client/Matter: -None-

Search Terms: 8292850 or 8,292,850

Search Type: Terms and Connectors

Narrowed by:

Content Type	Narrowed by
News	-None-

11. *Vascular Solutions Files Patent Infringement Complaint Against Boston Scientific.*

Client/Matter: -None-

Search Terms: 8292850 or 8,292,850

Search Type: Terms and Connectors

Narrowed by:

Content Type	Narrowed by
News	-None-

12. *Vascular Solutions Issues Patent Infringement Complaint Against Boston Scientific.*

Client/Matter: -None-

Search Terms: 8292850 or 8,292,850

Search Type: Terms and Connectors

Narrowed by:

Content Type	Narrowed by
News	-None-

13. *Vascular Solutions Issues Patent Infringement Complaint Against Boston Scientific*

Client/Matter: -None-

Search Terms: 8292850 or 8,292,850

Search Type: Terms and Connectors

Narrowed by:

Content Type	Narrowed by
News	-None-

U.S. Patents Awarded to Inventors in Minnesota (Oct. 30)

Targeted News Service

October 30, 2012 Tuesday 2:03 PM EST

Length: 3015 words

Byline: Targeted News Service Targeted News Service

Dateline: Alexandria, VA.

Body

ALEXANDRIA, Va., Oct. 30 -- The following federal patents were awarded to inventors in Minnesota.

***

Minnesota Inventor Develops Patent for Extractive Sampling System for Fluids

ALEXANDRIA, Va., Oct. 30 -- Ronald Rockwell Rich, Edina, Minn., has developed a patent (8,291,778) for an "extractive sampling system for fluids."

The abstract of the patent published by the U.S. Patent and Trademark Office states: "Disclosed is an extractive sampling system to secure representative fluid samples and transport to analyzers as a sample destination. The invention is directed to modification of sample acquisition components and the addition of elements to overcome sample obtainment issues that occur in a variety of fluids to be samples."

The patent application was filed on Sept. 7, 2007 (11/851,712). The full-text of the patent can be found at *http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=8291778.PN.&OS=PN/8291778&RS=PN/8291778*

Written by Amal Ahmed; edited by Jaya Anand.

***

Vascular Solutions Assigned Patent

ALEXANDRIA, Va., Oct. 30 -- Vascular Solutions, Minneapolis, has been assigned a patent (***8,292,850***) developed by four co-inventors for a "coaxial guide catheter for interventional cardiology procedures." The co-inventors are Howard Root, Excelsior, Minn., Gregg Sutton, Maple Grove, Minn., Jeffrey M. Welch, Maple Grove, Minn., and Jason M. Garrity, Minneapolis.

The abstract of the patent published by the U.S. Patent and Trademark Office states: "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."

RENEE PRESTON

The patent application was filed on Jan. 26, 2012 (13/359,059). The full-text of the patent can be found at http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,292,850&OS=8,292,850&RS=8,292,850

Written by Arpi Sharma; edited by Anand Kumar.

***

Minnesota Inventor Develops Patent for Electronic Device Used to Record Expenditures

ALEXANDRIA, Va., Oct. 30 -- Georgia Sherman, West St. Paul, Minn., has developed a patent (8,296,201) for "electronic device used to record expenditures."

The abstract of the patent published by the U.S. Patent and Trademark Office states: "A non-internet accessible, lightweight, compact expenditure recording electronic device comprising a housing having a front face and an opposing rear face, a processor located within the housing for processing data associated with a single financial account, a memory for storing data associated with the single financial account with the memory in electronic communication with the processor, a screen attached to the housing at the front face with the screen coupled to be operable by the processor to display data of the single financial account to a user of the device, a plurality of input keys disposed on the front face of the housing for inputting data to the memory and track changes to the data for the single financial account, and a communication port disposed on the housing and configured to connect to the memory."

The patent application was filed on Sept. 9, 2011 (13/199,808). The full-text of the patent can be found at http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,296,201&OS=8,296,201&RS=8,296,201

Written by Satyaban Rath; edited by Hemanta Panigrahi.

***

Minnesota Inventor Develops Patent for Net Metering Apparatus for Power Generation Systems

ALEXANDRIA, Va., Oct. 30 -- Chandramouli Vaidyanathan, Eagan, Minn., has developed a patent (8,295,986) for a "net metering apparatus for power generation systems."

The abstract of the patent published by the U.S. Patent and Trademark Office states: "An electrical power generation unit including a power source, an energy storage system and a net metering control apparatus capable of controlling power delivered to an electrical utility grid so that that a total amount of electrical power from the power source and the energy storage system does not exceed a prescribed power limit. A process of controlling electrical power flow in an electrical power generation unit connected to an electrical utility grid so that that a total amount of electrical power from the power source and the energy storage system does not exceed a prescribed power limit."

The patent application was filed on Sept. 28, 2009 (12/568,601). The full-text of the patent can be found at http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,295,986&OS=8,295,986&RS=8,295,986

Written by Satyaban Rath; edited by Hemanta Panigrahi.

***

Bio Quiddity Assigned Patent

ALEXANDRIA, Va., Oct. 30 -- Bio Quiddity, San Francisco, has been assigned a patent (8,292,848) developed by Marshall S. Kriesel, Saint Paul, Minn., and Joshua W. Kriesel, San Francisco, for a "fluid dispensing device with additive."

The abstract of the patent published by the U.S. Patent and Trademark Office states: "A dispensing device for dispensing medicaments to a patient which includes a supporting structure; a carriage assembly interconnected with the supporting structure for movement between a first position and a second position and a semi-rigid, collapsible reservoir carried by the carriage assembly. A stored energy source is operably associated with the carriage assembly for moving the carriage assembly between the first and second positions. The device also includes novel structure, including fill-vials, for adding medicaments to the fluid within the fluid reservoir."

The patent application was filed on June 25, 2007 (11/823,084). The full-text of the patent can be found at *http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,292,848&OS=8,292,848&RS=8,292,848*

Written by Arpi Sharma; edited by Anand Kumar.

***

Paul E. Hawkinson Assigned Patent

ALEXANDRIA, Va., Oct. 30 -- Paul E. Hawkinson, Maple Grove, Minn., has been assigned a patent (8,291,753) developed by David E. Range, Elk River, Minn., and Gary William Box, Golden Valley, Minn., for a tire defect tester.

The abstract of the patent published by the U.S. Patent and Trademark Office states: "A tire defect tester and a method of operation are disclosed. In one aspect, the tire defect tester includes a first electrode arranged to direct energy toward a tire, and a second electrode arranged on an opposite side of the tire from the first electrode to receive energy passing through the tire from the first electrode. The tire defect tester further includes an energy sensor electrically connected to the second electrode and a fault indicator circuit responsive to the energy sensor and configured to indicate the presence of a flaw upon energy above a threshold level being sensed at the second electrode."

The patent application was filed on May 29, 2008 (12/129,462). The full-text of the patent can be found at *http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,291,753&OS=8,291,753&RS=8,291,753*

Written by Arpi Sharma; edited by Anand Kumar.

***

Minnesota Inventor Develops Patent for Recirculation Switch for Blood Cardioplegia

ALEXANDRIA, Va., Oct. 30 -- William G. O'Neill, Maple Grove, Minn., has developed a patent (8,292,839) for a "recirculation switch for blood cardioplegia."

The abstract of the patent published by the U.S. Patent and Trademark Office states: "A switch comprises a rotating switch member which provides fluid communication in three modes; infusion, recirculation and priming The switch is located between the oxygenator and drug bag and the cardioplegia pump raceway. The switch has three channels molded into the rotating manifold which either direct blood and cardioplegia into the coronary arteries of the patient or into a recirculation line. When the switch is rotated into the recirculation line, a hose is in fluid connection through the switch and connects the recirculation line with the pump blood and drug inlet lines thereby allowing cooling of the cardioplegic mixture during the time between infusions."

The patent application was filed on April 9, 2009 (12/384,786). The full-text of the patent can be found at *http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,292,839&OS=8,292,839&RS=8,292,839*

RENEE PRESTON

Written by Arpi Sharma; edited by Anand Kumar.

***

Alliant Techsystems Assigned Patent

ALEXANDRIA, Va., Oct. 30 -- Alliant Techsystems, Arlington, Va., has been assigned a patent (8,291,825) developed by Hossein Aliaghai, Plymouth, Minn., Kristen L. Gerzina, Maple Grove, Minn., and Dennis Lagerquist, Roseville, Minn., for "methods and apparatuses for electro-mechanical safety and arming of a projectile."

The abstract of the patent published by the U.S. Patent and Trademark Office states: "A safety and arming apparatus for use with a projectile includes a rotor pivotable between a safe position and an armed position. A biasing element holds a mass engaged with the rotor to restrain the rotor from rotation and is deformable to allow the mass to displace and disengage from the rotor in response to a setback force on the projectile. A second biasing element includes a displaceable end for engaging with the rotor to restrain the rotor from rotation and is deformable to disengage the displaceable end from the rotor in response to projectile spin. A piston actuator can rotate the rotor to the armed position if the mass is disengaged and the displaceable end is disengaged. A detonator on the rotor can be aligned with a detonation cord when the rotor is in the armed position and unaligned when the rotor is in the safe position."

The patent application was filed on Sept. 10, 2009 (12/557,028). The full-text of the patent can be found at *http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,291,825&OS=8,291,825&RS=8,291,825*

Written by Arpi Sharma; edited by Anand Kumar.

***

VKR Holding Assigned Patent

ALEXANDRIA, Va., Oct. 30 -- VKR Holding, Hoersholm, Denmark, has been assigned a patent (8,292,706) developed by five co-inventors for a "roof light system having a ventilation device with improved flexibility." The co-inventors are Brent Moller, Gentofte, Denmark, Per Jacobsen, Horsens, Denmark, Niels A. Larsen, Frederiksberg, Denmark, James Eric Brinton, Greenwood, S.C., and Leonard Kenneth Moody Jr., Eagan, Minn.

The abstract of the patent published by the U.S. Patent and Trademark Office states: "The roof light system is composed by a roof unit (10), a light conduit (70) and a diffuser unit (80). A ventilation device has a ventilation tube (60) is separate and detached from the light conduit (70). The first end (60a) of the ventilation tube is connected with the roof unit (10) and the second end (60b) is positioned at a distance from the diffuser unit (80). The ventilation device may additionally have a branch tube (160)."

The patent application was filed on Jan. 24, 2005 (11/814,532). The full-text of the patent can be found at *http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,292,706&OS=8,292,706&RS=8,292,706*

Written by Arpi Sharma; edited by Anand Kumar.

***

Minnesota, California Inventors Develop Patent for Special Purpose Fluid Dispenser with Pre-filled Reservoir

ALEXANDRIA, Va., Oct. 30 -- Marshall S. Kriesel, St. Paul, Minn., Joshua W. Kriesel, San Francisco, and Thomas N. Thompson, Richfield, Minn., have developed a patent (8,292,876) for a "special purpose fluid dispenser with pre-filled reservoir."

The abstract of the patent published by the U.S. Patent and Trademark Office states: "A compact, nonelectric fluid dispenser for use in controllably dispensing beneficial agents such as propofol and dexmedetomidine hydrochloride to patients. The dispenser includes a fluid flow control assembly that precisely controls the flow of the medicament solution to the patient and embodies a collapsible, pre-filled drug container that contains the beneficial agents to be delivered to the patient. The unit-dose fluid dispenser of the invention is presented in a sterile and aseptic manner, where the drug has been pre-filled in the system, so that the practitioner cannot mistakenly give the wrong drug to the patient. The dispenser uniquely provides a more efficient medicament delivery system for procedure rooms, such as the endoscopy center, so that a greater number of patients can be treated per day at a higher standard of care with increased profits for the healthcare provider."

The patent application was filed on Dec. 2, 2010 (12/928,146). The full-text of the patent can be found at *http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,292,876&OS=8,292,876&RS=8,292,876*

Written by Arpi Sharma; edited by Anand Kumar.

***

Gemalto Assigned Patent

ALEXANDRIA, Va., Oct. 30 -- Gemalto, Meudon Cedex, France, has been assigned a patent (8,294,973) developed by Thomas J. Pennaz, Champlin, Minn., for an electrochromic display substrate.

The abstract of the patent published by the U.S. Patent and Trademark Office states: "A metal-plated copperless substrate for an electrochromic display. The display includes the substrate in the form of a backplane whereon circuitry of less than about 1 micron in thickness is patterned from the copperless metal. A transparent frontplane is coupled to the substrate with an electro-active ink material therebetween through which pixels may be activated to form an image for the display."

The patent application was filed on Dec. 20, 2007 (11/961,412). The full-text of the patent can be found at *http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,294,973&OS=8,294,973&RS=8,294,973*

Written by Satyaban Rath; edited by Hemanta Panigrahi.

***

Minnesota Inventor Develops Patent for Adjustable Pivot Assist Mechanism for an Enclosure Door of a Display Case

ALEXANDRIA, Va., Oct. 30 -- Gregory A. Stelmasik, Brooklyn Park, Minn., has developed a patent (8,292,376) for an "adjustable pivot assist mechanism for an enclosure door of a display case."

The abstract of the patent published by the U.S. Patent and Trademark Office states: "A system having an adjustable pivot length assist mechanism for a cover or door of an enclosure. Adjusting lengths of a link may change a differential ratio of mechanical advantage in that a small change in the force transfer link length yields a large change in the gas spring load for a given force at the other end of the link. The mechanism may utilize one or more gas springs. One end of a spring may be connected to a bellcrank rotatable on a shaft attached to a portion of a hinge secured to the enclosure. Another portion of the hinge may be attached to and support the door relative to the enclosure. Attached to another location on the bellcrank may be a force transfer link connected to a lever attached to a door portion of the hinge. The force transfer link may have a length adjustment. At least one end of each of the one or more gas springs may have two-dimensional movement."

The patent application was filed on Jan. 27, 2010 (12/694,963). The full-text of the patent can be found at http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,292,376&OS=8,292,376&RS=8,292,376

Written by Arpi Sharma; edited by Anand Kumar.

***

Missouri, Minnesota Inventors Develop Patent for Method and System for Utilizing a Gaming Instrument Controller

ALEXANDRIA, Va., Oct. 30 -- Randy Lawrence Canis, Chesterfield, Mo., and Timothy Burton Clise, Edina, Minn., have developed a patent (8,294,015) for a "method and system for utilizing a gaming instrument controller."

The abstract of the patent published by the U.S. Patent and Trademark Office states: "Methods and systems for utilizing a gaming instrument controller are described. In one embodiment, a musical interaction recording of a song may be accessed. The musical interaction recording may include a backing audible portion of the song and a user reproduction indication associated with the song. The user reproduction indication may be presented in synchronization with the song. A plurality of musical note selections may be received from a gaming instrument controller based on the presenting of the user reproduction indication. A plurality of musical notes for the song may be generated based on the receiving of the plurality of musical note selections. The backing audible portion and the plurality of musical notes may be reproduced."

The patent application was filed on June 20, 2008 (12/143,330). The full-text of the patent can be found at http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=8,294,015.PN.&OS=PN/8,294,015&RS=PN/8,294,015

Written by Kusum Sangma; edited by Anand Kumar.

For more information about Targeted News Service products and services, please contact: Myron Struck, editor, Targeted News Service LLC, Springfield, Va., 703/304-1897; editor@targetednews.com; http://targetednews.com.

-1104243

Load-Date: October 30, 2012

End of Document

PTO Litigation Center Report - May 16, 2014

National Law Review

May 16, 2014 Friday 5:56 PM EST

Length: 438 words

Byline: Sterne, Kessler, Goldstein Fox P.L.L.C.

Body

May 16, 2014 (National Law Review:http://www.natlawreview.com Delivered by Newstex)

PTO Litigation Center[1]

Listed below are all new filings before PTAB of requests for inter partes review (IPR) and covered business methods review (CBM). Since the last report, no new requests for ex parte reexamination at the USPTO have been posted. This listing is current as of 10 AM on Friday, May 16, 2014.

New IPR Requests
Trial Number - IPR2014-00757
Filing Date - 5/15/2014
Patent # - 8,300,285
Title - SCANNING CIRCUIT STRUCTURE
Assignee - INTELLECTUAL VENTURES I LLC
Petitioner - Canon Inc.
Status - Pending
Tech Center - 2600
Trial Number - IPR2014-00758
Filing Date - 5/15/2014
Patent # - 8,585,343
Title - GRAIN CART HAVING A SINGLE AUGER DISCHARGE CONVEYOR
Assignee - JM MANUFACTURING CO., INC
Petitioner - UNVERFERTH MANUFACTURING CO., INC.
Status - Pending
Tech Center - 3600
Trial Number - IPR2014-00759
Filing Date - 5/15/2014
Patent # - 8,048,032
Title - COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
Assignee - VASCULAR SOLUTIONS, INC.
Petitioner - BOSTON SCIENTIFIC CORPORATION and BOSTON SCIENTIFIC SCIMED, INC.
Status - Pending
Tech Center - 3700
Trial Number - IPR2014-00760
Filing Date - 5/16/2014
Patent # - 8,142,413
Title - COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
Assignee - VASCULAR SOLUTIONS, INC.
Petitioner - BOSTON SCIENTIFIC CORPORATION and BOSTON SCIENTIFIC SCIMED, INC.

RENEE PRESTON

Page 551

Status - Pending
Tech Center - 3700
Trial Number - IPR2014-00761
Filing Date - 5/16/2014
Patent # - 8,142,413
Title - COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
Assignee - VASCULAR SOLUTIONS, INC.
Petitioner - BOSTON SCIENTIFIC CORPORATION and BOSTON SCIENTIFIC SCIMED, INC.
Status - Pending
Tech Center - 3700
Trial Number - IPR2014-00762
Filing Date - 5/16/2014

Patent # - ***8,292,850***
Title - COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
Assignee - VASCULAR SOLUTIONS, INC.
Petitioner - BOSTON SCIENTIFIC CORPORATION and BOSTON SCIENTIFIC SCIMED, INC.
Status - Pending
Tech Center - 3700
Trial Number - IPR2014-00763
Filing Date - 5/16/2014

Patent # - ***8,292,850***
Title - COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
Assignee - VASCULAR SOLUTIONS, INC.
Petitioner - BOSTON SCIENTIFIC CORPORATION and BOSTON SCIENTIFIC SCIMED, INC.
Status - Pending
Tech Center - 3700
New CBM Review Requests
There have been no new requests for CBM review since the last report.
Newly-Posted Reexam Requests
There have been no new reexam requests posted since the last report.

[1]: *http://www.natlawreview.com/author/pto-litigation-center*

Load-Date: May 17, 2014

End of Document

Vascular Solutions Assigned Patent

Targeted News Service

October 30, 2012 Tuesday 12:37 PM EST

Length: 266 words

Byline: Targeted News Service

Dateline: Alexandria, Va.

Body

ALEXANDRIA, Va., Oct. 30 -- Vascular Solutions, Minneapolis, has been assigned a patent (**8,292,850**) developed by four co-inventors for a "coaxial guide catheter for interventional cardiology procedures." The co-inventors are Howard Root, Excelsior, Minn., Gregg Sutton, Maple Grove, Minn., Jeffrey M. Welch, Maple Grove, Minn., and Jason M. Garrity, Minneapolis.

The abstract of the patent published by the U.S. Patent and Trademark Office states: "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."

The patent application was filed on Jan. 26, 2012 (13/359,059). The full-text of the patent can be found at *http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=8,292,850&OS=8,292,850&RS=8,292,850*

Written by Arpi Sharma; edited by Anand Kumar.

For more information about Targeted News Service federal patent awards please contact: Myron Struck, Editor, Direct: 703/866-4708, Cell: 703/304-1897, *Myron@targetednews.com*

AS1030AK1030-801943

Load-Date: October 30, 2012

End of Document

RENEE PRESTON

Page 553

Vascular files patent infringement complaint against Boston Scientific

MarketLine NewsWire (Formerly Datamonitor)

May 31, 2013 Friday 9:44 AM GMT

Section: PHARMACEUTICALS

Length: 292 words

Highlight: Vascular Solutions, Inc., a medical device company developing devices for coronary and peripheral vascular procedures, has filed a patent infringement complaint in the US District Court for the District of Minnesota against Boston Scientific Corporation, a medical device company, concerning to Vascular Solutions' rapid exchange guide extension technology.

Body

The complaint alleges that Boston Scientific has infringed three patents owned by Vascular Solutions concerning rapid exchange guide extension technology by manufacturing and selling its Guidezilla guide extension catheter which received 510(k) clearance in March 2013. Vascular Solutions is seeking an injunction against Boston Scientific prohibiting the manufacture and sale of its Guidezilla catheter as well as damages for lost profits and legal costs. US Patents 8,048,032, 8,142,413 and ***8,292,850***, comprising 60 claims in total and having an initial filing date of May 2006, were issued by the US Patent & Trademark Office to Howard Root, et.

al. and assigned to Vascular Solutions concerning rapid exchange guide extension technology. These patents form the basis for Vascular Solutions' GuideLiner catheter, the first and until now only rapid exchange mother-and-child guide extension catheter. "Boston Scientific's Guidezilla is one of the most blatant plagiarisms of a patented medical device that I have ever encountered," said Howard Root, CEO of Vascular Solutions. "Virtually every substantive aspect of our GuideLiner product and patents, from the design to the dimensions to even the exact words used in the product's deployment instructions, has been misappropriated by Boston Scientific and applied to their Guidezilla catheter. We do not take the initiation of patent litigation lightly, but this is exactly the type of conduct that patents were intended to protect - a small medical device company creating a completely new and innovative product only to be flagrantly violated by a knock-off brazenly marketed by the world's largest interventional cardiology company. We intend to move quickly to stop this violation of our rights."

Load-Date: June 6, 2013

End of Document

Vascular Files Patent Infringement Complaint Against Boston Scientific; Tesaro Demonstrate ...

BioMedReports

May 17, 2013 Friday 1:52 AM EST

Length: 2045 words

Body

May 17, 2013 (BioMedReports:http://biomedreports.com/ Delivered by Newstex)

Below is a look at some of the headlines for companies that made news in the healthcare sector on May 16, 2013.

Vascular Solutions (Nasdaq: VASC) announced it has filed a patent infringement complaint in the U.S. District Court for the District of Minnesota against Boston Scientific Corporation (NYSE: BSX). The complaint alleges that Boston Scientific has infringed three patents owned by Vascular Solutions concerning rapid exchange guide extension technology by manufacturing and selling its Guidezilla™ guide extension catheter which received 510(k) clearance in March 2013. Vascular Solutions is seeking an injunction against Boston Scientific prohibiting the manufacture and sale of its Guidezilla catheter as well as damages for lost profits and legal costs.

U.S. Patents 8,048,032, 8,142,413 and ***8,292,850***, comprising 60 claims in total and having an initial filing date of May 2006, were issued by the U.S. Patent Trademark Office to Howard Root, et. al. and assigned to Vascular Solutions concerning rapid exchange guide extension technology. These patents form the basis for Vascular Solutions' GuideLiner® catheter, the first and until now only rapid exchange mother-and-child guide extension catheter. Since its launch in 2009, the GuideLiner catheter has been described by prominent interventional cardiologists as an "indispensable tool," a "game-changing device," and a catheter that "makes impossible cases possible."

"Boston Scientific's Guidezilla is one of the most blatant plagiarisms of a patented medical device that I have ever encountered," said Howard Root, Chief Executive Officer of Vascular Solutions. "Virtually every substantive aspect of our GuideLiner product and patents, from the design to the dimensions to even the exact words used in the product's deployment instructions, has been misappropriated by Boston Scientific and applied to their Guidezilla catheter. We do not take the initiation of patent litigation lightly, but this is exactly the type of conduct that patents were intended to protect - a small medical device company creating a completely new and innovative product only to be flagrantly violated by a knock-off brazenly marketed by the world's largest interventional cardiology company. We intend to move quickly to stop this violation of our rights."

======

TESARO (Nasdaq: TSRO), an oncology-focused biopharmaceutical company, announced final results from a Phase 1 trial of niraparib, an inhibitor of poly ADP-ribose polymerase (PARP), will be presented at the American Society of Clinical Oncology (ASCO) annual meeting in Chicago. These results include anti-tumor activity and safety data for 100 patients with solid tumors, including 49 patients with high grade serous ovarian cancer (HGSOC) and twelve patients with breast cancer. Full, updated results relating to the abstract will be provided during the investigators' poster presentation on June 4, 2013.

"We are pleased that these data confirm the preliminary results presented at ASCO in 2011, and support advancement of niraparib into Phase 3 trials," stated Dr. Mary Lynne Hedley, President of TESARO. "We remain on track to begin enrolling patients in a Phase 3 trial in the ovarian cancer maintenance setting by mid-year, and to initiate a Phase 3 trial in patients with breast cancer during the second half of 2013."

RENEE PRESTON

Investor Briefing - TESARO will host an investor briefing in Chicago on Sunday, June 2 at 6:15 PM local time in conjunction with the ASCO annual meeting. At this briefing, TESARO management will review niraparib clinical data, discuss development plans in ovarian and breast cancer and answer questions from analysts and investors. This event will be webcast live and archived for 30 days at www.tesarobio.com.

ASCO Data Presentation Details - Final Results of the Phase I Trial of Niraparib (MK4827), a Poly(ADP)ribose Polymerase (PARP) Inhibitor Incorporating Proof of Concept Biomarker Studies and Expansion Cohorts Involving BRCA1/2 Mutation Carriers, Sporadic Ovarian and Castration Resistant Prostate Cancer (CRPC), Poster #2513, June 4, 2013 from 8:00 AM to 12:00 PM; 11:30 AM discussion

Also Thursday:

ACCESS PHARMACEUTICALS, INC. (OTCBB: ACCP), an emerging biopharmaceutical company, released its first quarter ended March 31, 2013 financial results.

Actinium Pharmaceuticals, Inc. (OTCBB: ATNM), a biopharmaceutical company that develops innovative targeted payload immunotherapeutics for treatment of advanced cancers, announced that the official program of TAT: Target Alpha Therapy (TAT) international symposium will feature a presentation devoted to Actinium Pharmaceuticals' clinical programs.

AmerisourceBergen Corporation (NYSE: ABC) today announced that Lon R. Greenberg, 62, has been elected to its Board of Directors, effective immediately. Mr. Greenberg fills the vacancy created by Charles H. Cotros's retirement from the Board in February 2013.

AMI Research, a leading provider of equity research reports and a subsidiary of Hawk Associates Inc., announced today that it has initiated equity research coverage on Diagnostic Imaging International Corp. (OTCQB:DIIG) with a Speculative Buy rating of $0.62 per share.

Assisted Living Concepts, Inc. (NYSE: ALC) ("ALC") announced that, at a special meeting of stockholders held earlier today, its stockholders voted to approve the previously announced merger agreement with affiliates of TPG.

BIOLASE, Inc. (NASDAQ: BIOL), the world's leading manufacturer and distributor of dental lasers, announced today that the U.S. Food and Drug Administration (the "FDA") has cleared the NewTom™ BIOLASE VG3 ("VG3") digital panoramic, cephalometric, and tomographic extra-oral X-ray system which BIOLASE® will market and distribute in the U.S. for $50,000 to $120,000.

Daxor Corporation (NYSE MKT: DXR), an investment company with medical instrumentation and biotechnology operations, announced today that Austin Nuclear Pharmacy, Inc. has leased a BVA-100 Blood Volume Analyzer.

DelMar Pharmaceuticals, Inc. (OTCQB: DMPI) ("DelMar Pharma") is pleased to provide the following update from President CEO, Mr. Jeffrey Bacha:

Derma Sciences, Inc. (Nasdaq: DSCI), a medical device and pharmaceutical company focused on advanced wound care, today reported financial and operating results for the three months ended March 31, 2013.

Forest Laboratories, Inc. (NYSE: FRX), today announced it will be presenting data on two late-stage development products, cariprazine and levomilnacipran, at the American Psychiatric Association (APA) annual meeting scheduled May 18-22, 2013, in San Francisco, CA.

HeartWare International, Inc. (NASDAQ: HTWR - ASX: HIN), a leading innovator of less invasive, miniaturized circulatory support technologies that are revolutionizing the treatment of advanced heart failure, today announced that CEO Doug Godshall is scheduled to present at the 2013 UBS Global Healthcare Conference at 11:00 a.m. EDT on Monday, May 20, 2013.

InspireMD, Inc. (NYSE MKT: NSPR), a leader in embolic protection stents, today announced that it received reimbursement approval for the MGuard™ Coronary Embolic Protection Stent (EPS) from UNIMED, Brazil's largest private health care insurer.

InspireMD, Inc. (NYSE MKT: NSPR), the leader in embolic protection stents, today announced a robust schedule of educational events and data presentations at EuroPCR, culminating in the first presentation of 6-month results from the MASTER (MGuardfor Acute STElevation Reperfusion) trial of the Company's MGuard™ Embolic Protection Stent (EPS).

Merus Labs International Inc. (TSX:MSL) (NASDAQ:MSLI) today announced that Mr. Elie Farah, the President CEO of Merus, will present at the upcoming Bloom Burton Co. Healthcare Investor Conference.

Nektar Therapeutics' (Nasdaq: NKTR) President and Chief Executive Officer, Howard W. Robin, is scheduled to present at the upcoming 2013 UBS Global Healthcare Conference in New York at the Sheraton New York Hotel on Tuesday, May 21, 2013 at 10:00 a.m. Eastern time.

RENEE PRESTON

Page 556

NPS Pharmaceuticals, Inc. (NASDAQ: NPSP), a biopharmaceutical company pioneering and delivering therapies that transform the lives of patients with rare diseases worldwide, today announced that president and chief executive officer Francois Nader, M.D. has been named a finalist for the Ernst Young Entrepreneur Of The Year® 2013 Award in the New Jersey region.

Pressure BioSciences, Inc. (OTCQB: PBIO) ("PBI" or the "Company") today announced the publication in the journal Analytical Chemistryof a study by a team of scientists led by Dr. Bruce Kristal, Associate Professor of Surgery at Harvard Medical School and the Department of Neurosurgery at Brigham and Women's Hospital, entitled: Method Development for Fecal Lipidomics Profiling.

Rapid Fire Marketing (PINKSHEETS: RFMK), a leading maker of vaporizers, announced today that the Company's new dry herb vaporizer is being tested with the first working prototype.

Rockwell Medical, Inc. (NASDAQ: RMTI), a fully-integrated biopharmaceutical company targeting end-stage renal disease (ESRD) and chronic kidney disease (CKD) with innovative products and services for the treatment of iron deficiency, secondary hyperparathyroidism and hemodialysis, announced today that the underwriters of its recently announced public offering have exercised their over-allotment option to purchase an additional 1,721,311 shares of its common stock at the offering price of $3.05.

St. Jude Medical, Inc. (NYSE:STJ), a global medical device company, today announced CE Mark approval of its ILUMIEN™ OPTIS™ PCI Optimization System™, a new technology designed to provide physicians with a comprehensive disease assessment tool for treating patients with coronary artery disease (CAD).

TherapeuticsMD, Inc. (NYSE MKT: TXMD), a women's healthcare company focused on developing and commercializing products targeted exclusively for women, today announced the election of Jules A. Musing, a former senior executive at Johnson Johnson, to its Board of Directors, effective immediately.

Titan Medical Inc. (TSX VENTURE:TMD) (OTCQX:TITXF) announced today its results for the three months ended March 31, 2013.

UCB and IBM (NYSE: IBM) today announced the completion of the initial phase of a project designed to harness the power of analytics to help healthcare providers deliver more highly personalized care to people living with epilepsy.

University General Health System, Inc. (OTCQB: UGHS), a diversified, integrated multi-specialty health care delivery system, today announced certain preliminary information regarding the quarter ended March 31, 2013.

Zoetis, Inc. (NYSE: ZTS), formerly the animal health business unit of Pfizer Inc., today announced that the U.S. Food and Drug Administration (FDA) has approved APOQUEL® (oclacitinib tablet) for the control of pruritus associated with allergic dermatitis and the control of atopic dermatitis in dogs at least 12 months of age. Pruritus, or itching, is the most common sign of allergies in dogs.

Load-Date: May 16, 2013

End of Document

RENEE PRESTON

Vascular Solutions Files Lawsuit Against Boston Scientific

Cardiovascular Device Business

May 20, 2013

Section: NEWS

Length: 217 words

Body

Vascular Solutions has filed a patent infringement complaint in the US District Court for the District of Minnesota against Boston Scientific. The complaint alleges that Boston Scientific has infringed three patents owned by Vascular Solutions concerning rapid exchange guide extension technology by manufacturing and selling its Guidezilla guide extension catheter, which received FDA 510(k) clearance in March 2013. Vascular Solutions is seeking an injunction against Boston Scientific prohibiting the manufacture and sale of its Guidezilla catheter, as well as damages for lost profits and legal costs.

US Patent Nos. 8,048,032, 8,142,413 and ***8,292,850***, comprising 60 claims in total and having an initial filing date of May 2006, were issued by the US PTO to Howard Root, CEO of Vascular Solutions, and assigned to Vascular Solutions concerning rapid exchange guide extension technology. These patents form the basis for Vascular Solutions' GuideLiner catheter, the first and, until now, only rapid exchange mother-and-child guide extension catheter.

According to Vascular Solutions, since its launch in 2009, the GuideLiner catheter has been described by prominent interventional cardiologists as an "indispensable tool", a "game-changing device", and a catheter that "makes impossible cases possible."

Load-Date: May 20, 2013

End of Document

RENEE PRESTON

Page 558

Vascular Solutions Files Lawsuit Against Boston Scientific

Business Monitor Online

May 20, 2013 Monday

BMI Research
A FitchGroup Company

Length: 217 words

Body

Vascular Solutions has filed a patent infringement complaint in the US District Court for the District of Minnesota against Boston Scientific. The complaint alleges that Boston Scientific has infringed three patents owned by Vascular Solutions concerning rapid exchange guide extension technology by manufacturing and selling its Guidezilla guide extension catheter, which received FDA 510(k) clearance in March 2013. Vascular Solutions is seeking an injunction against Boston Scientific prohibiting the manufacture and sale of its Guidezilla catheter, as well as damages for lost profits and legal costs.

US Patent Nos. 8,048,032, 8,142,413 and ***8,292,850***, comprising 60 claims in total and having an initial filing date of May 2006, were issued by the US PTO to Howard Root, CEO of Vascular Solutions, and assigned to Vascular Solutions concerning rapid exchange guide extension technology. These patents form the basis for Vascular Solutions' GuideLiner catheter, the first and, until now, only rapid exchange mother-and-child guide extension catheter.

According to Vascular Solutions, since its launch in 2009, the GuideLiner catheter has been described by prominent interventional cardiologists as an "indispensable tool", a "game-changing device", and a catheter that "makes impossible cases possible."

Load-Date: March 11, 2014

End of Document

Vascular Solutions Files Patent Infringement Complaint Against Boston Scientific

Benzinga

May 16, 2013 Thursday 8:23 PM EST

Length: 876 words

Body

May 16, 2013 (Benzinga:http://www.benzinga.com/ Delivered by Newstex)

Vascular Solutions (Nasdaq: VASC[1]) announced today that it has filed a patent infringement complaint in the U.S. District Court for the District of Minnesota against Boston Scientific Corporation (NYSE: BSX[2]). The complaint alleges that Boston Scientific has infringed three patents owned by Vascular Solutions concerning rapid exchange guide extension technology by manufacturing and selling its Guidezilla™ guide extension catheter which received 510(k) clearance in March 2013. Vascular Solutions is seeking an injunction against Boston Scientific prohibiting the manufacture and sale of its Guidezilla catheter as well as damages for lost profits and legal costs.

U.S. Patents 8,048,032, 8,142,413 and ***8,292,850***, comprising 60 claims in total and having an initial filing date of May 2006, were issued by the U.S. Patent Trademark Office to Howard Root, et. al. and assigned to Vascular Solutions concerning rapid exchange guide extension technology. These patents form the basis for Vascular Solutions' GuideLiner® catheter, the first and until now only rapid exchange mother-and-child guide extension catheter. Since its launch in 2009, the GuideLiner catheter has been described by prominent interventional cardiologists as an "indispensable tool," a "game-changing device," and a catheter that "makes impossible cases possible."

"Boston Scientific's Guidezilla is one of the most blatant plagiarisms of a patented medical device that I have ever encountered," said Howard Root, Chief Executive Officer of Vascular Solutions. "Virtually every substantive aspect of our GuideLiner product and patents, from the design to the dimensions to even the exact words used in the product's deployment instructions, has been misappropriated by Boston Scientific and applied to their Guidezilla catheter. We do not take the initiation of patent litigation lightly, but this is exactly the type of conduct that patents were intended to protect - a small medical device company creating a completely new and innovative product only to be flagrantly violated by a knock-off brazenly marketed by the world's largest interventional cardiology company. We intend to move quickly to stop this violation of our rights."

About Vascular Solutions

Vascular Solutions, Inc. is an innovative medical device company that focuses on developing unique clinical solutions for coronary and peripheral vascular procedures. The company's product line consists of over 75 products in three categories: catheter products, hemostat products and vein products. Vascular Solutions delivers its products to interventional cardiologists, interventional radiologists, electrophysiologists, and vein specialists through its direct U.S. sales force and international independent distributor network.

The information in this press release contains forward-looking statements, including statements regarding the international availability of the Venture catheter and expectations about the product's sales, that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements.

RENEE PRESTON

Important factors that may cause such differences include those discussed in our Annual Report on Form 10-K for the year ended December 31, 2012 and other recent filings with the Securities and Exchange Commission. The risks and uncertainties include, without limitation, risks associated with the need for adoption of our new products, lack of sustained profitability, exposure to intellectual property claims, significant variability in quarterly results, exposure to possible product liability claims, the development of new products by others, doing business in international markets, the availability of third party reimbursement, and actions by the FDA.

[1]: http://www.benzinga.com/stock/vasc#Nasdaq [2]: http://www.benzinga.com/stock/bsx#NYSE

Load-Date: May 16, 2013

End of Document

Vascular Solutions Files Patent Infringement Complaint Against Boston Scientific.

Benzinga.com

May 16, 2013

Length: 674 words

Body

Byline: Globe Newswire

MINNEAPOLIS, May 16, 2013 (GLOBE NEWSWIRE) -- Vascular Solutions, Inc. (Nasdaq: VASC) announced today that it has filed a patent infringement complaint in the U.S. District Court for the District of Minnesota against Boston Scientific Corporation (NYSE:BSX). The complaint alleges that Boston Scientific has infringed three patents owned by Vascular Solutions concerning rapid exchange guide extension technology by manufacturing and selling its Guidezilla(TM) guide extension catheter which received 510(k) clearance in March 2013. Vascular Solutions is seeking an injunction against Boston Scientific prohibiting themanufacture and sale of its Guidezilla catheter as well as damages for lost profits and legal costs.

U.S. Patents 8,048,032, 8,142,413 and 8,292,950, comprising 60 claims in total and having an initial filing date of May 2006, were issued by the U.S. Patent & Trademark Office to Howard Root, et. al. and assigned to Vascular Solutions concerning rapid exchange guide extension technology. These patents form the basis for Vascular Solutions' GuideLiner(R) catheter, the first and until now only rapid exchange mother-and-child guide extension catheter. Since its launch in 2009, the GuideLiner catheter has been described by prominent interventionalcardiologists as an "indispensable tool," a "game-changing device," and a catheter that "makes impossible cases possible."

"Boston Scientific's Guidezilla is one of the most blatant plagiarisms of a patented medical device that I have ever encountered," saidHoward Root, Chief Executive Officer of Vascular Solutions. "Virtually every substantive aspect of our GuideLiner product and patents, from the design to the dimensions to even the exact words used in the product's deployment instructions, has been misappropriated by Boston Scientific and applied to their Guidezilla catheter. We do not take the initiation of patent litigation lightly, but this is exactly the type of conduct that patents were intended to protect -- a small medical device company creating a completely new and innovative product only to be flagrantly violated by a knock-off brazenly marketed by the world's largest interventional cardiology company. We intend to move quickly to stop this violation of our rights."

About Vascular Solutions

Vascular Solutions, Inc. is an innovative medical device company that focuses on developing unique clinical solutions for coronary and peripheral vascular procedures. The company's product line consists of over 75 products in three categories: catheter products, hemostat products and vein products. Vascular Solutions delivers its products to interventional cardiologists, interventional radiologists, electrophysiologists, and vein specialists through its direct U.S. sales force and international independent distributor network.

The information in this press release contains forward-looking statements, including statements regarding the international availability of the Venture catheter and expectations about the product's sales,that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements. Important factors that may cause such differences include those discussed in our Annual Report on Form 10-K for the year ended December 31, 2012 and other recent filings with the Securities and Exchange Commission. The risks and uncertainties include, without limitation, risks associated with the need for adoption of our new products, lackof sustained profitability, exposure to intellectual property claims, significant variability in quarterly results,

exposure to possible product liability claims, the development of new products by others, doing business in international markets, the availability of third party reimbursement, and actions by the FDA.

For further information, connect to www.vasc.com.

CONTACT: Howard Root, CEO
Phil Nalbone, VP
Vascular Solutions, Inc.
(763) 656-4300

Load-Date: May 18, 2013

End of Document

Vascular Solutions Files Patent Infringement Complaint Against Boston Scientific

GlobeNewswire

May 16, 2013 Thursday 1:05 PM PT

Section: LAW & LEGAL ISSUES

Length: 663 words

Body

MINNEAPOLIS, May 16, 2013 (GLOBE NEWSWIRE) -- Vascular Solutions, Inc. (Nasdaq:VASC) announced today that it has filed a patent infringement complaint in the U.S. District Court for the District of Minnesota against Boston Scientific Corporation (NYSE:BSX). The complaint alleges that Boston Scientific has infringed three patents owned by Vascular Solutions concerning rapid exchange guide extension technology by manufacturing and selling its Guidezilla? guide extension catheter which received 510(k) clearance in March 2013.Vascular Solutions is seeking an injunction against Boston Scientific prohibiting the manufacture and sale of its Guidezilla catheter as well as damages for lost profits and legal costs.

U.S. Patents 8,048,032, 8,142,413 and ***8,292,850***, comprising 60 claims in total and having an initial filing date of May 2006, were issued by the U.S. Patent & Trademark Office to Howard Root, et. al. and assigned to Vascular Solutions concerning rapid exchange guide extension technology.These patents form the basis for Vascular Solutions' GuideLiner® catheter, the first and until now only rapid exchange mother-and-child guide extension catheter.Since its launch in 2009, the GuideLiner catheter has been described by prominent interventional cardiologists as an "indispensable tool," a "game-changing device," and a catheter that "makes impossible cases possible."

"Boston Scientific's Guidezilla is one of the most blatant plagiarisms of a patented medical device that I have ever encountered," said Howard Root, Chief Executive Officer of Vascular Solutions. "Virtually every substantive aspect of our GuideLiner product and patents, from the design to the dimensions to even the exact words used in the product's deployment instructions, has been misappropriated by Boston Scientific and applied to their Guidezilla catheter.We do not take the initiation of patent litigation lightly, but this is exactly the type of conduct that patents were intended to protect ? a small medical device company creating a completely new and innovative product only to be flagrantly violated by a knock-off brazenly marketed by the world's largest interventional cardiology company.We intend to move quickly to stop this violation of our rights."

About Vascular Solutions

Vascular Solutions, Inc. is an innovative medical device company that focuses on developing unique clinical solutions for coronary and peripheral vascular procedures.The company's product line consists of over 75 products in three categories: catheter products, hemostat products and vein products.Vascular Solutions delivers its products to interventional cardiologists, interventional radiologists, electrophysiologists, and vein specialists through its direct U.S. sales force and international independent distributor network.

The information in this press release contains forward-looking statements, including statements regarding the international availability of the Venture catheter and expectations about the product's sales, that involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements. Important factors that may cause such differences include those discussed in our Annual Report on Form 10-K for

RENEE PRESTON

the year ended December 31, 2012 and other recent filings with the Securities and Exchange Commission. The risks and uncertainties include, without limitation, risks associated with the need for adoption of our new products, lack of sustained profitability, exposure to intellectual property claims, significant variability in quarterly results, exposure to possible product liability claims, the development of new products by others, doing business in international markets, the availability of third party reimbursement, and actions by the FDA.

For further information, connect to www.vasc.com.

CONTACT: Howard Root, CEO Phil Nalbone, VP Vascular Solutions, Inc. (763) 656-4300

Load-Date: May 17, 2013

End of Document

Vascular Solutions Files Patent Infringement Complaint Against Boston Scientific.

Benzinga.com

May 16, 2013

Length: 645 words

Body

Byline: Paul Quintaro

Vascular Solutions (Nasdaq: VASC) announced today that it has filed a patent infringement complaint in the U.S. District Court for the District of Minnesota against Boston Scientific Corporation (NYSE:BSX). The complaint alleges that Boston Scientific has infringed three patents owned by Vascular Solutions concerning rapid exchange guide extension technology by manufacturing and selling its Guidezilla(TM) guide extension catheter which received 510(k) clearance in March 2013.Vascular Solutions is seeking an injunction against Boston Scientific prohibiting the manufacture and sale of its Guidezilla catheter as well as damages for lost profits and legal costs.

U.S. Patents 8,048,032, 8,142,413 and ***8,292,850***, comprising 60 claims in total and having an initial filing date of May 2006, were issued by the U.S. Patent & Trademark Office to Howard Root, et. al. and assigned to Vascular Solutions concerning rapid exchange guide extension technology. These patents form the basis for Vascular Solutions' GuideLiner(R) catheter, the first and until now only rapid exchange mother-and-child guide extension catheter. Since its launch in 2009, the GuideLiner catheter has been described by prominent interventionalcardiologists as an "indispensable tool," a "game-changing device," and a catheter that "makes impossible cases possible."

"Boston Scientific's Guidezilla is one of the most blatant plagiarisms of a patented medical device that I have ever encountered," saidHoward Root, Chief Executive Officer of Vascular Solutions. "Virtually every substantive aspect of our GuideLiner product and patents, from the design to the dimensions to even the exact words used in the product's deployment instructions, has been misappropriated by Boston Scientific and applied to their Guidezilla catheter. We do not take the initiation of patent litigation lightly, but this is exactly the type of conduct that patents were intended to protect -- a small medical device company creating a completely new and innovative product only to be flagrantly violated by a knock-off brazenly marketed by the world's largest interventional cardiology company. We intend to move quickly to stop this violation of our rights."

About Vascular Solutions

Vascular Solutions, Inc. is an innovative medical device company that focuses on developing unique clinical solutions for coronary and peripheral vascular procedures. The company's product line consists of over 75 products in three categories: catheter products, hemostat products and vein products. Vascular Solutions delivers its products to interventional cardiologists, interventional radiologists, electrophysiologists, and vein specialists through its direct U.S. sales force and international independent distributor network.

The information in this press release contains forward-looking statements, including statements regarding the international availability of the Venture catheter and expectations about the product's sales,that involve risks and

uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements. Important factors that may cause such differences include those discussed in our Annual Report on Form 10-K for the year ended December 31, 2012 and other recent filings with the Securities and Exchange Commission. The risks and uncertainties include, without limitation, risks associated with the need for adoption of our new products, lackof sustained profitability, exposure to intellectual property claims, significant variability in quarterly results, exposure to possible product liability claims, the development of new products by others, doing business in international markets, the availability of third party reimbursement, and actions by the FDA.

Load-Date: May 18, 2013

End of Document

Vascular Solutions Issues Patent Infringement Complaint Against Boston Scientific.

Benzinga.com

May 16, 2013

Length: 242 words

Body

Byline: Paul Quintaro

Vascular Solutions, Inc. (Nasdaq: VASC) announced today that it has filed a patent infringement complaint in the U.S. District Court for the District of Minnesota against Boston Scientific Corporation (NYSE:BSX). The complaint alleges that Boston Scientific has infringed three patents owned by Vascular Solutions concerning rapid exchange guide extension technology by manufacturing and selling its Guidezilla(TM) guide extension catheter which received 510(k) clearance in March2013. Vascular Solutions is seeking an injunction against Boston Scientific prohibiting the manufacture and sale of its Guidezilla catheter as well as damages for lost profits and legal costs.

U.S. Patents 8,048,032, 8,142,413 and ***8,292,850***, comprising 60 claims in total and having an initial filing date of May 2006, were issued by the U.S. Patent & Trademark Office to Howard Root, et. al. and assigned to Vascular Solutions concerning rapid exchange guide extension technology. These patents form the basis for Vascular Solutions' GuideLiner(R) catheter, the first and until now only rapid exchange mother-and-child guide extension catheter. Since its launch in 2009, the GuideLiner catheter has been described by prominent interventionalcardiologists as an "indispensable tool," a "game-changing device," and a catheter that "makes impossible cases possible."

Load-Date: May 18, 2013

End of Document

Vascular Solutions Issues Patent Infringement Complaint Against Boston Scientific

Benzinga

May 16, 2013 Thursday 8:22 PM EST

Length: 472 words

Body

May 16, 2013 (Benzinga:*http://www.benzinga.com/* Delivered by Newstex)

Vascular Solutions, Inc. (Nasdaq: VASC[1]) announced today that it has filed a patent infringement complaint in the U.S. District Court for the District of Minnesota against Boston Scientific Corporation (NYSE: BSX[2]). The complaint alleges that Boston Scientific has infringed three patents owned by Vascular Solutions concerning rapid exchange guide extension technology by manufacturing and selling its Guidezilla™ guide extension catheter which received 510(k) clearance in March 2013. Vascular Solutions is seeking an injunction against Boston Scientific prohibiting the manufacture and sale of its Guidezilla catheter as well as damages for lost profits and legal costs.

U.S. Patents 8,048,032, 8,142,413 and ***8,292,850***, comprising 60 claims in total and having an initial filing date of May 2006, were issued by the U.S. Patent Trademark Office to Howard Root, et. al. and assigned to Vascular Solutions concerning rapid exchange guide extension technology. These patents form the basis for Vascular Solutions' GuideLiner® catheter, the first and until now only rapid exchange mother-and-child guide extension catheter. Since its launch in 2009, the GuideLiner catheter has been described by prominent interventional cardiologists as an "indispensable tool," a "game-changing device," and a catheter that "makes impossible cases possible."

[1]: *http://www.benzinga.com/stock/vasc#Nasdaq* [2]: *http://www.benzinga.com/stock/bsx#NYSE*

Load-Date: May 16, 2013

End of Document

RENEE PRESTON

This case was appealed to
Federal Circuit: 14-1185

US District Court Civil Docket

U.S. District - Minnesota
(Dmn)

0:13cv1172

Vascular Solutions, Inc. v. Boston Scientific Corporation

This case was retrieved from the court on Wednesday, September 19, 2018

Date Filed:	**05/16/2013**		
Assigned To:	**Judge John R. Tunheim**		
Referred To:	**Magistrate Judge Steven E. Rau**	Class Code:	**CLOSED**
Nature of suit:	**Patent (830)**	Closed:	**08/11/2014**
Cause:	**Patent Infringement**	Statute:	**35:271**
Lead Docket:	**None**	Jury Demand:	**Plaintiff**
Other Docket:	**USCA for the Federal Circuit, 14-01185**	Demand Amount:	**$0**
Jurisdiction:	**Federal Question**	NOS Description:	**Patent**

Litigants	Attorneys
Vascular Solutions, Inc. Plaintiff	Forrest Tahdooahnippah LEAD ATTORNEY;ATTORNEY TO BE NOTICED Dorsey & Whitney LLP 50 S 6th St Ste 1500 Mpls , MN 55402-1498 USA 612-492-6876 Fax: 612-486-8897 Email:Tahdooahnippah.F@dorsey.Com Heather D Redmond LEAD ATTORNEY;ATTORNEY TO BE NOTICED Dorsey & Whitney LLP 50 S 6th St. Ste 1500 Inactive Mpls , MN 55402-1498 USA 612-340-6343 Fax: 612-340-2868 Email:Redmond.Heather@dorsey.Com J Thomas Vitt LEAD ATTORNEY;ATTORNEY TO BE NOTICED Jones Day

90 South 7th Street, Suite 4950
Minneapolis , MN 55402
USA
612-217-8858
Fax: 844-345-3178
Email: Tvitt@jonesday.Com

Shannon L Bjorklund
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Dorsey & Whitney LLP
50 S 6th St Ste 1500
Mpls , MN 55402-1498
USA
612-492-6636
Fax: 612-677-3086
Email: Bjorklund.Shannon@dorsey.Com

Boston Scientific Corporation
Defendant

Edward Han
LEAD ATTORNEY; PRO HAC VICE; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004
USA
202-942-5756
Email: Edward.Han@aporter.Com

Jeffer Ali , I
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Carlson Caspers Vandenburgh Lindquist & Schuman PA
225 S 6th St Ste 4200
Mpls , MN 55402
USA
612-436-9600
Fax: 612-436-9605
Email: Jali@mylegalaid.Org

John E Nilsson
LEAD ATTORNEY; PRO HAC VICE; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004-1206
USA
202-942-5000
Email: John.Nilsson@aporter.Com

Matthew M Wolf
LEAD ATTORNEY; PRO HAC VICE; ATTORNEY TO BE NOTICED
Arnold & Porter
555 Twelfth Street Nw
Washington , DC 20004
USA
202-942-5756
Email: Matthew.Wolf@aporter.Com

Sara Zogg
LEAD ATTORNEY; PRO HAC VICE; ATTORNEY TO BE NOTICED
Arnold & Porter LLP

555 Twelfth Street Nw
Washington , DC 20004-1206
USA
202-942-5000
Email: Sara.Zogg@aporter.Com

Sarah M Stensland
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Patterson Thuente Pedersen, P.A.
80 South 8th Street Suite 4800
Minneapolis , MN 55402
USA
612-349-3006
Fax: 612-349-9266
Email: Sstensland@carlsoncaspers.Com

Seth I Heller
LEAD ATTORNEY; PRO HAC VICE; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004-1206
USA
202-942-5000
Email: Seth.Heller@aporter.Com

Tara Williamson
LEAD ATTORNEY; PRO HAC VICE; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004-1206
USA
202-942-5000
Email: Tara.Williamson@aporter.Com

Boston Scientific Corporation
Counter Claimant

Edward Han
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004
USA
202-942-5756
Email: Edward.Han@aporter.Com

Jeffer Ali , I
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Carlson Caspers Vandenburgh Lindquist & Schuman PA
225 S 6th St Ste 4200
Mpls , MN 55402
USA
612-436-9600
Fax: 612-436-9605
Email: Jali@mylegalaid.Org

John E Nilsson
LEAD ATTORNEY; PRO HAC VICE; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004-1206

USA
202-942-5000
Email: John.Nilsson@aporter.Com

Matthew M Wolf
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Arnold & Porter
555 Twelfth Street Nw
Washington , DC 20004
USA
202-942-5756
Email: Matthew.Wolf@aporter.Com

Sara Zogg
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004-1206
USA
202-942-5000
Email: Sara.Zogg@aporter.Com

Sarah M Stensland
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Patterson Thuente Pedersen, P.A.
80 South 8th Street Suite 4800
Minneapolis , MN 55402
USA
612-349-3006
Fax: 612-349-9266
Email: Sstensland@carlsoncaspers.Com

Seth I Heller
LEAD ATTORNEY; PRO HAC VICE; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004-1206
USA
202-942-5000
Email: Seth.Heller@aporter.Com

Tara Williamson
LEAD ATTORNEY; PRO HAC VICE; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004-1206
USA
202-942-5000
Email: Tara.Williamson@aporter.Com

Vascular Solutions, Inc.
Counter Defendant

Forrest Tahdooahnippah
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Dorsey & Whitney LLP
50 S 6th St Ste 1500
Mpls , MN 55402-1498
USA
612-492-6876
Fax: 612-486-8897
Email: Tahdooahnippah.F@dorsey.Com

Heather D Redmond
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Dorsey & Whitney LLP
50 S 6th St. Ste 1500
Inactive
Mpls , MN 55402-1498
USA
612-340-6343
Fax: 612-340-2868
Email: Redmond.Heather@dorsey.Com

J Thomas Vitt
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Jones Day
90 South 7th Street, Suite 4950
Minneapolis , MN 55402
USA
612-217-8858
Fax: 844-345-3178
Email: Tvitt@jonesday.Com

Shannon L Bjorklund
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Dorsey & Whitney LLP
50 S 6th St Ste 1500
Mpls , MN 55402-1498
USA
612-492-6636
Fax: 612-677-3086
Email: Bjorklund.Shannon@dorsey.Com

Boston Scientific Corporation
Counter Claimant

Edward Han
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004
USA
202-942-5756
Email: Edward.Han@aporter.Com

Jeffer Ali , I
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Carlson Caspers Vandenburgh Lindquist & Schuman PA
225 S 6th St Ste 4200
Mpls , MN 55402
USA
612-436-9600
Fax: 612-436-9605
Email: Jali@mylegalaid.Org

John E Nilsson
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004-1206
USA
202-942-5000
Email: John.Nilsson@aporter.Com

Matthew M Wolf
LEAD ATTORNEY; ATTORNEY TO BE NOTICED

Arnold & Porter
555 Twelfth Street Nw
Washington , DC 20004
USA
202-942-5756
Email: Matthew.Wolf@aporter.Com

Sara Zogg
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004-1206
USA
202-942-5000
Email: Sara.Zogg@aporter.Com

Sarah M Stensland
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Patterson Thuente Pedersen, P.A.
80 South 8th Street Suite 4800
Minneapolis , MN 55402
USA
612-349-3006
Fax: 612-349-9266
Email: Sstensland@carlsoncaspers.Com

Seth I Heller
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004-1206
USA
202-942-5000
Email: Seth.Heller@aporter.Com

Tara Williamson
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Arnold & Porter LLP
555 Twelfth Street Nw
Washington , DC 20004-1206
USA
202-942-5000
Email: Tara.Williamson@aporter.Com

Vascular Solutions, Inc.
Counter Defendant

Forrest Tahdooahnippah
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Dorsey & Whitney LLP
50 S 6th St Ste 1500
Mpls , MN 55402-1498
USA
612-492-6876
Fax: 612-486-8897
Email: Tahdooahnippah.F@dorsey.Com

Heather D Redmond
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Dorsey & Whitney LLP
50 S 6th St. Ste 1500
Inactive
Mpls , MN 55402-1498
USA
612-340-6343

Fax: 612-340-2868
Email: Redmond.Heather@dorsey.Com

J Thomas Vitt
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Jones Day
90 South 7th Street, Suite 4950
Minneapolis , MN 55402
USA
612-217-8858
Fax: 844-345-3178
Email: Tvitt@jonesday.Com

Shannon L Bjorklund
LEAD ATTORNEY; ATTORNEY TO BE NOTICED
Dorsey & Whitney LLP
50 S 6th St Ste 1500
Mpls , MN 55402-1498
USA
612-492-6636
Fax: 612-677-3086
Email: Bjorklund.Shannon@dorsey.Com

Date	#	Proceeding Text	Source
05/16/2013	1	COMPLAINT against Boston Scientific Corporation. (Filing fee $ 400 receipt number 0864-3558731.) Filed by Vascular Solutions, Inc.. Filer requests summons issued. (Attachments: # 1 Exhibit(s) A-C, # 2 Civil Cover Sheet) (Redmond, Heather) (Entered: 05/16/2013)	
05/16/2013	2	RULE 7.1 DISCLOSURE STATEMENT. There is no parent corporation, publicly held corporation or wholly-owned subsidiary to report for Plaintiff Vascular Solutions, Inc.. (Redmond, Heather) (Entered: 05/16/2013)	
05/16/2013	3	TEXT-ONLY ENTRY. CLERK'S NOTICE OF INITIAL CASE ASSIGNMENT. Case assigned to Judge John R. Tunheim per Patent Deck referred to Magistrate Judge Steven E. Rau. Please use case number 13cv1172 (JRT/SER). (jz) (Entered: 05/16/2013)	
05/16/2013	4	Summons Issued as to Boston Scientific Corporation. (jz) (Entered: 05/16/2013)	
05/28/2013	5	SUMMONS Returned Executed by Vascular Solutions, Inc.. Boston Scientific Corporation served on 5/17/2013, answer due 6/7/2013. (Redmond, Heather) (Entered: 05/28/2013)	
05/28/2013	6	AMENDED COMPLAINT against Boston Scientific Corporation. Filed by Vascular Solutions, Inc.. No summons requested. (Attachments: # 1 Exhibit(s) A-E) (Redmond, Heather) (Entered: 05/28/2013)	
05/31/2013	7	AFFIDAVIT of Service by Vascular Solutions, Inc. re 6 Amended Complaint (Redmond, Heather) (Entered: 05/31/2013)	
06/10/2013	8	MOTION for Preliminary Injunction by Vascular Solutions, Inc.. (Redmond, Heather) (Entered: 06/10/2013)	
06/10/2013	9	NOTICE OF HEARING ON MOTION 8 MOTION for Preliminary Injunction : at date and time to be determined. (Redmond, Heather) (Entered: 06/10/2013)	
06/10/2013	10	MEET and CONFER STATEMENT re 8 Motion for Preliminary Injunction filed by Vascular Solutions, Inc.. (Redmond, Heather) (Entered: 06/10/2013)	
06/10/2013	11	MEMORANDUM in Support re 8 MOTION for Preliminary Injunction filed by Vascular Solutions, Inc.. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Redmond, Heather) (Entered: 06/10/2013)	
06/10/2013	12	Declaration of Howard Root in Support of 8 MOTION for Preliminary Injunction filed by Vascular Solutions, Inc.. (Attachments: # 1 Exhibit(s) 1-5, # 2 Exhibit	

		(s) 6-7, # 3 Exhibit(s) 8, # 4 Exhibit(s) 9-13, # 5 Exhibit(s) 14-15, # 6 Exhibit (s) 16-22, # 7 Exhibit(s) 23-25, # 8 Exhibit(s) 26-29, # 9 Exhibit(s) 30-33, # 10 Exhibit(s) 34, # 11 Exhibit(s) 35-41)(Redmond, Heather) (Entered: 06/10/2013)
06/10/2013	13	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 8 MOTION for Preliminary Injunction and Certificate of Service on Non-ECF Participant (Redmond, Heather) (Entered: 06/10/2013)
06/11/2013	14	STIPULATION for Extension of Time to Answer or Otherwise Plead for Defendant Boston Scientific Corporation by Boston Scientific Corporation, Vascular Solutions, Inc.. (Stensland, Sarah) (Entered: 06/11/2013)
06/11/2013	15	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Boston Scientific Corporation re 14 Stipulation for Extension of Time to Answer or Otherwise Plead for Defendant Boston Scientific Corporation (Stensland, Sarah) (Entered: 06/11/2013)
06/13/2013	16	STIPULATION Regarding Schedule for Limited Discovery and Briefing Schedule for Plaintiff's Motion for Preliminary Injunction by Vascular Solutions, Inc.. (Bjorklund, Shannon) (Entered: 06/13/2013)
06/13/2013	17	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 16 Stipulation (Bjorklund, Shannon) (Entered: 06/13/2013)
06/14/2013	18	DOCUMENT FILED IN ERROR. Replaced by Document number 25. MOTION for Admission Pro Hac Vice for Attorney Matthew M. Wolf. Filing fee $ 100, receipt number 0864-3592676 by Boston Scientific Corporation. (Ali, Jeffer) Modified on 6/18/2013 (MAP). Modified on 6/18/2013 (MAP). (Entered: 06/14/2013)
06/14/2013	19	MOTION for Admission Pro Hac Vice for Attorney Sara Zogg. Filing fee $ 100, receipt number 0864-3592686 by Boston Scientific Corporation. (Ali, Jeffer) (Entered: 06/14/2013)
06/14/2013	20	MOTION for Admission Pro Hac Vice for Attorney Edward Han. Filing fee $ 100, receipt number 0864-3592691 by Boston Scientific Corporation. (Ali, Jeffer) (Entered: 06/14/2013)
06/14/2013	21	Document Filed in Error. MOTION for Admission Pro Hac Vice for Attorney John E. Nilsson. Filing fee $ 100, receipt number 0864-3592694 by Boston Scientific Corporation. (Ali, Jeffer) Modified on 6/18/2013 (MAP). (Entered: 06/14/2013)
06/14/2013	22	TEXT ONLY ENTRY. ORDER granting 20 Motion for Admission Pro Hac Vice of Attorney Edward Han for Boston Scientific Corporation. Approved by Magistrate Judge Steven E. Rau on 6/14/2013. (MAP) (Entered: 06/14/2013)
06/14/2013	23	ORDER: Pursuant to the Joint Stipulation For Extension of Time to Answer or Otherwise Plead for Defendant Boston Scientific Corporation (ECF No. 14), Defendant Boston Scientific Corporation is hereby granted until July 11, 2013 to answer, or otherwise plead in response to, the Amended Complaint. Signed by Magistrate Judge Steven E. Rau on 06/14/2013. (MMP) (Entered: 06/14/2013)
06/17/2013	24	ORDER re 16 Stipulation Regarding Schedule for Limited Discovery and Briefing Schedule for Plaintiffs Motion for Preliminary Injunction. Signed by Judge John R. Tunheim on June 17, 2013. (HAM) (Entered: 06/17/2013)
06/18/2013	25	MOTION for Admission Pro Hac Vice for Attorney Matthew M. Wolf. Filing fee $ 100, receipt number 0864-3595236 by Boston Scientific Corporation. (Ali, Jeffer) (Entered: 06/18/2013)
06/18/2013	26	TEXT ONLY ENTRY. ORDER granting 19 Motion for Admission Pro Hac Vice of Attorney Sara Zogg for Boston Scientific Corporation. Approved by Magistrate Judge Steven E. Rau on 6/18/2013. (MAP) (Entered: 06/18/2013)
06/18/2013	27	TEXT ONLY ENTRY. ORDER granting 25 Motion for Admission Pro Hac Vice of Attorney Matthew M Wolf for Boston Scientific Corporation. Approved by Magistrate Judge Steven E. Rau on 6/18/2013. (MAP) (Entered: 06/18/2013)
06/19/2013	28	RULE 7.1 DISCLOSURE STATEMENT. There is no parent corporation, publicly held corporation or wholly-owned subsidiary to report for Defendant Boston Scientific Corporation. (Stensland, Sarah) (Entered: 06/19/2013)

07/08/2013	29	RESPONSE in Opposition re 8 MOTION for Preliminary Injunction PLACEHOLDER filed by Boston Scientific Corporation. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Stensland, Sarah)SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 7/8/13 LGL Modified on 7/9/2013 (LGL). (Entered: 07/08/2013)
07/08/2013	30	Declaration of Sarah M. Stensland in Support of 29 Response in Opposition to Motion filed by Boston Scientific Corporation. (Attachments: # 1 Exhibit(s) 1 and 3-9, # 2 Exhibit(s) 2 PLACEHOLDER)(Stensland, Sarah)SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 7/8/13 LGL Modified on 7/9/2013 (LGL). (Entered: 07/08/2013)
07/08/2013	31	Declaration of Anthony C. Vrba in Support of 29 Response in Opposition to Motion filed by Boston Scientific Corporation. (Attachments: # 1 Exhibit(s) A-B, # 2 Exhibit(s) C-I)(Stensland, Sarah) (Entered: 07/08/2013)
07/08/2013	32	Declaration of Tony J. DeMartini, M.D. in Support of 29 Response in Opposition to Motion filed by Boston Scientific Corporation. (Stensland, Sarah) (Entered: 07/08/2013)
07/08/2013	33	Declaration of Sam Rasmusen in Support of 29 Response in Opposition to Motion filed by Boston Scientific Corporation. (Stensland, Sarah)SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 7/8/13 LGL Modified on 7/9/2013 (LGL). (Entered: 07/08/2013)
07/08/2013	34	CERTIFICATE OF SERVICE by Boston Scientific Corporation of UNDER SEAL documents (Stensland, Sarah) (Entered: 07/08/2013)
07/11/2013	35	ANSWER to Amended Complaint and, COUNTERCLAIM against Vascular Solutions, Inc.. by Boston Scientific Corporation. (Attachments: # 1 Exhibit(s) A) (Stensland, Sarah) (Entered: 07/11/2013)
07/11/2013	36	STIPULATION (Joint) Regarding Amended Limited Discovery and Briefing Schedule for Plaintiff's Motion for Preliminary Injunction by Boston Scientific Corporation, Vascular Solutions, Inc.. (Bjorklund, Shannon) (Entered: 07/11/2013)
07/11/2013	37	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 36 Stipulation (Bjorklund, Shannon) (Entered: 07/11/2013)
07/12/2013	38	TEXT ONLY ENTRY: Notice re: Non-Admitted AttorneyWe have received documents listing John Nilsson as counsel of record. If he or she wishes to be listed as an attorney of record in this case, he or she must be admitted to the bar of the U.S. District Court of Minnesota in accordance with Local Rule 83.5 (a), (b) and (c) or temporarily admitted pro hac vice in accordance with Local Rule 83.5 (d) or (e).For more admissions information and forms, please see the Attorney Forms Section of the courts website at href=http://www.mnd.uscourts.gov/FORMS/court_forms.shtml#attorneyforms. (jz) (Entered: 07/12/2013)
07/16/2013	39	ORDER adopting 36 the Joint Stipulation Regarding Amended Limited Discovery and Briefing Schedule. The Court hereby orders: 1. Vascular Solutions, Inc. will take the depositions of Boston's declarants by July 18, 2013. 2. Vascular Solutions, Inc.s reply brief shall be due on July 24, 2013. 3. The other deadlines and requirements in the Courts order dated June 17, 2013 shall remain in effect. Signed by Judge John R. Tunheim on July 16, 2013. (haz) (Entered: 07/16/2013)
07/19/2013	40	LETTER to Request Permission to Exceed Word/Line Limits for filing Due July 24. (Bjorklund, Shannon) (Entered: 07/19/2013)
07/22/2013	41	LETTER TO DISTRICT JUDGE by Boston Scientific Corporation . (Attachments: # 1 Exhibit(s) A, # 2 Exhibit(s) B)(Ali, Jeffer) (Entered: 07/22/2013)
07/23/2013	42	ORDER granting in part 40 the Request to Exceed Word/Line Limits filed by Vascular Solutions, Inc. Signed by Judge John R. Tunheim on July 23, 2013. (haz) (Entered: 07/23/2013)
07/24/2013	43	REPLY re 8 MOTION for Preliminary Injunction filed by Vascular Solutions, Inc.. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate, # 2 Placeholder for Filed Under Seal Version of Plaintiff's Reply Memorandum)

		(Redmond, Heather) SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 7/24/13 LGL Modified on 7/25/2013 (LGL). (Entered: 07/24/2013)
07/24/2013	44	Second Declaration of Howard Root in Support of 8 MOTION for Preliminary Injunction filed by Vascular Solutions, Inc.. (Redmond, Heather) (Entered: 07/24/2013)
07/24/2013	45	Declaration of Heather D. Redmond in Support of 8 MOTION for Preliminary Injunction filed by Vascular Solutions, Inc.. (Attachments: # 1 Exhibit(s) A-G) (Redmond, Heather)SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 7/24/13 LGL Modified on 7/25/2013 (LGL). (Entered: 07/24/2013)
07/24/2013	46	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 8 MOTION for Preliminary Injunction (Redmond, Heather) (Entered: 07/24/2013)
07/26/2013	47	LETTER TO DISTRICT JUDGE by Boston Scientific Corporation . (Ali, Jeffer) (Entered: 07/26/2013)
07/30/2013	48	AMENDED NOTICE of Hearing on Motion: 8 MOTION for Preliminary Injunction : Motion Hearing set for 8/27/2013 02:00 PM in Courtroom 13E (MPLS) before Judge John R. Tunheim. (Bjorklund, Shannon) (Entered: 07/30/2013)
07/31/2013	49	STIPULATION to Extend Time to Respond to Counterclaims by Boston Scientific Corporation, Vascular Solutions, Inc.. (Bjorklund, Shannon) (Entered: 07/31/2013)
07/31/2013	50	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 49 Stipulation to Extend Time to Respond to Counterclaims (Bjorklund, Shannon) (Entered: 07/31/2013)
08/05/2013	51	ORDER re 49 Stipulation filed by Boston Scientific Corporation, Vascular Solutions, Inc. Plaintiff/Counterclaim-Defendant Vascular Solutions, Inc. is hereby granted until August 22, 2013, to answer or otherwise respond to the counterclaims brought by Boston Scientific Corporation. Signed by Magistrate Judge Steven E. Rau on 8/5/13. (GMW) (Entered: 08/05/2013)
08/07/2013	52	MOTION for Admission Pro Hac Vice for Attorney John E. Nilsson. Filing fee $ 100, receipt number 0864-3653985 by Boston Scientific Corporation. (Ali, Jeffer) (Entered: 08/07/2013)
08/08/2013	53	TEXT ONLY ENTRY: ORDER granting 52 Motion for Admission Pro Hac Vice of Attorney John E Nilsson for Boston Scientific Corporation. Approved by Magistrate Judge Steven E. Rau on 08/08/2013. (KMM) (Entered: 08/08/2013)
08/22/2013	54	REPLY to Counterclaim by Vascular Solutions, Inc.. (Redmond, Heather) (Entered: 08/22/2013)
08/26/2013	55	STIPULATION for Protective Order by Boston Scientific Corporation, Vascular Solutions, Inc.. (Bjorklund, Shannon) (Entered: 08/26/2013)
08/26/2013	56	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 55 Stipulation (Bjorklund, Shannon) (Entered: 08/26/2013)
08/27/2013	57	ORDER/NOTICE OF PRETRIAL CONFERENCE: A Pretrial Conference set for 9/18/2013 11:00 AM in Judge's Chambers, Suite 334 (STP) before Magistrate Judge Steven E. Rau. Signed by Magistrate Judge Steven E. Rau on 08/27/2013. (Attachments: # 1 Consent Form)(las) (Entered: 08/27/2013)
08/27/2013	58	Minute Entry for proceedings held before Judge John R. Tunheim: Motion Hearing held on 8/27/2013 re 8 MOTION for Preliminary Injunction filed by Vascular Solutions, Inc. Motion taken under advisement. Written order forthcoming. (Court Reporter Kristine Mousseau) (HAZ) (Entered: 08/28/2013)
09/05/2013	59	STIPULATION for Protective Order by Boston Scientific Corporation, Vascular Solutions, Inc.. (Redmond, Heather) (Entered: 09/05/2013)
09/05/2013	60	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 59 Stipulation (Redmond, Heather) (Entered: 09/05/2013)
09/06/2013	61	PROTECTIVE ORDER. Signed by Magistrate Judge Steven E. Rau on 9/6/13. (jam) (Entered: 09/06/2013)

09/09/2013	62	TEXT ONLY ENTRY: NOTICE of RESCHEDULING of Hearing: 57 ORDER/NOTICE OF PRETRIAL CONFERENCE: A Pretrial Conference set for 9/18/2013 11:00 AM has been RESCHEDULED to 10/2/2013 11:30 AM in Judge's Chambers, Suite 334 (STP) before Magistrate Judge Steven E. Rau. (MME) (Entered: 09/09/2013)
09/09/2013	63	EXHIBIT 41 re 12 Declaration in Support, of Plaintiff's Motion for Preliminary Injunction by Vascular Solutions, Inc.. (Redmond, Heather)SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 9/9/13 LGL Modified on 9/10/2013 (LGL). Modified on 9/10/2013 (kt). (Entered: 09/09/2013)
09/09/2013	64	CERTIFICATE OF SERVICE by Vascular Solutions, Inc. re 63 Exhibit (Redmond, Heather) (Entered: 09/09/2013)
09/10/2013	65	DOCUMENT FILED IN ERROR--MOTION for Admission Pro Hac Vice for Attorney Tara Williamson. Filing fee $ 100, receipt number 0864-3690406 by Boston Scientific Corporation. (Ali, Jeffer) Modified on 9/18/2013 (MAP). (Entered: 09/10/2013)
09/20/2013	66	MOTION for Admission Pro Hac Vice for Attorney Seth I. Heller. Filing fee $ 100, receipt number 0864-3703840 by Boston Scientific Corporation. (Stensland, Sarah) (Entered: 09/20/2013)
09/25/2013	67	TEXT ONLY ENTRY: NOTICE of Resetting of Hearing: 62 TEXT ONLY ENTRY: NOTICE of RESCHEDULING of Hearing: Pretrial Conference set for 10/2/2013 11:30 AM has been RESCHEDULED to 10/3/2013 08:30 AM in Judge's Chambers, Suite 334 (STP) before Magistrate Judge Steven E. Rau. (MME) (Entered: 09/25/2013)
09/25/2013	68	REPORT of Rule 26(f) Planning Meeting by Boston Scientific Corporation, Vascular Solutions, Inc..(Redmond, Heather) (Entered: 09/25/2013)
09/26/2013	69	TEXT ONLY ENTRY: ORDER granting 66 Motion for Admission Pro Hac Vice of Attorney Seth I Heller for Boston Scientific Corporation. Approved by Magistrate Judge Steven E. Rau on 09/26/2013. (MAP) (Entered: 09/26/2013)
10/03/2013	70	Minute Entry for proceedings held before Magistrate Judge Steven E. Rau: Pretrial Scheduling Conference held on 10/3/2013. Scheduling order will be issued. (GMW) (Entered: 10/03/2013)
10/09/2013	71	PRETRIAL SCHEDULING ORDER: Amended Pleadings due by 3/28/2014. Discovery due by 7/15/2014. Motions (non-disp) due 7/29/2014. Motions (disp) due by 11/14/2014. Ready for trial due by 3/16/2014. Signed by Magistrate Judge Steven E. Rau on 10/09/2013. (MMP) (Entered: 10/09/2013)
10/15/2013	72	LETTER TO MAGISTRATE JUDGE by Boston Scientific Corporation, Vascular Solutions, Inc. proposing revisions to Pretrial Scheduling Order. (Attachments: # 1 Exhibit(s) A, # 2 Exhibit(s) B)(Ali, Jeffer) (Entered: 10/15/2013)
10/16/2013	73	MOTION for Admission Pro Hac Vice for Attorney Tara Williamson. Filing fee $ 100, receipt number 0864-3732267 by Boston Scientific Corporation. (Stensland, Sarah) (Entered: 10/16/2013)
10/16/2013	74	TEXT ONLY ENTRY: ORDER granting 73 Motion for Admission Pro Hac Vice of Attorney Tara Williamson for Boston Scientific Corporation. Approved by Magistrate Judge Steven E. Rau on 10/16/2013. (MAP) (Entered: 10/16/2013)
10/17/2013	75	AMENDED PRETRIAL SCHEDULING ORDER: Amended Pleadings due by 3/28/2014. Discovery due by 7/15/2014. Motions (non-disp) due 7/29/2014. Motions (disp) due by 11/14/2014. Ready for trial due by 3/16/2015. Signed by Magistrate Judge Steven E. Rau on 10/16/2013. (MMP) (Entered: 10/17/2013)
12/09/2013	76	SEALED ORDER. Signed by Judge John R. Tunheim on 12/9/13. (kt) CC: Counsel of record. (kt) (Entered: 12/09/2013)
12/11/2013	77	NOTICE by Vascular Solutions, Inc. of Posting Bond (Attachments: # 1 Exhibit (s) A)(Redmond, Heather) (Entered: 12/11/2013)
12/11/2013	78	LETTER TO DISTRICT JUDGE by Vascular Solutions, Inc. Regarding Unsealing Order. (Redmond, Heather) (Entered: 12/11/2013)

12/12/2013	79	LETTER to Request Permission to File Motion to Reconsider . (Ali, Jeffer) (Entered: 12/12/2013)
12/12/2013	80	SEALED ORDER. Signed by Judge John R. Tunheim on 12/12/13. (kt) CC: Counsel of record. (Entered: 12/12/2013)
12/13/2013	81	LETTER RESPONSE re 79 Letter to Request Permission to File Motion to Reconsider. (Redmond, Heather) (Entered: 12/13/2013)
12/19/2013	82	LETTER TO DISTRICT JUDGE by Boston Scientific Corporation . (Attachments: # 1 Exhibit(s) A)(Ali, Jeffer) (Entered: 12/19/2013)
12/23/2013	83	ORDER denying Request for Permission to File Motion to Reconsider filed by Boston Scientific Corporation (Written Opinion). Signed by Judge John R. Tunheim on December 23, 2013. (HAZ) (Entered: 12/23/2013)
12/26/2013	84	NOTICE OF APPEAL TO FEDERAL CIRCUIT as to 76 Order on Motion for Preliminary Injunction by Boston Scientific Corporation. Filing fee $ 505, receipt number 0864-3813341. (Williamson, Tara) (Entered: 12/26/2013)
12/27/2013	85	NOTICE OF FEDERAL APPEAL TRANSMITTAL re 84 Notice of Appeal to Federal Circuit. (Attachments: # 1 Listed Attorneys)(jam) (Entered: 12/27/2013)
12/27/2013	86	Federal Circuit Case Number 14-1185 for 84 Notice of Appeal to Federal Circuit filed by Boston Scientific Corporation. (akl) (Entered: 01/02/2014)
01/08/2014	87	STATUS REPORT Joint by Boston Scientific Corporation. (Ali, Jeffer) (Entered: 01/08/2014)
01/08/2014	88	DOCUMENT FILED IN ERROR. NOTICE of Filing of Official Transcript. This filing has 1 transcript(s) associated with it. (KM) Modified on 1/9/2014 (GMW). (Entered: 01/08/2014)
01/08/2014	89	TRANSCRIPT of Motions Hearing held on 08/27/2013 before Judge John R. Tunheim. (88 pages). Court Reporter: Kristine Mousseau (E-mail: Kristine_Mousseau@mnd.uscourts.gov. Telephone: (612) 664-5106). Redaction Request due 1/29/2014. Redacted Transcript Deadline set for 2/10/2014. Release of Transcript Restriction set for 4/8/2014. For information on redaction procedures, please review Local Rule 5.5. (KM) (Entered: 01/08/2014)
01/08/2014	91	ORDER from the United States Court of Appeals for the Federal Circuit: Boston Scientific's motion for an "interim stay" is denied. The motion for a stay pending appeal shall be considered in due course. (akl) (Entered: 01/09/2014)
01/09/2014	90	NOTICE of Filing of Official Transcript (re 89 Transcript). This filing has 1 transcript(s) associated with it. (KM) Modified on 1/9/2014 (GMW). (Entered: 01/09/2014)
01/09/2014	92	NOTICE by Boston Scientific Corporation of Transcript Purchase Order (Stensland, Sarah) (Entered: 01/09/2014)
02/03/2014	93	MOTION for Bond to Modify by Boston Scientific Corporation. (Ali, Jeffer) (Entered: 02/03/2014)
02/03/2014	94	NOTICE OF HEARING ON MOTION 93 MOTION for Bond to Modify : at date and time to be determined. (Ali, Jeffer) (Entered: 02/03/2014)
02/03/2014	95	MEMORANDUM in Support re 93 MOTION for Bond to Modify , PLACEHOLDER filed by Boston Scientific Corporation. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Ali, Jeffer)SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 2/3/14LGL Modified on 2/4/2014 (LGL). (Entered: 02/03/2014)
02/03/2014	96	Declaration of Seth I. Heller in Support of 93 MOTION for Bond to Modify filed by Boston Scientific Corporation. (Attachments: # 1 Exhibit(s) 1 PLACEHOLDER)(Ali, Jeffer)SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 2/3/14LGL Modified on 2/4/2014 (LGL). (Entered: 02/03/2014)
02/03/2014	97	Declaration of Todd Bethel in Support of 93 MOTION for Bond to Modify filed by Boston Scientific Corporation. (Ali, Jeffer)SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 2/3/14LGL Modified on 2/4/2014 (LGL). (Entered: 02/03/2014)

02/03/2014	98	MEET and CONFER STATEMENT re 93 Motion for Bond filed by Boston Scientific Corporation. (Ali, Jeffer) (Entered: 02/03/2014)
02/03/2014	99	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Boston Scientific Corporation re 93 MOTION for Bond to Modify (Ali, Jeffer) (Entered: 02/03/2014)
02/03/2014	100	CERTIFICATE OF SERVICE by Boston Scientific Corporation re 93 MOTION for Bond to Modify of Sealed Documents (Ali, Jeffer) (Entered: 02/03/2014)
02/07/2014	101	STIPULATION For Extension of Time to Respond to Motion to Modify Bond by Vascular Solutions, Inc.. Jointly Signed by Vascular Solutions, Inc. and Boston Scientific Corporation. (Attachments: # 1 Certificate of Service) (Tahdooahnippah, Forrest) (Entered: 02/07/2014)
02/07/2014	102	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 101 Stipulation, for Extension of Time to Respond to Motion to Modify Bond (Tahdooahnippah, Forrest) (Entered: 02/07/2014)
02/07/2014	103	ORDER granting 101 Stipulation, filed by Vascular Solutions, Inc.. Signed by Judge John R. Tunheim on February 7, 2014. (HAZ) (Entered: 02/07/2014)
02/11/2014	104	STIPULATION to Extend Time for Filing Joint Claim Construction Statement by Vascular Solutions, Inc.. Jointly Signed by Boston Scientific Corporation and Boston Scientific Scimed, Inc.. (Redmond, Heather) (Entered: 02/11/2014)
02/11/2014	105	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 104 Stipulation (Redmond, Heather) (Entered: 02/11/2014)
02/13/2014	106	ORDER GRANTING EXTENSION OF TIME TO FILE JOINT CLAIM CONSTRUCTION STATEMENT: Based on the Stipulation of the Parties, IT IS HEREBY ORDERED THAT Plaintiff/Counter-Defendant Vascular Solutions, Inc., Defendant/Counterclaim- Plaintiff Boston Scientific Corporation and Counter-Plaintiff Boston Scientific Scimed, Inc., shall have until February 21, 2014 to file their Joint Claim Construction Statement. Signed by Magistrate Judge Steven E. Rau on 02/13/2014. (MMP) (Entered: 02/13/2014)
02/18/2014	107	MEMORANDUM in Opposition re 93 MOTION for Bond to Modify filed by Vascular Solutions, Inc.. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Tahdooahnippah, Forrest)SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 2/18/14LGL Modified on 2/18/2014 (LGL). (Entered: 02/18/2014)
02/18/2014	108	DECLARATION of J. Thomas Vitt in Opposition to 107 Memorandum in Opposition to Motion filed by Vascular Solutions, Inc.. (Attachments: # 1 Exhibit 1)(Tahdooahnippah, Forrest) Modified on 2/18/2014 (jz). (Entered: 02/18/2014)
02/18/2014	109	EXHIBIT re 108 Declaration in Opposition, 107 Memorandum in Opposition to Motion to Modify Bond by Vascular Solutions, Inc. filed by Vascular Solutions, Inc.. (Tahdooahnippah, Forrest) SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 2/18/14LGL Modified on 2/18/2014 (LGL). (Entered: 02/18/2014)
02/19/2014	110	CERTIFICATE OF SERVICE by Vascular Solutions, Inc. re 107 Memorandum in Opposition to Motion, 109 Exhibit, (Tahdooahnippah, Forrest) (Entered: 02/19/2014)
02/20/2014	111	LETTER TO MAGISTRATE JUDGE by Vascular Solutions, Inc. Requesting IDR. (Redmond, Heather) (Entered: 02/20/2014)
02/21/2014	112	DOCUMENT FILED IN ERROR: LETTER TO DISTRICT JUDGE by Boston Scientific Corporation Requesting Permission to File Reply Brief. (Attachments: # 1 Exhibit(s))(Heller, Seth) DOCUMENT FILED IN ERROR-DOCUMENT RESTRICTED AS DOCUMENT SHOULD HAVE BEEN FILED UNDER SEAL. Modified on 2/24/2014 (TSS). (Entered: 02/21/2014)
02/21/2014	113	Joint Claim Construction Statement by Vascular Solutions, Inc.. (Redmond, Heather) (Entered: 02/21/2014)
02/24/2014	114	LETTER TO DISTRICT JUDGE by Boston Scientific Corporation . (Stensland, Sarah) (Entered: 02/24/2014)

02/27/2014	115	ORDER re 114 Letter to District Judge filed by Boston Scientific Corporation granting permission to file reply. Signed by Judge John R. Tunheim on February 27, 2014. (HAZ) (Entered: 02/27/2014)
02/27/2014	116	REPLY re 93 MOTION for Bond to Modify PLACEHOLDER filed by Boston Scientific Corporation. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Stensland, Sarah) SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 2/27/14LGL Modified on 2/28/2014 (LGL). (Entered: 02/27/2014)
02/27/2014	117	CERTIFICATE OF SERVICE by Boston Scientific Corporation re 116 Reply of Sealed Document (Stensland, Sarah) (Entered: 02/27/2014)
04/14/2014	118	LETTER TO DISTRICT JUDGE by Boston Scientific Corporation Requesting Leave to Amend Its Prior Art Statement. (Heller, Seth) (Entered: 04/14/2014)
04/15/2014	119	Opinion of USCA as to 84 Notice of Appeal to Federal Circuit(Judge Moore, Judge Plager, Judge Chen): For these reasons, we vacate the preliminary injunction. (AKL) (Entered: 04/15/2014)
04/15/2014	120	USCA JUDGMENT as to 84 Notice of Appeal to Federal Circuit (received electronically from COA) (AKL) (Entered: 04/15/2014)
04/24/2014	121	ORDER re 118 Letter to District Judge filed by Boston Scientific Corporation. Signed by Judge John R. Tunheim on April 23, 2014. (HAZ) (Entered: 04/24/2014)
05/02/2014	122	Amended MOTION for Bond to Modify by Boston Scientific Corporation. (Stensland, Sarah) (Entered: 05/02/2014)
05/02/2014	123	NOTICE OF HEARING ON MOTION 122 Amended MOTION for Bond to Modify : at date and time to be determined. (Stensland, Sarah) (Entered: 05/02/2014)
05/02/2014	124	MEMORANDUM in Support re 122 Amended MOTION for Bond to Modify PLACEHOLDER filed by Boston Scientific Corporation. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate) SEALED DOCUMENT RECEIVED IN CLERKS OFFICE ON 5/2/14. (Stensland, Sarah) Modified on 5/5/2014 (AKL). (Entered: 05/02/2014)
05/02/2014	125	MEET and CONFER STATEMENT re 122 Motion for Bond filed by Boston Scientific Corporation. (Stensland, Sarah) (Entered: 05/02/2014)
05/02/2014	126	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Boston Scientific Corporation re 122 Amended MOTION for Bond to Modify (Stensland, Sarah) (Entered: 05/02/2014)
05/02/2014	127	CERTIFICATE OF SERVICE by Boston Scientific Corporation re 122 Amended MOTION for Bond to Modify for Under Seal document (Stensland, Sarah) (Entered: 05/02/2014)
05/02/2014	128	MOTION to Alter/Amend/Supplement Pleadings 35 Answer to Amended Complaint, Counterclaim by Boston Scientific Corporation. (Attachments: # 1 Exhibit(s) 1, # 2 Exhibit(s) 2)(Stensland, Sarah) (Entered: 05/02/2014)
05/02/2014	129	NOTICE OF HEARING ON MOTION 128 MOTION to Alter/Amend/Supplement Pleadings 35 Answer to Amended Complaint, Counterclaim : Motion Hearing set for 5/22/2014 09:00 AM in Courtroom 3C (STP) before Magistrate Judge Steven E. Rau. (Stensland, Sarah) (Entered: 05/02/2014)
05/02/2014	130	MEMORANDUM in Support re 128 MOTION to Alter/Amend/Supplement Pleadings 35 Answer to Amended Complaint, Counterclaim filed by Boston Scientific Corporation. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Stensland, Sarah) (Entered: 05/02/2014)
05/02/2014	131	MEET and CONFER STATEMENT re 128 Motion to Alter/Amend/Supplement Pleadings filed by Boston Scientific Corporation. (Stensland, Sarah) (Entered: 05/02/2014)
05/02/2014	132	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Boston Scientific Corporation re 128 MOTION to Alter/Amend/Supplement Pleadings 35 Answer to Amended Complaint, Counterclaim (Stensland, Sarah) (Entered: 05/02/2014)

05/12/2014	133	MEMORANDUM in Opposition re 122 Amended MOTION for Bond to Modify filed by Vascular Solutions, Inc.. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Redmond, Heather) (Entered: 05/12/2014)
05/12/2014	134	MEMORANDUM in Opposition re 128 MOTION to Alter/Amend/Supplement Pleadings 35 Answer to Amended Complaint, Counterclaim filed by Vascular Solutions, Inc.. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Redmond, Heather) (Entered: 05/12/2014)
05/19/2014	135	LETTER TO DISTRICT JUDGE by Boston Scientific Corporation Requesting Permission to File a Reply Brief. (Stensland, Sarah) (Entered: 05/19/2014)
05/19/2014	136	LETTER TO MAGISTRATE JUDGE by Vascular Solutions, Inc. in Response to Request for Reply. (Redmond, Heather) (Entered: 05/19/2014)
05/20/2014	137	TEXT ONLY ENTRY: Defendant Boston Scientific Corporation's request to file a reply brief [Doc. No. 135] is DENIED. The issue of additional briefing will be discussed at the May 22, 2014 hearing on the Motion to Amend [Doc. No. 128].(EKP) (Entered: 05/20/2014)
05/22/2014	138	Minute Entry: for proceedings held before Magistrate Judge Steven E. Rau: Motion Hearing held on 5/22/2014. Hearing on Defendant's Motion to Amend the Pleadings. Doc. No. 128 . A written order will be issued. (MMP) (Entered: 05/22/2014)
05/22/2014	139	MANDATE of USCA as to 84 Notice of Appeal to Federal Circuit filed by Boston Scientific Corporation (received electronically from COA) (AKL) (Entered: 05/22/2014)
05/27/2014	140	ORDER granting 128 Motion to Alter/Amend/Supplement Pleadings. Signed by Magistrate Judge Steven E. Rau on 5/27/14. (AKL) (Entered: 05/27/2014)
05/27/2014	141	AMENDED ANSWER with Jury Demand to 6 Amended Complaint and, COUNTERCLAIM against Vascular Solutions, Inc.. by Boston Scientific Corporation. (Stensland, Sarah) (Entered: 05/27/2014)
06/10/2014	142	APPEAL/OBJECTION OF MAGISTRATE JUDGE DECISION to District Judge re 140 Order on Motion to Alter/Amend/Supplement Pleadings (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Redmond, Heather) (Entered: 06/10/2014)
06/10/2014	143	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 142 APPEAL/OBJECTION OF MAGISTRATE JUDGE DECISION to District Judge re 140 Order on Motion to Alter/Amend/Supplement Pleadings (Redmond, Heather) (Entered: 06/10/2014)
06/13/2014	144	Vascular Solution Inc's REPLY to Counterclaim of Boston Scientific Corporation by Vascular Solutions, Inc.. (Tahdooahnippah, Forrest) (Entered: 06/13/2014)
06/13/2014	145	MOTION for Judgment on the Pleadings by Vascular Solutions, Inc.. (Tahdooahnippah, Forrest) (Entered: 06/13/2014)
06/13/2014	146	NOTICE OF HEARING ON MOTION 145 MOTION for Judgment on the Pleadings : at date and time to be determined. (Tahdooahnippah, Forrest) (Entered: 06/13/2014)
06/13/2014	147	MEMORANDUM in Support re 145 MOTION for Judgment on the Pleadings filed by Vascular Solutions, Inc.. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Tahdooahnippah, Forrest) (Entered: 06/13/2014)
06/13/2014	148	MEET and CONFER STATEMENT re 145 Motion for Judgment on the Pleadings filed by Vascular Solutions, Inc.. (Tahdooahnippah, Forrest) (Entered: 06/13/2014)
06/13/2014	149	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 145 MOTION for Judgment on the Pleadings (Tahdooahnippah, Forrest) (Entered: 06/13/2014)
06/24/2014	150	MEMORANDUM in Opposition re 142 APPEAL/OBJECTION OF MAGISTRATE JUDGE DECISION to District Judge re 140 Order on Motion to Alter/Amend/Supplement Pleadings filed by Boston Scientific Corporation.

		(Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Ali, Jeffer) (Entered: 06/24/2014)
06/25/2014	151	Joint MOTION to Alter/Amend/Correct Other Orders 75 Scheduling Order, by Vascular Solutions, Inc. and Boston Scientific Corporation. (Redmond, Heather) Modified text on 6/26/2014 (LPH). (Entered: 06/25/2014)
06/25/2014	152	MEET and CONFER STATEMENT re 151 Motion to Alter/Amend/Correct Other Orders filed by Vascular Solutions, Inc.. (Redmond, Heather) (Entered: 06/25/2014)
06/25/2014	153	NOTICE OF HEARING ON MOTION 151 Joint MOTION to Alter/Amend/Correct Other Orders 75 Scheduling Order at date and time to be determined. (Redmond, Heather) Modified text on 6/26/2014 (LPH). (Entered: 06/25/2014)
06/25/2014	154	MEMORANDUM in Support re 151 Joint MOTION to Alter/Amend/Correct Other Orders 75 Scheduling Order, filed by Vascular Solutions, Inc.. (Attachments: # 1 LR7.1/LR72.2 Word Count Compliance Certificate)(Redmond, Heather) (Entered: 06/25/2014)
06/25/2014	155	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Vascular Solutions, Inc. re 151 Joint MOTION to Alter/Amend/Correct Other Orders 75 Scheduling Order, (Redmond, Heather) (Entered: 06/25/2014)
06/27/2014	156	SECOND AMENDED PRETRIAL SCHEDULING ORDER: Discovery due by 9/1/2014. Motions (non-disp) due 9/15/2014. Signed by Magistrate Judge Steven E. Rau on 6/27/2014. See Order further details.(las) Modified text on 6/30/2014 (LPH). (Entered: 06/27/2014)
07/08/2014	157	LETTER TO DISTRICT JUDGE by Boston Scientific Corporation . (Ali, Jeffer) (Entered: 07/08/2014)
07/15/2014	158	THIRD AMENDED PRETRIAL SCHEDULING ORDER: (Discovery due by 10/1/2014, Motions (non-disp) due 10/15/2014). Signed by Magistrate Judge Steven E. Rau on 7/15/14. (AKL) (Entered: 07/16/2014)
08/08/2014	159	STIPULATION of Dismissal by Boston Scientific Corporation. Jointly Signed by Vascular Solutions, Inc.. (Stensland, Sarah) (Entered: 08/08/2014)
08/08/2014	160	CERTIFICATE OF SERVICE ON PROPOSED ORDER by Boston Scientific Corporation re 159 Stipulation of Dismissal (Stensland, Sarah) (Entered: 08/08/2014)
08/11/2014	161	ORDER DISMISSING CASE. Signed by Judge John R. Tunheim on August 11, 2014. (HAZ) (Entered: 08/11/2014)
08/12/2014	162	JUDGMENT (Attachments: # 1 Civil Notice - appeal)(AKL) (Entered: 08/12/2014)

United States Patent Trial and Appeals Board

US Patent Trial and Appeals Board - Alexandria
(Alexandria)

IPR2014-00762

Boston Scientific Corporation Vs. Vascular Solutions, Inc.

This case was retrieved from the court on Friday, May 20, 2016

Header

Case Number: IPR2014-00762
Date Filed: 05/16/2014
Date Full Case Retrieved: 05/20/2016
Status: Open
Misc: Civil

[Summary] [Participants] [Proceedings]

Summary

Court Case Status: Not Instituted
Case Type: IPR: Inter partes review
Date of Decision to Institute Case: 8/11/2014
Technical Center Number: 3700
Patent Application Number: 13359059
Patent Number: 8292850

Participants

Litigants

Boston Scientific Corporation
Petitioner

Vascular Solutions, Inc.
PatentOwner

Proceedings

File Date	Details	Document Type	Paper/ Exhibit No.	Filed By	Public?
05/16/2014	Petition for Inter Partes Review	Petition	1	Petitioner	Yes
05/16/2014	Power of Attorney	Power of Attorney	2	Petitioner	Yes
05/16/2014		Exhibit	1001	Petitioner	Yes

	U.S. Patent No. 8,292,850 B2 to Root, et al.				
05/16/2014	File History for U.S. Patent No. 8,292,850	Exhibit	1002	Petitioner	Yes
05/16/2014	Declaration of Ronald Jay Solar, Ph.D.	Exhibit	1003	Petitioner	Yes
05/16/2014	Declaration of Ronald Jay Solar, Ph.D.	Exhibit	1003	Petitioner	Yes
05/16/2014	U.S. Patent No. 8,048,032 to Root, et al.	Exhibit	1004	Petitioner	Yes
05/16/2014	U.S. Patent No. 8,142,413 to Root, et al.	Exhibit	1005	Petitioner	Yes
05/16/2014	File History for U.S. Patent No. 8,048,032 (Part 2 of 2)	Exhibit	1006	Petitioner	Yes
05/16/2014	File History for U.S. Patent No. 8,048,032 (Part 1 of 2)	Exhibit	1006	Petitioner	Yes
05/16/2014	File History for U.S. Patent No. 8,142,413	Exhibit	1007	Petitioner	Yes
05/16/2014	Copy of BSC Petition for IPR of USP 8292850 Filed Concurrently Herewith	Exhibit	1008	Petitioner	Yes
05/16/2014	U.S. Publication No. 2004/0236215 A1 to Mihara et al.	Exhibit	1009	Petitioner	Yes
05/16/2014	Translation of Japanese Patent Application No. 2003-070808	Exhibit	1010	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,527,292 to Adams et al.	Exhibit	1011	Petitioner	Yes
05/16/2014	U.S. Publication No. 2007/0260219 A1 to Root et al.	Exhibit	1012	Petitioner	Yes
05/16/2014	U.S. Publication No. 2003/0195546 A1 to Solar, et al.	Exhibit	1013	Petitioner	Yes
05/16/2014	U.S. Patent No. 6,638,268 to Niazi	Exhibit	1014	Petitioner	Yes
05/16/2014	U.S. Publication No. 2005/0004523 A1 to Osborne, et al.	Exhibit	1015	Petitioner	Yes
05/16/2014	U.S. Publication No. 2004/0127927 to Adams	Exhibit	1016	Petitioner	Yes
05/16/2014	U.S. Patent No. 6,338,725 B1 to Hermann et al.	Exhibit	1017	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,776,141 to Klein et al.	Exhibit	1018	Petitioner	Yes
05/16/2014	U.S. Patent No. 7,232,452 to Adams et al.	Exhibit	1019	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,328,472 to Steinke et al.	Exhibit	1020	Petitioner	Yes
05/16/2014	Takahashi et al. (2004)	Exhibit	1021	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,690,613 to Verbeek	Exhibit	1022	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,156,594 to Keith	Exhibit	1023	Petitioner	Yes

Page 587

05/16/2014	U.S. Patent No. 5,102,403 to Alt	Exhibit	1024	Petitioner	Yes
05/16/2014	Kucklick, Theodore R., The Medical Device R and D Handbook (2006)	Exhibit	1025	Petitioner	Yes
05/16/2014	VSI Amended Complaint, No. 13-cv-1172 (JRT-SER) (D. Minn).	Exhibit	1026	Petitioner	Yes
05/16/2014	VSI's Memo in Support of Motion for PI, 13-cv-1172 (JRT-SER) (D. Minn).	Exhibit	1027	Petitioner	Yes
05/16/2014	Root Declaration in Support of VSI's Motin for PI, 13-cv-1172 (JRT-SER) (D. Minn) (Part 3 of 3)	Exhibit	1028	Petitioner	Yes
05/16/2014	Root Declaration in Support of VSI's Motin for PI, 13-cv-1172 (JRT-SER) (D. Minn) (Part 2 of 3)	Exhibit	1028	Petitioner	Yes
05/16/2014	Root Declaration in Support of VSI's Motion for PI, 13-cv-1172 (JRT-SER) (D. Minn) (Part 1 of 3)	Exhibit	1028	Petitioner	Yes
05/16/2014	BSC Oppositon to VSI's Motion for PI, No. 13-cv-1172 (JRT-SER) (D. Minn).	Exhibit	1029	Petitioner	Yes
05/16/2014	Opinion and Order Granting PI, No. 13-cv-1172 (JRT-SER) (D. Minn).	Exhibit	1030	Petitioner	Yes
05/16/2014	BSC Motion for Stay, No. 2014-1185 (Fed. Cir).	Exhibit	1031	Petitioner	Yes
05/16/2014	VSI's Opposition to BSC's Motion for Stay, No. 2014-1185 (Fed. Cir).	Exhibit	1032	Petitioner	Yes
05/16/2014	BSI's Opening Brief, No. 2014-1185 (Fed. Cir).	Exhibit	1033	Petitioner	Yes
05/16/2014	VSI's Responsive Brief, No. 2014-1185 (Fed. Cir).	Exhibit	1034	Petitioner	Yes
05/16/2014	BSC's Reply Brief, No. 2014-1185 (Fed. Cir).	Exhibit	1035	Petitioner	Yes
05/16/2014	Transcript of Oral Argument 4-8-14	Exhibit	1036	Petitioner	Yes
05/16/2014	Federal Circuit Opinion and Judgment	Exhibit	1037	Petitioner	Yes
05/16/2014	Joint Claim Construction, No. 13-cv-1172 (JRT-SER)(D. Minn)	Exhibit	1038	Petitioner	Yes
05/16/2014	U.S. Patent No. 6,997,908 B2 to Carrillo, Jr., et al.	Exhibit	1039	Petitioner	Yes
05/16/2014	Monorail Piccolino Publication	Exhibit	1040	Petitioner	Yes
05/16/2014	U.S. Publication No. 2002/0165598 A1 to Wahr et al.	Exhibit	1041	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,267,958 to Buchbinder et al.	Exhibit	1042	Petitioner	Yes
05/28/2014	Notice of Filing Date Accorded to Petition	Notice of Filing Date Accorded to Petition	3	Board	Yes

06/05/2014	Power of Attorney	Power of Attorney	4	Potential Patent Owner	Yes
06/05/2014	Related Matters	Notice	5	Potential Patent Owner	Yes
08/06/2014	Order Authorizing Motion to Terminate	Order	6	Board	Yes
08/08/2014	Joint Motion to Terminate	Motion	7	Petitioner	Yes
08/08/2014	Request for Confidentiality	Motion	8	Petitioner	Yes
08/08/2014	Petitioners' August 8, 2014 Updated Exhibit List	Motion	9	Petitioner	Yes
08/08/2014	Settlement Agreement	Exhibit	1043	Petitioner	No
08/11/2014	Judgment - Termination of Proceeding	Final Decision	10	Board	Yes
08/12/2014	Petitioners' Request for Refund of Post-Institution Fees	Notice	11	Petitioner	Yes
08/14/2014	Notice of Refund	Notice	12	Board	Yes

United States Patent Trial and Appeals Board

US Patent Trial and Appeals Board - Alexandria
(Alexandria)

IPR2014-00763

Boston Scientific Corporation Vs. Vascular Solutions, Inc.

This case was retrieved from the court on Friday, May 20, 2016

Header

Case Number: IPR2014-00763
Date Filed: 05/16/2014
Date Full Case Retrieved: 05/20/2016
Status: Open
Misc: Civil

[Summary] [Participants] [Proceedings]

Summary

Court Case Status: Not Instituted
Case Type: IPR: Inter partes review
Date of Decision to Institute Case: 8/11/2014
Technical Center Number: 3700
Patent Application Number: 13359059
Patent Number: 8292850

Participants

Litigants

Boston Scientific Corporation
Petitioner

Vascular Solutions, Inc.
PatentOwner

Proceedings

File Date	Details	Document Type	Paper/ Exhibit No.	Filed By	Public?
05/16/2014	Petition for Inter Partes Review	Petition	1	Petitioner	Yes
05/16/2014	Power of Attorney	Power of Attorney	2	Petitioner	Yes
05/16/2014	Petitioner's Motion to Expunge	Motion	3	Petitioner	Yes

05/16/2014	Petitioner's Corrected Petition for Inter Partes Review	Motion	4	Petitioner	Yes
05/16/2014	U.S. Patent No. 8,292,850 B2 to Root, et al.	Exhibit	1001	Petitioner	Yes
05/16/2014	File History for U.S. Patent No. 8,292,850	Exhibit	1002	Petitioner	Yes
05/16/2014	Declaration of Ronald Jay Solar, Ph.D.	Exhibit	1003	Petitioner	Yes
05/16/2014	U.S. Patent No. 8,048,032 to Root, et al.	Exhibit	1004	Petitioner	Yes
05/16/2014	U.S. Patent No. 8,142,413 to Root, et al.	Exhibit	1005	Petitioner	Yes
05/16/2014	File History for U.S. Patent No. 8,048,032 (Part 2 of 2)	Exhibit	1006	Petitioner	Yes
05/16/2014	File History for U.S. Patent No. 8,048,032 (Part 1 of 2)	Exhibit	1006	Petitioner	Yes
05/16/2014	File History for U.S. Patent No. 8,142,413	Exhibit	1007	Petitioner	Yes
05/16/2014	Copy of a Second Petition for Inter Partes Review Filed Concurrently by Petitioner on the '850 Patent	Exhibit	1008	Petitioner	Yes
05/16/2014	U.S. Publication No. 2004/0236215 A1 to Mihara et al.	Exhibit	1009	Petitioner	Yes
05/16/2014	Translation of Japanese Patent Application No. 2003-070808	Exhibit	1010	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,527,292 to Adams et al.	Exhibit	1011	Petitioner	Yes
05/16/2014	U.S. Publication No. 2007/0260219 A1 to Root et al.	Exhibit	1012	Petitioner	Yes
05/16/2014	U.S. Publication No. 2003/0195546 A1 to Solar, et al.	Exhibit	1013	Petitioner	Yes
05/16/2014	U.S. Patent No. 6,638,268 to Niazi	Exhibit	1014	Petitioner	Yes
05/16/2014	U.S. Publication No. 2005/0004523 A1 to Osborne, et al.	Exhibit	1015	Petitioner	Yes
05/16/2014	U.S. Publication No. 2004/0127927 to Adams	Exhibit	1016	Petitioner	Yes
05/16/2014	U.S. Patent No. 6,338,725 B1 to Hermann et al.	Exhibit	1017	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,776,141 to Klein et al.	Exhibit	1018	Petitioner	Yes
05/16/2014	U.S. Patent No. 7,232,452 to Adams et al.	Exhibit	1019	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,328,472 to Steinke et al.	Exhibit	1020	Petitioner	Yes
05/16/2014	Takahashi et al.	Exhibit	1021	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,690,613 to Verbeek	Exhibit	1022	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,156,594 to Keith	Exhibit	1023	Petitioner	Yes

05/16/2014	U.S. Patent No. 5,102,403 to Alt	Exhibit	1024	Petitioner	Yes
05/16/2014	Kucklick, Theodore R., The Medical Device RD Handbook	Exhibit	1025	Petitioner	Yes
05/16/2014	Amended Complaint filed by VSI	Exhibit	1026	Petitioner	Yes
05/16/2014	Memorandum In Support of Motion for Preliminary Injunction filed by VSI in VSI v. BSC	Exhibit	1027	Petitioner	Yes
05/16/2014	Declaration of Howard Root (Part 2 of 3)	Exhibit	1028	Petitioner	Yes
05/16/2014	Declaration of Howard Root (Part 1 of 3)	Exhibit	1028	Petitioner	Yes
05/16/2014	Declaration of Howard Root (Part 3 of 3)	Exhibit	1028	Petitioner	Yes
05/16/2014	BSC's Opposition to VSI's Motion for Preliminary Injunction	Exhibit	1029	Petitioner	Yes
05/16/2014	Non-Confidential Memorandum Opinion and Order in VSI v. BSC	Exhibit	1030	Petitioner	Yes
05/16/2014	BSC's Motion for an Interim Stay and Stay Pending Appeal	Exhibit	1031	Petitioner	Yes
05/16/2014	VSI's Opposition to BSC's Motion for an Interim Stay and Stay Pending Appeal	Exhibit	1032	Petitioner	Yes
05/16/2014	BSC's Non-Confidential Opening Brief	Exhibit	1033	Petitioner	Yes
05/16/2014	VSI's Non-Confidential Responsive Brief	Exhibit	1034	Petitioner	Yes
05/16/2014	BSC's Reply Brief	Exhibit	1035	Petitioner	Yes
05/16/2014	Transcript of Oral Argument Proceedings held on April 8, 2014	Exhibit	1036	Petitioner	Yes
05/16/2014	Federal Circuit Order Vacating Preliminary Injunction	Exhibit	1037	Petitioner	Yes
05/16/2014	Joint Claim Construction Statement filed in VSI v. BSC	Exhibit	1038	Petitioner	Yes
05/16/2014	U.S. Patent No. 6,997,908 B2 to Carrillo, Jr., et al.	Exhibit	1039	Petitioner	Yes
05/16/2014	Monorail Piccolino Publication	Exhibit	1040	Petitioner	Yes
05/16/2014	U.S. Publication No. 2002/0165598 A1 to Wahr et al.	Exhibit	1041	Petitioner	Yes
05/16/2014	U.S. Patent No. 5,267,958 to Buchbinder et al.	Exhibit	1042	Petitioner	Yes
05/28/2014	Expunged	Order	5	Board	Yes
05/28/2014	Notice of Filing Date Accorded to Petition	Notice of Filing Date Accorded to Petition	6	Board	Yes
06/05/2014	Power of Attorney	Power of Attorney	7	Potential Patent Owner	Yes
06/05/2014	Related Matters	Notice	8	Potential Patent Owner	Yes
08/06/2014	Order Authorizing Motion to Terminate	Order	9	Board	Yes

08/08/2014	Joint Motion to Terminate	Motion	10	Petitioner	Yes
08/08/2014	Request for Confidentiality	Motion	11	Petitioner	Yes
08/08/2014	Petitioners' August 8, 2014 Updated Exhibit List	Motion	12	Petitioner	Yes
08/08/2014	Settlement Agreement	Exhibit	1043	Petitioner	No
08/11/2014	Judgment - Termination of Proceeding	Final Decision	13	Board	Yes
08/12/2014	Petitioners' Request for Refund of Post-Institution Fees	Notice	14	Petitioner	Yes
08/14/2014	Notice of Refund	Notice	15	Board	Yes

This case was appealed from
Minnesota: 0:13-cv-01172-JRT-SER

U.S. Circuit Court of Appeals

US Circuit Court of Appeals - Federal Circuit

14-1185

Vascular Solutions, Inc. v. Boston Scientific Corporation

This case was retrieved from the court on Wednesday, September 19, 2018

Header

Case Number:	14-1185
Date Filed:	12/27/2013
Date Full Case Retrieved:	09/19/2018
Status:	Terminated 04/15/2014
NOS Description:	(999) 830: Patent Infringement (Fed. Question); Appeal

[Summary][Associated Cases][Participants][Proceedings][Pending Motion][Brief][Rehearings][History][Additional Case]

Summary

No Information is Available for this case

Associated Cases

No Information is Available for this case

Participants

Litigant	Attorney
Vascular Solutions, Inc. Plaintiff - Appellee	John Thomas Vitt, Esq., Attorney [LD NTC Retained] Jones Day Suite 4950 90 South 7th Street Minneapolis, MN 55402 612-217-8858 844-345-3178 tvitt(at)jonesday.com

Page 594

	Heather Dawn Redmond, Attorney [COR NTC Retained] Dorsey & Whitney LLP 50 South Sixth Street Minneapolis, MN 55402 612-340-5675 612-340-6343 612-340-8856 redmond.heather(at)dorsey.com
Boston Scientific Corporation Defendant - Appellant	Matthew Wolf [LD NTC Retained] Arnold & Porter Kaye Scholer LLP 601 Massachusetts Avenue, NW Washington, DC 20001-3743 202-942-5462 202-942-5999 matthew.wolf(at)arnoldporter.com Edward Han [COR NTC Retained] Arnold & Porter Kaye Scholer LLP 601 Massachusetts Avenue, NW Washington, DC 20001-3743 202-942-5756 202-942-5999 ed.han(at)apks.com Seth I. Heller, - [COR NTC Retained] Arnold & Porter LLP 555 12th Street NW Washington, DC 20004 202-942-5000 12029425999 sheller(at)axinn.com John Nilsson [COR NTC Retained] Arnold & Porter Kaye Scholer LLP 601 Massachusetts Avenue, NW Washington, DC 20001-3743 202-942-5776 202-942-5999 john.nilsson(at)arnoldporter.com

Page 595

Proceedings

Date	Details
12/27/2013	Appeal docketed. [126012] Fee/IFP due on 01/10/2014. Entry of Appearance due 01/10/2014. Certificate of Interest is due on 01/10/2014. Docketing Statement due 01/10/2014. Certified List due on 02/05/2014. [AT]
12/27/2013	MOTION of Appellant Boston Scientific Corporation for an emergency stay pending appeal under Rule 8. Service: 12/27/2013 by email. [126013] [AT]
12/27/2013	Sealed or confidential document received [Exhibits Filed Under Seal accompanying the Motion for Stay Pending Appeal and Declaration in Support] (corresponding to Doc No.) for Appellant Boston Scientific Corporation. Service: 12/27/2013 by email. [126014] [AT]
12/27/2013	ORDER requesting a response to motions for emergency stay pending appeal; response is due 01/03/2014; expediting briefing schedule as follows: Appellant's brief is due 01/06/2014; Appellee's brief is due 01/27/2014; Appellant's reply brief and appendix are due 02/03/2014. Oral argument will be scheduled by subsequent order of the court. Service: 12/27/2013 by clerk. [126016] [AT]
01/02/2014	Entry of appearance for Edward Han as of counsel for Appellant Boston Scientific Corporation. Service: 12/31/2013 by email. [126393] [Edward Han]
01/02/2014	Entry of appearance for Seth I. Heller as of counsel for Appellant Boston Scientific Corporation. Service: 12/31/2013 by email. [126398] [Seth Heller]
01/02/2014	Entry of appearance for John E. Nilsson as of counsel for Appellant Boston Scientific Corporation. Service: 12/31/2013 by email. [126399] [John Nilsson]
01/02/2014	Entry of appearance for Matthew M. Wolf as principal counsel for Appellant Boston Scientific Corporation. Service: 12/31/2013 by email. [126400] [Matthew Wolf]
01/02/2014	Certificate of Interest for the Appellant Boston Scientific Corporation. Service: 12/31/2013 by email. [126401] [Matthew Wolf]
01/02/2014	Docketing Statement for the Appellant Boston Scientific Corporation. Service: 12/31/2013 by email. [126402] [Matthew Wolf]
01/02/2014	Entry of appearance for J. Thomas Vitt as principal counsel for Appellee Vascular Solutions, Inc.. Service: 01/02/2014 by email, US mail. [126701] [Heather Redmond]
01/02/2014	Entry of appearance for Heather D. Redmond as of counsel for Appellee Vascular Solutions, Inc.. Service: 01/02/2014 by email, US mail. [126702] [Heather Redmond]
01/03/2014	Certificate of Interest for the Appellee Vascular Solutions, Inc.. Service: 01/03/2014 by email. [126942] [Heather Redmond]
01/03/2014	RESPONSE of Appellee Vascular Solutions, Inc. to the motion for emergency stay pending appeal filed by Appellant Boston Scientific Corporation in 14-1185. Service: 01/03/2014 by email. [126943] [Heather Redmond]
01/03/2014	Sealed or confidential document received [Exhibits Filed Under Seal in Support of Appellee's Opposition to Motion for an Interim Stay and Stay Pending Appeal] (corresponding to Doc No.) for Appellee Vascular Solutions, Inc.. Service: 01/03/2014 by email. [126947] [Heather Redmond]
01/06/2014	TENDERED from Appellant Boston Scientific Corporation. Title: OPENING BRIEF. Service: 01/06/2014 by email. [127244] This brief has been replaced. [Matthew Wolf]
01/06/2014	BRIEF FILED for Appellant Boston Scientific Corporation . Title: Brief of Defendant-Appellant, [Non-Confidential version only]. Number of Pages: 100. Service: 01/06/2014 by email. Pursuant to ECF-10, filer is directed to file six copies of the brief in paper format. The paper copies of the brief should be received by the court on or before 01/13/2014. [127495] This brief has been replaced. [SMJ]
01/07/2014	Notice of Correction to the Brief Doc No. for Appellant Boston Scientific Corporation. Service: 01/07/2014 by email. [127598] [Matthew Wolf]
01/07/2014	TENDERED from Appellant Boston Scientific Corporation. Title: CORRECTED OPENING BRIEF. Service: 01/07/2014 by email. [127606] [Matthew Wolf]
01/07/2014	

Pursuant to notification from counsel, the previously filed brief filed by Appellant Boston Scientific Corporation in 14-1185 , filed by Appellant Boston Scientific Corporation and Matthew Wolf in 14-1185 is withdrawn. [127666] [SMJ]

01/07/2014 BRIEF FILED for Appellant Boston Scientific Corporation . Title: Corrected Brief of Defendant-Appellant, [Non-Confidential version only]. Number of Pages: 100. Service: 01/07/2014 by email. Pursuant to ECF-10, filer is directed to file six copies of the brief in paper format. The paper copies of the brief should be received by the court on or before 01/13/2014. [127670] [SMJ]

01/08/2014 ORDER filed. Boston Scientific's motion for an "interim stay" is denied. The motion for a stay pending appeal shall be considered in due course. Service: 01/08/2014 by clerk. [127871] [LS]

01/09/2014 6 paper copies of the 1st brief received from Appellant Boston Scientific Corporation. [128284] [SMJ]

01/13/2014 Notice of Appeal and Certified list received from the United States District Court for the District of Minnesota. Service: 12/27/2013 by US mail. [131884] [LAJ]

01/16/2014 Notice to Appellee Vascular Solutions, Inc.: The Docketing Statement is overdue. Docketing Statement due 01/27/2014. Service: 01/16/2014 by clerk. [129816] [SMJ]

01/16/2014 Docketing Statement for the Appellee Vascular Solutions, Inc.. Service: 01/16/2014 by email. [129859] [Heather Redmond]

01/17/2014 ORDER filed denying motion for emergency stay pending appeal filed by Boston Scientific Corporation. Service: 01/17/2014 by clerk. [130183] [LS]

01/27/2014 Final Notice of Docketing issued to the parties. Service: 01/27/2014 by clerk. [131885] [LAJ]

01/27/2014 TENDERED from Appellee Vascular Solutions, Inc.. Title: OPENING BRIEF. Service: 01/27/2014 by email. [131967] This brief has been rejected. See Doc. No. [Heather Redmond]

01/27/2014 TENDERED from Appellee Vascular Solutions, Inc.. Title: CONFIDENTIAL OPENING BRIEF Service: 01/27/2014 by email. [131968] This brief has been rejected. See Doc. No. [Heather Redmond]

01/28/2014 NOTICE OF REJECTION: The brief of Appellee Vascular Solutions, Inc., Brief of Appellee [30], , is not in compliance with the rules of this court and is therefore rejected for filing. Appellee Vascular Solutions, Inc. brief due 02/10/2014. [132178] [SMJ]

01/29/2014 TENDERED from Appellee Vascular Solutions, Inc.. Title: CORRECTED OPENING BRIEF. Service: 01/29/2014 by email. [132533] [Heather Redmond]

01/29/2014 TENDERED from Appellee Vascular Solutions, Inc.. Title: CORRECTED CONFIDENTIAL OPENING BRIEF Service: 01/29/2014 by email. [132534] [Heather Redmond]

01/29/2014 BRIEF FILED for Appellee Vascular Solutions, Inc. [33], . Title: Corrected Brief of Appellee, [Confidential and Non-Confidential versions]. Number of Pages: 78. Service: 01/29/2014 by email. Pursuant to ECF-10, filer is directed to file six copies of the brief in paper format. The paper copies of the brief should be received by the court on or before 02/03/2014. [132567] [SMJ]

01/31/2014 6 paper copies of the (corrected conf.) 2nd brief received from Appellee Vascular Solutions, Inc. [133134] [SMJ]

02/03/2014 TENDERED from Appellant Boston Scientific Corporation. Title: REPLY BRIEF. Service: 02/03/2014 by email. [133699] [Matthew Wolf]

02/03/2014 TENDERED from Appellant Boston Scientific Corporation. Title: CONFIDENTIAL JOINT APPENDIX Service: 02/03/2014 by email. [133715] [Matthew Wolf]

02/03/2014 TENDERED from Appellant Boston Scientific Corporation. Title: CONFIDENTIAL JOINT APPENDIX Service: 02/03/2014 by email. [133716] [Matthew Wolf]

02/03/2014 TENDERED from Appellant Boston Scientific Corporation. Title: JOINT APPENDIX. Service: 02/03/2014 by email. [133721] [Matthew Wolf]

02/03/2014 TENDERED from Appellant Boston Scientific Corporation. Title: JOINT APPENDIX. Service: 02/03/2014 by email. [133722] [Matthew Wolf]

02/03/2014 BRIEF FILED for Appellant Boston Scientific Corporation . Title: Reply Brief of Defendant-Appellant, [Non-Confidential version only]. Number of Pages: 40. Service: 02/03/2014 by

	email. Pursuant to ECF-10, filer is directed to file six copies of the brief in paper format. The paper copies of the brief should be received by the court on or before 02/10/2014. [133854] [SMJ]
02/03/2014	APPENDIX FILED for Boston Scientific Corporation [37], [38], , . Title: Joint Appendix (2 vols.), [Confidential and Non-Confidential versions]. Number of Pages: 835. Service: 02/03/2014 by email. Pursuant to ECF-10, filer is directed to file six copies of the brief in paper format. The paper copies of the brief should be received by the court on or before 02/10/2014. [133859] [SMJ]
02/07/2014	6 paper copies of the appendix (2 vols.) received from Appellant Boston Scientific Corporation. [134645] [SMJ]
02/07/2014	6 paper copies of the 3rd brief received from Appellant Boston Scientific Corporation. [134648] [SMJ]
02/21/2014	NOTICE OF CALENDARING. Panel: 1404F. Case scheduled Apr 08, 2014 10:00 a.m. at the United States Court of Appeals for the Federal Circuit (Howard T. Markey National Courts Building, 717 Madison Place, N.W. Washington, DC 20439), Courtroom 203. Response to oral argument order due: 03/17/2014. Counsel should check-in 30 minutes prior to the opening of the session. Please review the Oral Argument Order. [137172] [14-1185, 13-1496, 13-1150] [LB]
03/07/2014	Response to oral argument order from the Appellant Boston Scientific Corporation designating Matthew Wolf as arguing attorney. Service: 03/07/2014 by email Designated time for argument: 12 minutes. Designated time for rebuttal: 3 minutes. [140337] [Matthew Wolf]
03/14/2014	Response to oral argument order from the Appellee Vascular Solutions, Inc. designating John Thomas Vitt as arguing attorney. Service: 03/14/2014 by email Designated time for argument: 15 minutes. Designated time for rebuttal: 0 minutes. [141766] [John Vitt]
04/08/2014	Submitted after ORAL ARGUMENT by Matthew Wolf for Boston Scientific Corporation and Mr. John Thomas Vitt for Vascular Solutions, Inc.. Panel: Judge: Moore , Judge: Plager , Judge: Chen. [146613] [KSH]
04/08/2014	Exhibit, Received from Appellant on 04/08/2014. 1 item(s) [sample of Guidezilla device, per panel request at oral argument]. [146867] [SMJ]
04/15/2014	OPINION and JUDGMENT filed. The judgment or decision is: Vacated. (Nonprecedential Opinion). (For the Court: Moore,Circuit Judge; Plager,Circuit Judge and Chen,Circuit Judge). [148023] [SMJ]
05/22/2014	Mandate issued to the United States District Court for the District of Minnesota. Service: 05/22/2014 by clerk. [156287] [SMJ]

Pending Motion

No Information is Available for this case

Brief

No Information is Available for this case

Rehearings

No Information is Available for this case

History

No Information is Available for this case

Additional Case

Additional Case Information

Civil Private - - - Rule 8 Case

Appeal from: United States District Court for the District of Minnesota

District: 0864 Division: 4 CaseNumber: 0:13-cv-01172-JRT-SER DateFiled: 05/16/2013

Trial Judge: John R. Tunheim , United States District Judge

Date NOA Filed: 12/26/2013

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:	Attorney Docket No.: 2005.86USREI7
Root et al.	Confirmation No.: 5700
Application No.: 14/984,273	Examiner: Catherine Serke Williams
Filed: December 30, 2015	Group Art Unit: 3993

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

REQUEST FOR CORRECTED FILING RECEIPT

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

Commissioner:

Applicant notes the following error in the official Filing Receipt mailed September 17, 2018:

Applicant(s)

Teleflex ~~Innvoeations~~ Innovations S.a.R.L., Grand Duchy, LUXEMBOURG, Assignee (with 37 CFR 1.172 Interest);

Attached is a photocopy of the filing receipt with the correction required marked and a copy of the previously filed Application Data Sheet. Applicant requests issuance of a corrected filing receipt.

Respectfully submitted,

/Paul C. Onderick/

Paul C. Onderick
Registration No. 45354

Customer No. 24113
Patterson Thuente 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.

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
14/984,273	12/30/2015	3993	3260	2005.86USRE17	21	2

CONFIRMATION NO. 5700

CORRECTED FILING RECEIPT

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

Date Mailed: 09/17/2018

Receipt is acknowledged of this reissue 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**

Inventor(s)

Howard C. Root, Tonka Bay, MN;
Gregg Sutton, Plymouth, MN;
Jeffrey M. Welch, Maple Grove, MN;
Jason M. Garrity, Lima, NY;

Applicant(s)

Teleflex ~~Innovations~~ Innovations S.a.R.L., Grand Duchy, LUXEMBOURG, Assignee (with 37 CFR 1.172 Interest);

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

Domestic Priority data as claimed by applicant

This application is a CON of 14/195,435 03/03/2014 PAT RE46116
and is a REI of 13/359,059 01/26/2012 PAT 8292850
and said 14/195,435 03/03/2014
is a CON of 14/070,161 11/01/2013 PAT RE45380
and is a REI of 13/359,059 01/26/2012 PAT 8292850
and said 14/070,161 11/01/2013
is a REI of 13/359,059 01/26/2012 PAT 8292850
which 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 for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 01/21/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/984,273**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

Title

COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

Preliminary Class

604

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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 (1-866-999-4258).

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).

---

community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Page 604

Approved for use through 04/30/2017. OMB 0651-0032
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 contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Howard	C.	Root	

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

City	Tonka Bay	State/Province	MN	Country of Residence	US

Mailing Address of Inventor:

Address 1	25 Fairhope Avenue
Address 2	

City	Tonka Bay	State/Province	MN
Postal Code	55331	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Gregg		Sutton	

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

City	Plymouth	State/Province	MN	Country of Residence	US

Mailing Address of Inventor:

Address 1	18400 31st Avenue North
Address 2	

City	Plymouth	State/Province	MN
Postal Code	55447	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jeffrey	M.	Welch	

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

Page 605

Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

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

Mailing Address of Inventor:

Address 1	8723 Cornstock Lane North		
Address 2			
City	Maple Grove	State/Province	MN
Postal Code	55311	Country i	US

Inventor 4 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jason	M.	Garrity	

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

City	Lima	State/Province	NY	Country of Residence i	US

Mailing Address of Inventor:

Address 1	2838 Livonia Center Road		
Address 2			
City	Lima	State/Province	NY
Postal Code	14485	Country i	US

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

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ An Address is being provided for the correspondence Information of this application.

Customer Number	24113		
Email Address	onderick@ptslaw.com	Add Email	Remove Email
Email Address	pedersen@ptslaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES		
Attorney Docket Number	2005.86USREI7	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		Suggested Figure for Publication (if any)	

Page 606

Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

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.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	24113		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim 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.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Patented ~~Pending~~			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/984273	Continuation of	14/195435	2014-03-03	RE46116	2016-08-23

Approved for use through 04/30/2017. OMB 0651-0032
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 contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/984273	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/195435	Continuation of	14/070161	2013-11-01	RE45380	2015-02-17
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/195435	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/070161	reissued of	13/359059	2012-01-26	8292850	2012-10-23
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/359059	Division of	12/824734	2010-06-28	8142413	2012-03-27
Prior Application Status	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12/824734	Division of	11/416629	2006-05-03	8048032	2011-11-01

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

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

EFS Web 2.2.12

Page 608

Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Approved for use through 04/30/2017. OMB 0651-0032
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 contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Approved for use through 04/30/2017. OMB 0651-0032
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 contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Applicant Information:

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

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
◉ ~~Person to whom the inventor is obligated to assign.~~	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	~~VASCULAR SOLUTIONS, INC.~~ Teleflex Innovations S.à.R.L.		
Mailing Address Information For Applicant:			
Address 1	~~6464 Sycamore Court North~~ 560A, rue de Neudorf		
Address 2			
City	~~Minneapolis~~ Grand Duchy	**State/Province**	~~MN~~
Country	~~US~~ LU	Postal Code	~~55369~~ L-2220
Phone Number		Fax Number	
Email Address			

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

Assignee Information including Non-Applicant Assignee Information:

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

Approved for use through 04/30/2017. OMB 0651-0032
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 contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Paul Onderick/			Date (YYYY-MM-DD)	2018-08-28
First Name	Paul	Last Name	Onderick	Registration Number	45354

Additional Signature may be generated within this form by selecting the Add button.

Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	2005.86USREI7
	Application Number	14/984,273
Title of Invention	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES	

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 the Freedom of Information Act requires disclosure of these records.

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 CooperationTreaty.

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 inspections 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.

Electronic Acknowledgement Receipt	
EFS ID:	33909786
Application Number:	14984273
International Application Number:	
Confirmation Number:	5700
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard C. Root
Customer Number:	24113
Filer:	Paul C. Onderick/Michelle Arcand
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86USREI7
Receipt Date:	03-OCT-2018
Filing Date:	30-DEC-2015
Time Stamp:	16:27:18
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 Corrected Filing Receipt	2005_86USREI7_REQCORRECTFR.pdf	81946 3c70157b746f651eeb89a11bd809dfc858214b3c	no	1

Warnings:

Information:					
2	Request for Corrected Filing Receipt	2005_86USREI7_MARKEDFR.pdf	799222 7b6d64c344717e6681d6bc8c0082751b6a42c055	no	4
Warnings:					
Information:					
3	Request for Corrected Filing Receipt	2005_86USREI7_COPYADS.pdf	1132622 7aad4062082cc0eaf2726ce217db13a194115c55	no	10
Warnings:					
Information:					
		Total Files Size (in bytes):	2013790		

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

24113 7590 10/12/2018

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

EXAMINER	
WILLIAMS, CATHERINE SERKE	
ART UNIT	PAPER NUMBER
3993	

DATE MAILED: 10/12/2018

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,273	12/30/2015	Howard C. Root	2005.86USREI7	5700

TITLE OF INVENTION: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	01/14/2019

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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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 10/12/2018
PATTERSON THUENTE PEDERSEN, P.A.
80 SOUTH 8TH STREET
4800 IDS CENTER
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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,273	12/30/2015	Howard C. Root	2005.86USREI7	5700

TITLE OF INVENTION: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	01/14/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
WILLIAMS, CATHERINE SERKE	3993	604-523000

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 03-09 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,273	12/30/2015	Howard C. Root	2005.86USREI7	5700

24113 7590 10/12/2018

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

EXAMINER	
WILLIAMS, CATHERINE SERKE	
ART UNIT	**PAPER NUMBER**
3993	

DATE MAILED: 10/12/2018

Determination of Patent Term Extension or Adjustment under 35 U.S.C. 154 (b)

A reissue patent is for "the unexpired part of the term of the original patent." See 35 U.S.C. 251. Accordingly, the above-identified reissue application is not eligible for Patent Term Extension or Adjustment under 35 U.S.C. 154(b).

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.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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 30 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.

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.

Page 620

Notice of Allowability	Application No. 14/984,273	Applicant(s) Root et al.	
	Examiner CATHERINE S WILLIAMS	Art Unit 3993	AIA Status No

-- 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 the ADS filed 8/28/18.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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 25-45 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   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 areply 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. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ 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).

6. ☐ 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. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/CATHERINE S WILLIAMS/
Primary Examiner, Art Unit 3993

NOTICE OF ALLOWABILITY

The present application is being examined under the pre-AIA first to invent provisions. [1]

Application Data Sheet

The Application Data Sheet (ADS) filed 8/28/18 has been entered into the record and changes therein have been updated on the filing receipt mailed 9/17/18.

Allowable Subject Matter

Claims 25-45 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 25 and claims 26-37 and 42 that depend therefrom and independent claim 38 and claims 39-41 and 43-45 that depend therefrom, the prior art fails to teach at least defining a side opening portion, including forming, in a proximal to distal direction, an arcuate cross-sectional shape and a hemi cylindrical cross-sectional shape. The prior art most similar is to Solar. However, Solar only discloses transversely extending holes 21 through the side wall that do not include the claimed arcuate cross-sectional shape and hemi cylindrical cross section shape in a proximal to distal direction.

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

[1] It is noted that while the examination of the current reissue application falls under the pre-AIA first to invent provisions due to the filing date of US Patent No. 8,292,850; the application for reissue filing date is after September 16, 2012 and therefore is subject to the reissue rule changes enacted under the Leahy-Smith American Invents Act (AIA), see Federal Register, Vol. 77, No. 157, pg. 48820, August 16, 2012.

Page 622

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 CATHERINE SERKE WILLIAMS whose telephone number is (571)272-4970. The examiner can normally be reached on Monday through Friday core hours 8am-4pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on 571-272-6928. 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.

/CATHERINE S WILLIAMS/
Primary Examiner, Art Unit 3993

Conferees: /cew/ and /E.D.L/
SPRS, Art Unit 3993

Page 623

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/984,273	Root et al.
	Examiner	**Art Unit**
	CATHERINE S WILLIAMS	3993

CPC						
Symbol					**Type**	**Version**
A61M	/	25	/	01	F	2013-01-01
A61M	/	25	/	0052	I	2013-01-01
A61M	/	25	/	0662	I	2013-01-01
A61M	/	25	/	0069	I	2013-01-01
A61M	/	25	/	0026	I	2013-01-01
A61M	/	25	/	0051	A	2013-01-01
A61M	/	25	/	0068	A	2013-01-01
A61M	/	2025	/	0081	A	2013-01-01
A61M	/	25	/	008	A	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	21	
/CATHERINE S WILLIAMS/ Primary Examiner, Art Unit 3993	17 September 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	25	1 &2

U.S. Patent and Trademark Office — Part of Paper No.: 20180917

Page 624

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/984,273	Root et al.
	Examiner	**Art Unit**
	CATHERINE S WILLIAMS	3993

INTERNATIONAL CLASSIFICATION					
CLAIMED					
A61M	/	5	/	178	
A61M	/	25	/	00	

NON-CLAIMED					
	/		/		

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
604	164.01

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	21	
/CATHERINE S WILLIAMS/ Primary Examiner, Art Unit 3993	17 September 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	25	1 &2

U.S. Patent and Trademark Office — Part of Paper No.: 20180917

Page 625

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/984,273	Root et al.
	Examiner	Art Unit
	CATHERINE S WILLIAMS	3993

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

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19		28		37						
	2		11		20		29		38						
	3		12		21		30		39						
	4		13		22		31		40						
	5		14		23		32		41						
	6		15		24		33		42						
	7		16		25		34		43						
	8		17		26		35		44						
	9		18		27		36		45						

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	21	
/CATHERINE S WILLIAMS/ Primary Examiner, Art Unit 3993	17 September 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	25	1 &2

U.S. Patent and Trademark Office — Part of Paper No.: 20180917

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/984,273	Root et al.
	Examiner	Art Unit
	CATHERINE S WILLIAMS	3993

CPC - Searched*		
Symbol	**Date**	**Examiner**
A61M 25/01; 25/0102; 25/0067-0069; 2025/0681; 25/005,0051,0052; 25/0053-0054; 25/0141; 25/007; 2025/008,0081	7/7/17	CSW
updated	5/11/18	CSW

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
none		7/717	CSW

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
reviewed prosecution history of US Pat.8,292,850 including applications 14/070,161; 12/824,734; 11/416,629; 14/195,385; 14/195,413	7/717	CSW
see search history		
updated	5/11/18	CSW

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
none	A61M 25/01; 25/0102; 25/0067-0069; 2025/0681; 25/005,0051,0052; 25/0053-0054; 25/0141; 25/007; 2025/008,0081	7/7/17	CSW
updated		5/11/18	CSW

Litigation Search Report CRU 3999

Reissue Serial No. 14/984,273

To: Catherine Williams Location: CRU Art Unit: 3993 Date: 09/19/2018	From: Renee Preston Location: CRU 3999 REM 4C75 Phone: (571) 272-1607 Renee.preston@uspto.gov

Search Notes

U.S. Patent No. 8,292,850

1) I performed a KeyCite Search in Westlaw, which retrieves all history on the patent including any litigation.

2) I performed a search on the patent in Lexis CourtLink for any open dockets or closed cases.

3) I performed a search in Lexis in the Federal Courts and Administrative Materials databases for any cases found.

4) I performed a search in Lexis in the IP Journal and Periodicals database for any articles on the patent.

5) I performed a search in Lexis in the news databases for any articles about the patent or any articles about litigation on this patent.

Litigation: No cases found

Status	Description	Court	Docket Number
Closed	Vascular Solutions, Inc. V. Boston Scientific Corporation	US-DIS-MND	0:12cv1172
Closed	Boston Scientific Corporation Vs. Vascular Solutions, Inc.	US-PTO-ALE	IPR2014-00762
Closed	Boston Scientific Corporation Vs. Vascular Solutions, Inc.	US-PTO-ALE	IPR2014-00763
Closed	Vascular Solutions, Inc. v. Boston Scientific Corporation	US-APP-CAFED	14-1185

Page 628

Bibliographic Data

Application No: 14/984,273

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☐ No ☐ Met After Allowance

Verified and Acknowledged: /CATHERINE S WILLIAMS/ Examiner's Signature | Initials

Title: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/30/2015	604	3993	2005.86USREI7
RULE			

APPLICANTS

Teleflex Innoovations S.a.R.L., Grand Duchy, LUXEMBOURG

INVENTORS

Howard C. Root Tonka Bay, MN, UNITED STATES

Gregg Sutton Plymouth, MN, UNITED STATES

Jeffrey M. Welch Maple Grove, MN, UNITED STATES

Jason M. Garrity Lima, NY, UNITED STATES

CONTINUING DATA

This application is a CON of 14195435 03/03/2014 PAT RE46116

14195435 is a CON of 14070161 11/01/2013 PAT RE45380

14070161 is a REI of 13359059 01/26/2012 PAT 8292850

14195435 is a REI of 13359059 01/26/2012 PAT 8292850

This application is a REI of 13359059 01/26/2012 PAT 8292850

13359059 is a DIV of 12824734 06/28/2010 PAT 8142413

12824734 is a DIV of 11416629 05/03/2006 PAT 8048032

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

01/21/2016

STATE OR COUNTRY

UNITED STATES

ADDRESS

PATTERSON THUENTE PEDERSEN, P.A.
80 SOUTH 8TH STREET
4800 IDS CENTER

MINNEAPOLIS, MN 55402-2100
UNITED STATES

FILING FEE RECEIVED

$3,180

Page 630

UNITED STATES PATENT AND TRADEMARK OFFICE

Reissue Terminal Disclaimer Review Form

Application No.	Art Unit:
14/984,273	3993

Examiner: Catherine S. Williams

Original Patent Number of Patent to be Reissued is: 8292850

The Maintenance fee status is:

- (•) up to date.
- ( ) not up to date. (Consult with SPRS)

Is there a terminal disclaimer filed and accepted during the prosecution of (i) the current reissue application, (ii) the underlying patent, and/or (iii) reexamination proceeding(s) of the underlying patent?

- (•) NO
- ( ) YES (Complete the rest of the form)

This reissue patent is subject to Terminal Disclaimer(s) that was/were:

☒ filed and accepted (DISQ or DISQ.E.FILE) during the prosecution of the current reissue application. (Enter terminal disclaimer(s) filing date(s) below).

1. 1/25/18 2. _____ 3. _____

The underlying patent of the current reissue application is subject to Terminal Disclaimer(s) that was/were:

☒ accepted (DISQ or DISQ.E.FILE) and of record in the prosecution of the underlying patent and/or reexamination proceeding(s) of the underlying patent. (Enter application/control no(s) and terminal disclaimer(s) filing date(s) below).

1. 14/195,435 3/25/14 12/19/14 2. 14/070,161 3/25/14 12/19/14 3. _____ _____

(**Examiner's note:** Assign Doc Code "REIS.REVFORM" to this form.)

U.S. Patent and Trademark Office Last revised: 12/2016

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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 10/12/2018
PATTERSON THUENTE PEDERSEN, P.A.
80 SOUTH 8TH STREET
4800 IDS CENTER
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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,273	12/30/2015	Howard C. Root	2005.86USREI7	5700

TITLE OF INVENTION: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	01/14/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
WILLIAMS, CATHERINE SERKE	3993	604-523000

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 03-09 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 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: TELEFLEX INNOVATIONS S.A.R.L.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): LUXEMBOURG, GRAND DUCHY OF LUXEMBOURG

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

4a. Fees submitted: ☒ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 160631

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Paul C. Onderick/ Date October 15, 2018

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

Electronic Patent Application Fee Transmittal				
Application Number:	14984273			
Filing Date:	30-Dec-2015			
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES			
First Named Inventor/Applicant Name:	Howard C. Root			
Filer:	Paul C. Onderick/Michelle Arcand			
Attorney Docket Number:	2005.86USREI7			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
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:				
REISSUE ISSUE FEE	1511	1	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		1000

Page 634

Electronic Acknowledgement Receipt	
EFS ID:	34007846
Application Number:	14984273
International Application Number:	
Confirmation Number:	5700
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard C. Root
Customer Number:	24113
Filer:	Paul C. Onderick/Michelle Arcand
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86USREI7
Receipt Date:	15-OCT-2018
Filing Date:	30-DEC-2015
Time Stamp:	13:10:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1000
RAM confirmation Number	101518INTEFSW13122600
Deposit Account	160631
Authorized User	Paul Onderick
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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_86USREI7_ISSUEFEE.pdf	110836 98d1ab61af0a4e0d16d8a1840555353af780ce37	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30473 64d602c3b75c4e33770a3f737f891aa6d3051462	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	141309		

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
14/984,273	12/30/2015	3993	3260	2005.86USREI7	21	2

CONFIRMATION NO. 5700

CORRECTED FILING RECEIPT

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

Date Mailed: 11/09/2018

Receipt is acknowledged of this reissue 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**

Inventor(s)

Howard C. Root, Tonka Bay, MN;
Gregg Sutton, Plymouth, MN;
Jeffrey M. Welch, Maple Grove, MN;
Jason M. Garrity, Lima, NY;

Applicant(s)

Teleflex Innovations S.a.R.L., Grand Duchy, LUXEMBOURG, Assignee (with 37 CFR 1.172 Interest);

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

Domestic Priority data as claimed by applicant

This application is a CON of 14/195,435 03/03/2014 PAT RE46116
and is a REI of 13/359,059 01/26/2012 PAT 8292850
and said 14/195,435 03/03/2014
is a CON of 14/070,161 11/01/2013 PAT RE45380
and is a REI of 13/359,059 01/26/2012 PAT 8292850
and said 14/070,161 11/01/2013
is a REI of 13/359,059 01/26/2012 PAT 8292850
which 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 for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 01/21/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/984,273**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No

Title

COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

Preliminary Class

604

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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 (1-866-999-4258).

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).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor

community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Page 640

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.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,273	12/30/2015	Howard C. Root	2005.86USREI7	5700

24113 7590 12/10/2018

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

EXAMINER	
WILLIAMS, CATHERINE SERKE	

ART UNIT	PAPER NUMBER
3993	

MAIL DATE	DELIVERY MODE
12/10/2018	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

Page 641

Supplemental ***Notice of Allowability***	**Application No.** 14/984,273	**Applicant(s)** Root et al.	
	Examiner CATHERINE S WILLIAMS	**Art Unit** 3993	**AIA Status** No

-- 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 _____.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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 25-45 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   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 areply 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. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ 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).

6. ☐ 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. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/CATHERINE S WILLIAMS/
Primary Examiner, Art Unit 3993

SUPPLEMENTAL NOTICE OF ALLOWABILITY

The present application is being examined under the pre-AIA first to invent provisions. It is noted that while the examination of the current reissue application falls under the pre-AIA first to invent provisions due to the filing date of US Patent No. 8,292,850 ("the '850 patent"); the application for reissue filing date is after September 16, 2012 and therefore is subject to the reissue rule changes enacted under the Leahy-Smith American Invents Act (AIA), see Federal Register, Vol. 77, No. 157, pg. 48820, August 16, 2012.

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 an interview with Paul Onderick on November 20, 2018.

The application has been amended as follows:

In the Specification, column 1 line 5, under the heading "Related Applications" please amend the paragraph as follows:

RELATED APPLICATIONS

This application is a continuation reissue of Application No. 14/195,435, filed March 3, 2014, entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures" and issued as U.S. Patent RE46,116, which is a continuation reissue of Application No. 14/070,161, filed

Page 643

November 1, 2013, entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures" and issued as U.S. Patent RE45,380, which is an application for reissue of U.S. Patent 8,292,850, which issued from Application No. 13/359,059, filed January 26, 2012 and entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures," which is a divisional of application Ser. No. 12/824,734, filed Jun. 28, 2010 [now U.S. Pat. No. 8,142,413]entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures" and issued as U.S. Patent 8,142,413, which is a divisional of application Ser. No. 11/416,629, filed May 3, 2006 [now U.S. Pat. No. 8,048,032]entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures" and issued as U.S. Patent 8,048,032. Notice: more than one reissue application has been filed for the reissue of U.S. Patent 8,292,850. The reissue applications are Application Nos. 14/070,161 (issued as U.S. Patent RE45,380), 14/195,385 (issued as U.S. Patent RE45,760), 14/195,413 (issued as U.S. Patent RE45,776), 14/195,435 (issued as U.S. Patent RE46,116), and 14/984,273 (this application).

Allowable Subject Matter

Claims 25-45 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 25 and claims 26-37 and 42 that depend therefrom and independent claim 38 and claims 39-41 and 43-45 that depend therefrom, the prior art fails to teach at least defining a side opening portion, including forming, in a proximal to distal direction, an arcuate cross-sectional shape and a hemi cylindrical cross-sectional shape. The prior art most similar is to Solar. However, Solar only discloses transversely extending holes 21 through the

side wall that do not include the claimed arcuate cross-sectional shape and hemi cylindrical cross section shape in a proximal to distal direction.

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 CATHERINE SERKE WILLIAMS whose telephone number is (571)272-4970. The examiner can normally be reached on Monday through Friday core hours 8am-4pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on 571-272-6928. 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.

Page 645

/CATHERINE S WILLIAMS/
Primary Examiner, Art Unit 3993

Conferees: /cew/ and /E.D.L/
SPRS, Art Unit 3993

Page 646

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/984,273	Root et al.
	Examiner	**Art Unit**
	CATHERINE S WILLIAMS	3993

CPC						
Symbol					**Type**	**Version**
A61M	/	25	/	01	F	2013-01-01
A61M	/	25	/	0052	I	2013-01-01
A61M	/	25	/	0662	I	2013-01-01
A61M	/	25	/	0069	I	2013-01-01
A61M	/	25	/	0026	I	2013-01-01
A61M	/	25	/	0051	A	2013-01-01
A61M	/	25	/	0068	A	2013-01-01
A61M	/	2025	/	0081	A	2013-01-01
A61M	/	25	/	008	A	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	21	
/CATHERINE S WILLIAMS/ Primary Examiner, Art Unit 3993	20 November 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	25	1 &2

U.S. Patent and Trademark Office — Part of Paper No.: 20181120

Page 647

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/984,273	Root et al.
	Examiner	**Art Unit**
	CATHERINE S WILLIAMS	3993

INTERNATIONAL CLASSIFICATION					
CLAIMED					
A61M	/	5	/	178	
A61M	/	25	/	00	

NON-CLAIMED					
	/		/		

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
604	164.01

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 21	
/CATHERINE S WILLIAMS/ Primary Examiner, Art Unit 3993 20 November 2018 (Primary Examiner) (Date)	O.G. Print Claim(s) 25	O.G. Print Figure 1 &2

U.S. Patent and Trademark Office — Part of Paper No.: 20181120

Page 648

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/984,273	Root et al.
	Examiner	Art Unit
	CATHERINE S WILLIAMS	3993

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

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19		28		37						
	2		11		20		29		38						
	3		12		21		30		39						
	4		13		22		31		40						
	5		14		23		32		41						
	6		15		24		33		42						
	7		16		25		34		43						
	8		17		26		35		44						
	9		18		27		36		45						

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	21	
/CATHERINE S WILLIAMS/ Primary Examiner, Art Unit 3993	20 November 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	25	1 &2

U.S. Patent and Trademark Office — Part of Paper No.: 20181120

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	14984273	Filing Date	2015-12-30	Docket Number (if applicable)	2005.86USREI7	Art Unit	3993
First Named Inventor	Howard C. Root et al.			Examiner Name	Catherine Serke Williams		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☐ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☒ Other Certification and Request for Consideration of an IDS Filed After Payment of the Issue Fee Under the QPIDS Program

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 24113

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Signature of Registered U.S. Patent Practitioner			
Signature	/Paul C. Onderick/	Date (YYYY-MM-DD)	2019-01-09
Name	Paul C. Onderick	Registration Number	45354

This collection of information is required by 37 CFR 1.114. 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 1.11 and 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, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Page 651

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 the Freedom of Information Act requires disclosure of these records.

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 inspections 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.

Electronic Patent Application Fee Transmittal	
Application Number:	14984273
Filing Date:	30-Dec-2015
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard C. Root
Filer:	Paul C. Onderick/Michelle Arcand
Attorney Docket Number:	2005.86USREI7
Filed as Large Entity	
Filing Fees for Utility under 35 USC 111(a)	

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
PETITION FEE- 37 CFR 1.17(H) (GROUP III)	1464	1	140	140
RCE- 1ST REQUEST	1801	1	1300	1300
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		1440

Page 654

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Decision Date : January 9, 2019

In re Application of :

Howard Root

DECISION ON PETITION
UNDER CFR 1.313(c)(2)

Application No : 14984273

Filed : 30-Dec-2015

Attorney Docket No : 2005.86USREI7

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed January 9, 2019 , to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED.**

The above-identified application is withdrawn from issue for consideration of a submission under 37 CFR 1.114 (request for continued examination). See 37 CFR 1.313(c)(2).

Petitioner is advised that the issue fee paid in this application cannot be refunded. If, however, this application is again allowed, petitioner may request that it be applied towards the issue fee required by the new Notice of Allowance.

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

This application file is being referred to Technology Center AU 3993 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

Page 655

Electronic Acknowledgement Receipt	
EFS ID:	34810446
Application Number:	14984273
International Application Number:	
Confirmation Number:	5700
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard C. Root
Customer Number:	24113
Filer:	Paul C. Onderick/Michelle Arcand
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86USREI7
Receipt Date:	09-JAN-2019
Filing Date:	30-DEC-2015
Time Stamp:	18:06:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1440
RAM confirmation Number	011019INTEFSW18050300
Deposit Account	160631
Authorized User	Michelle Arcand
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Petition automatically granted by EFS	petition-request.pdf	31610 28896589c93947006ee3a3a69b3554a823f29f20	no	2
Warnings:					
Information:					
2	Quick Path Information Disclosure Statement	2005_86USREX7_QPIDS.pdf	178892 c7c720d0cc758985ecd8cc23bee291a7f94141ca	no	2
Warnings:					
Information:					
3	Transmittal Letter	2005_86USREI7_SIDSTRANSMITTAL.pdf	69213 ab074b1ad4aa4354472411c4725a91da29df035a	no	2
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	2005_86USREI7_FORMPTO1449.pdf	115998 a5a4a040204aa544280379776c7ad41bca4c50b7	no	3
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
5	Non Patent Literature	Topol_TextbookOfInterventionalCardiology.pdf	4976885 b6b0e871b08d73db6db7d22b3d61dda7d73d2f8c	no	2
Warnings:					
Information:					
6	Non Patent Literature	Iqbal_CoronaryStentsHistoricalDevelopmentCurrentStatus.pdf	512346 cda7ff9aaf47417dbf3fb6c594e161486435703e	no	19
Warnings:					

Information:					
7	Non Patent Literature	Tully_BloodFeudThisLittlePieceOfMetalIsWorth.pdf	179629 6be89c10eb9cac43aedcd55bef248a1126f37801	no	5
Warnings:					
Information:					
8	Non Patent Literature	Bertrand_TheEvolutionOfCardiacCatheterization.pdf	9309500 9fca6e673755c0b2142408846a0964d8a5e05fe5	no	10
Warnings:					
Information:					
9	Non Patent Literature	Bonzel_TheSlidingRailSystemMonorail.pdf	2119895 0322a0b22d9faf6287790203c59abeeb86daf335	no	5
Warnings:					
Information:					
10	Non Patent Literature	Takahashi_NewMethodToIncreaseABackupSupport.pdf	2276086 b1e8d9e32c8cf44e9501baba3ab87f79fded9074	no	5
Warnings:					
Information:					
11	Non Patent Literature	IFW13359059.pdf	5780351 6eda1aa4e44709006002844O5362ae5b8b4dbd18	no	153
Warnings:					
Information:					
12	Other Reference-Patent/App/Search documents	IFW14070161_1.pdf	8112114 25d88dd563eff6c854a4f7516fc3a68aac8e8172	no	164
Warnings:					
Information:					
13	Other Reference-Patent/App/Search documents	IFW14070161_2.pdf	24877824 1fb2bef782e6a60a9867094c1ed1e84b4445a5e6	no	336
Warnings:					
Information:					

14	Other Reference-Patent/App/Search documents	IFW14070161_3.pdf	5679565 8ef6255c56a07dae36257d32accbce75b6936355	no	108
Warnings:					
Information:					
15	Other Reference-Patent/App/Search documents	IFW14195385_1.pdf	9583291 075fa36790cfcbdeda06bb62cee29965f37e80af	no	210
Warnings:					
Information:					
16	Other Reference-Patent/App/Search documents	IFW14195385_2.pdf	24588979 d16e80d9d48619c69b17b0f049192ec271291d3a	no	329
Warnings:					
Information:					
17	Other Reference-Patent/App/Search documents	IFW14195385_3.pdf	13134100 4a7a61111b1e5308eb7da92efae90f39b266c4b1	no	216
Warnings:					
Information:					
18	Other Reference-Patent/App/Search documents	IFW14195413_1.pdf	9749241 9cb0fa96fef4c76d4d72a9ec9c8304d3b0a8b4c3	no	214
Warnings:					
Information:					
19	Other Reference-Patent/App/Search documents	IFW14195413_2.pdf	24590277 39a731995cc06d2b5ae816f748be1f80575e3359	no	329
Warnings:					
Information:					
20	Other Reference-Patent/App/Search documents	IFW14195413_3.pdf	9597580 1d14113fd519053313300e8c4dc05d98079ce96a	no	202
Warnings:					
Information:					

21	Other Reference-Patent/App/Search documents	IFW14195435_1.pdf	9550881 3f2325c4c80cc046e893f48ac3d1b99ad4f0f81c	no	210
Warnings:					
Information:					
22	Other Reference-Patent/App/Search documents	IFW14195435_2.pdf	24589983 d5a9bfea14ba2733890273f147d910df649f82e5	no	329
Warnings:					
Information:					
23	Other Reference-Patent/App/Search documents	IFW14195435_3.pdf	8537474 f1464f7b44b75b0bcf7af14834a9d99030bc29bc	no	187
Warnings:					
Information:					
24	Non Patent Literature	USDistrictCourt_QXMedical_v_VascularSolution_ExpertReportOfBrianBrownReInvalidity_2019_01_04.pdf	3060860 4daef5059c8d5074f8c3780ae854b82ef4327f28	no	251
Warnings:					
Information:					
25	Non Patent Literature	USDistrictCourt_QXMedical_v_VascularSolutions_ExpertReportOfPeterTKeith_2019_01_02.pdf	2805122 251cba1d172ccc258cb3a84515fb68abf99f450c	no	83
Warnings:					
Information:					
26	Request for Continued Examination (RCE)	2005_86USREI7_RCE.pdf	698000 8730913f6741cc899a601d30667e57e09120fec1	no	3
Warnings:					
Information:					
27	Fee Worksheet (SB06)	fee-info.pdf	32235 740f11a14f8311065ef882ac51a2ae559c251a3b	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	204737931		

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.

Doc Code: PET.AUTO Document Description: Petition automatically granted by EFS-Web	PTO/SB/140 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**PETITION TO WITHDRAW AN APPLICATION FROM ISSUE AFTER PAYMENT OF THE ISSUE FEE UNDER 37 CFR 1.313(c)**
Application Number	14984273
Filing Date	30-Dec-2015
First Named Inventor	Howard Root
Art Unit	3993
Examiner Name	CATHERINE WILLIAMS
Attorney Docket Number	2005.86USREI7
Title	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

An application may be withdrawn from issue for further action upon petition by the applicant. To request that the Office withdraw an application from issue, applicant must file a petition under this section including the fee set forth in § 1.17(h) and a showing of good and sufficient reasons why withdrawal of the application from issue is necessary.

APPLICANT HEREBY PETITIONS TO WITHDRAW THIS APPLICATION FROM ISSUE UNDER 37 CFR 1.313(c).

A grantable petition requires the following items:
(1) Petition fee; and
(2) One of the following reasons:
(a) Unpatentability of one or more claims, which must be accompanied by an unequivocal statement that one or more claims are unpatentable, an amendment to such claim or claims, and an explanation as to how the amendment causes such claim or claims to be patentable;
(b) Consideration of a request for continued examination in compliance with § 1.114 (for a utility or plant application only); or
(c) Express abandonment of the application. Such express abandonment may be in favor of a continuing application, but not a CPA under 37 CFR 1.53(d).

Petition Fee

- ○ Small Entity
- ○ Micro Entity
- ◉ Regular Undiscounted

Reason for withdrawal from issue

○ One or more claims are unpatentable ◉ Consideration of a request for continued examination (RCE) (List of Required Documents and Fees) ○ Applicant hereby expressly abandons the instant application (any attorney/agent signing for this reason must have power of attorney pursuant to 37 CFR 1.32(b)).	
RCE request,submission, and fee. ☐ I certify, in accordance with 37 CFR 1.4(d)(4) that : The RCE request ,submission, and fee have already been filed in the above-identified application on ☒ Are attached.	
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ◉ An attorney or agent registered to practice before the Patent and Trademark Office who has been given power of attorney in this application. ○ An attorney or agent registered to practice before the Patent and Trademark Office, acting in a representative capacity. ○ A sole inventor ○ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application ○ A joint inventor; all of whom are signing this e-petition	
Signature	/Paul C. Onderick/
Name	Paul C. Onderick
Registration Number	45354

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:	Attorney Docket No.: 2005.86USREI7
Root et al.	Confirmation No.: 5700
Application No.: 14/984,273	Examiner: Catherine Serke Williams
Filed: December 30, 2015	Group Art Unit: 3993

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

Commissioner:

Pursuant to 37 CFR § 1.56, and in addition to information disclosed in any previously filed prior Information Disclosure Statements, 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.

Page 664

This Information Disclosure Statement is being filed with a Certification and Request for Consideration of an Information Disclosure Statement Filed After Payment of the Issue Fee Under the QPIDS Pilot Program. Please charge Deposit Account 16-0631 for the IDS fee of $240 (large entity). Please credit or debit Deposit Account No. 16-0631 as needed to ensure consideration of the disclosed information.

Respectfully submitted,

/Paul C. Onderick/

Paul C. Onderick
Registration No. 45354

Customer No. 24113
Patterson Thuente 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.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	1	of	2	Attorney Docket Number	2005.86USREI7

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-5,040,848 A	08-20-1991	Irie et al.
		US-5,290,247 A	03-01-1994	Crittenden
		US-5,413,560 A	05-09-1995	Solar
		US-5,439,445 A	08-08-1995	Kontos
		US-RE 45,380 E	02-17-2015	Root et al.
		US-RE 45,760 E	10-20-2015	Root et al.
		US-RE 45,776 E	10-27-2015	Root et al.
		US-RE 46,116 E	08-23-2016	Root et al.
		US-		
		US-		
		US-		
		US-		
		US-		
		US-		
		US-		

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.**

Page 666

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	2	of	3	Attorney Docket Number	2005.86USREI7

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]
		Alegria, Jorge R. and Holmes, David R., Jr., Topol, "Textbook of Interventional Cardiology," Saunders Elseveir, 5th Edition, 2008, 2 pages.	
		Iqbal et al., "Coronary Stents: Historical Development Current Status and Future Directions," British Medical Bulletin, 2013; 106, pp. 194-211.	
		Tully, "Blood Feud This Little Piece of Metal is Worth $4.5 Billion This Year, Generates More Profits Than a Blockbuster Drug, and has Sparked One of the Weirdest Corporate Battles Ever. It could Also Save Your Life," CNN Money.com, 2004, 5 pages.	
		Bertrand, "The Evoluation of Cardiac Catheterization and Interventional Cardiology," European Society of Cardiology, 2006, 10 pages.	
		Bonzel et al., "The Sliding Rail System (Monorail): Description of a New Technique for Intravascular Instrumentation and its Application to Coronary Angioplasty," Z. Kardiol. 76, Supplement 6 (1987), 5 pages.	
		Takahashi, "New Method to Increase a Backup Support of a 6 French Guiding Coronary Catheter," Catheter Cardiovasc Interv 2004; 63: 452-456, 5 pages.	
		Application and File History for U.S. Patent Application No. 13/359,059 filed January 26, 2012, now U.S. Patent No. 8,292,850. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/070,161 filed November 1, 2013, now U.S. Reissue Patent No. RE 45,380. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,385 filed March 3, 2014, now U.S. Reissue Patent No. RE 45,760. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,413 filed March 3, 2014, now U.S. Reissue Patent No. RE 45,776. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,435 filed March 3, 2014, now U.S. Reissue Patent No. RE 46,116. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	

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.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	3	of	3	Attorney Docket Number	2005.86USREI7

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]
		U.S. District Court, QXMedical, LLC v. Vascular Solutions, LLC et al., "Expert Report of Brian Brown re Invalidity," dated 01/04/2019, 251 pages.	
		U.S. District Court, QXMedical, LLC v. Vascular Solutions, LLC et al., "Expert Report of Peter T. Keith re on Infringement, Claim Coverage, and Lack of Acceptable Noninfringing Alternatives," dated 01/02/2019, 83 pages.	

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.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Page 668

At the correct date for Yock Substitute for form 1449/PTO CORRECTED INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	1	of	2	Attorney Docket Number	2005.86USREI7

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-5,040,548 A	08-20-1991	Yock
		US-5,290,247 A	03-01-1994	Crittenden
		US-5,413,560 A	05-09-1995	Solar
		US-5,439,445 A	08-08-1995	Kontos
		US-RE 45,380 E	02-17-2015	Root et al.
		US-RE 45,760 E	10-20-2015	Root et al.
		US-RE 45,776 E	10-27-2015	Root et al.
		US-RE 46,116 E	08-23-2016	Root et al.
		US-		
		US-		
		US-		
		US-		
		US-		
		US-		
		US-		

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.**

Page 669

Substitute for form 1449/PTO CORRECTED INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	2	of	3	Attorney Docket Number	2005.86USREI7

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]
		Alegria, Jorge R. and Holmes, David R., Jr., Topol, "Textbook of Interventional Cardiology," Saunders Elseveir, 5th Edition, 2008, 2 pages.	
		Iqbal et al., "Coronary Stents: Historical Development Current Status and Future Directions," British Medical Bulletin, 2013; 106, pp. 194-211.	
		Tully, "Blood Feud This Little Piece of Metal is Worth $4.5 Billion This Year, Generates More Profits Than a Blockbuster Drug, and has Sparked One of the Weirdest Corporate Battles Ever. It could Also Save Your Life," CNN Money.com, 2004, 5 pages.	
		Bertrand, "The Evoluation of Cardiac Catheterization and Interventional Cardiology," European Society of Cardiology, 2006, 10 pages.	
		Bonzel et al., "The Sliding Rail System (Monorail): Description of a New Technique for Intravascular Instrumentation and its Application to Coronary Angioplasty," Z. Kardiol. 76, Supplement 6 (1987), 5 pages.	
		Takahashi, "New Method to Increase a Backup Support of a 6 French Guiding Coronary Catheter," Catheter Cardiovasc Interv 2004; 63: 452-456, 5 pages.	
		Application and File History for U.S. Patent Application No. 13/359,059 filed January 26, 2012, now U.S. Patent No. 8,292,850. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/070,161 filed November 1, 2013, now U.S. Reissue Patent No. RE 45,380. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,385 filed March 3, 2014, now U.S. Reissue Patent No. RE 45,760. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,413 filed March 3, 2014, now U.S. Reissue Patent No. RE 45,776. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,435 filed March 3, 2014, now U.S. Reissue Patent No. RE 46,116. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	

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.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Substitute for form 1449/PTO CORRECTED INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	3	of	3	Attorney Docket Number	2005.86USREI7

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]
		U.S. District Court, QXMedical, LLC v. Vascular Solutions, LLC et al., "Expert Report of Brian Brown re Invalidity," dated 01/04/2019, 251 pages.	
		U.S. District Court, QXMedical, LLC v. Vascular Solutions, LLC et al., "Expert Report of Peter T. Keith re on Infringement, Claim Coverage, and Lack of Acceptable Noninfringing Alternatives," dated 01/02/2019, 83 pages.	

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.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Page 671

Electronic Acknowledgement Receipt	
EFS ID:	34822720
Application Number:	14984273
International Application Number:	
Confirmation Number:	5700
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard C. Root
Customer Number:	24113
Filer:	Paul C. Onderick/Michelle Arcand
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86USREI7
Receipt Date:	10-JAN-2019
Filing Date:	30-DEC-2015
Time Stamp:	16:59:28
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	Transmittal Letter	2005_86USREI7_TRANSMITTAL LTR.pdf	66140 1378d42e12423cdd8896f97ac677c706bd47306f	no	1
Warnings:					

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	2005_86USREI7_CORRECTEDPTO1449.pdf	116145 2fc2be4e244202255e882b9a2ebb49b75e1f334d5	no	3
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
		Total Files Size (in bytes):	182285		

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:	Attorney Docket No.: 2005.86USREI7
Root et al.	Confirmation No.: 5700
Application No.: 14/984,273	Examiner: Catherine Serke Williams
Filed: December 30, 2015	Group Art Unit: 3993

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

TRANSMITTAL LETTER REGARDING SUBMISSION OF CORRECTED PTO-1449

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

Commissioner:

Further to the submission of January 9, 2019 applicant submits the related corrected 1449 form. After filing the 1449 form on January 9, 2019, a typographical error in identifying one of the patent references was noted. In the corrected 1449 form this typographical error is corrected. It is requested that the Examiner consider the references cited in the corrected form.

The Commissioner is hereby authorized to grant any extension 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.

Respectfully submitted,

/Paul C. Onderick/

Paul C. Onderick
Registration No. 45354

Customer No. 24113
Patterson Thuente 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.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	1	of	1	Attorney Docket Number	2005.86USREI7

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-4,838,268	06-13-1989	Keith et al.
		US-4,943,278	07-24-1990	Euteneuer et al.
		US-5,415,639	05-16-1995	VanderEinde et al.
		US-5,567,203	10-22-1996	Euteneuer et al.
		US-5,571,087	11-05-1996	Ressemann et al.
		US-5,720,724	02-24-1998	Ressemann et al.
		US-5,843,022	12-01-1998	Willard et al.
		US-6,071,273	06-06-2000	Euteneuer et al.
		US-6,270,465	08-07-2001	Keith et al.
		US-6,299,628 B1	10-09-2001	Harrison et al.
		US-6,443,912 B1	09-03-2002	Mazzola et al.
		US-6,733,487 B2	05-11-2004	Keith et al.
		US-7,763,012 B2	07-24-2010	Petrick et al.
		US-7,959,603 B2	06-14-2011	Wahr et al.
		US-2008/0243171 A1	10-02-2008	Ressemann et al.
		US-2009/0005755 A1	01-01-2009	Keith 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.**

Page 675

Electronic Acknowledgement Receipt	
EFS ID:	34831864
Application Number:	14984273
International Application Number:	
Confirmation Number:	5700
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard C. Root
Customer Number:	24113
Filer:	Paul C. Onderick/Ann Pommier
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86USREI7
Receipt Date:	11-JAN-2019
Filing Date:	30-DEC-2015
Time Stamp:	14:19:28
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		Suppl_IDS.pdf	275229 8df8305218ef47dc698c4137770fdf6c718e2d70	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	2
	Information Disclosure Statement (IDS) Form (SB08)	3	3
Warnings:			
Information:			
	Total Files Size (in bytes):	275229	

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:	Attorney Docket No.: 2005.86USREI7
Root et al.	Confirmation No.: 5700
Application No.: 14/984,273	Examiner: Catherine Serke Williams
Filed: December 30, 2015	Group Art Unit: 3993

For: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

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

Commissioner:

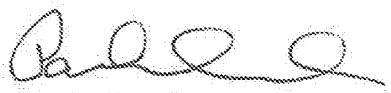
Pursuant to 37 CFR § 1.56, and in addition to information disclosed in any previously filed prior Information Disclosure Statements, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached Form PTO-1449. It is respectfully requested that the information 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.

Page 678

This Information Disclosure Statement is being filed following a Certification and Request for Consideration of an Information Disclosure Statement Filed After Payment of the Issue Fee Under the QPIDS Pilot Program. Please credit or debit Deposit Account No. 16-0631 as needed to ensure consideration of the disclosed information.

Respectfully submitted,



Paul C. Onderick
Registration No. 45354

Customer No. 24113
Patterson Thuente 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.

Page 679

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

24113 7590 02/22/2019

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

EXAMINER	
WILLIAMS, CATHERINE SERKE	
ART UNIT	PAPER NUMBER
3993	

DATE MAILED: 02/22/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,273	12/30/2015	Howard C. Root	2005.86USREI7	5700

TITLE OF INVENTION: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$1000.00	$0	05/22/2019

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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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 02/22/2019
PATTERSON THUENTE PEDERSEN, P.A.
80 SOUTH 8TH STREET
4800 IDS CENTER
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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,273	12/30/2015	Howard C. Root	2005.86USREI7	5700

TITLE OF INVENTION: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$1000.00	$0	05/22/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
WILLIAMS, CATHERINE SERKE	3993	604-523000

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 03-09 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,273	12/30/2015	Howard C. Root	2005.86USREI7	5700

24113 7590 02/22/2019

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

EXAMINER	
WILLIAMS, CATHERINE SERKE	
ART UNIT	PAPER NUMBER
3993	

DATE MAILED: 02/22/2019

Determination of Patent Term Extension or Adjustment under 35 U.S.C. 154 (b)

A reissue patent is for "the unexpired part of the term of the original patent." See 35 U.S.C. 251. Accordingly, the above-identified reissue application is not eligible for Patent Term Extension or Adjustment under 35 U.S.C. 154(b).

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.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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 30 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.

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.

Page 683

Notice of Allowability	Application No. 14/984,273	Applicant(s) Root et al.	
	Examiner CATHERINE S WILLIAMS	Art Unit 3993	AIA Status No

-- 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 _____.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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 25-45 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   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 areply 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. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ 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).

6. ☐ 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. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 11/9/19; 11/10/19; 11/11/19.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/CATHERINE S WILLIAMS/
Primary Examiner, Art Unit 3993

NOTICE OF ALLOWABILITY

The present application is being examined under the pre-AIA first to invent provisions. It is noted that while the examination of the current reissue application falls under the pre-AIA first to invent provisions due to the filing date of US Patent No. 8,292,850 ("the '850 patent"); the application for reissue filing date is after September 16, 2012 and therefore is subject to the reissue rule changes enacted under the Leahy-Smith American Invents Act (AIA), see Federal Register, Vol. 77, No. 157, pg. 48820, August 16, 2012.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 1/9/19 has been entered.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 1/9/19, 1/10/19 and 1/11/19 have been considered by the examiner.

Page 685

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 an interview with Paul Onderick on November 20, 2018.

The application has been amended as follows:

In the Specification, column 1 line 5, under the heading "Related Applications" please amend the paragraph as follows:

RELATED APPLICATIONS

This application is a continuation reissue of Application No. 14/195,435, filed March 3, 2014, entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures" and issued as U.S. Patent RE46,116, which is a continuation reissue of Application No. 14/070,161, filed November 1, 2013, entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures" and issued as U.S. Patent RE45,380, which is an application for reissue of U.S. Patent 8,292,850, which issued from Application No. 13/359,059, filed January 26, 2012 and entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures," which is a divisional of application Ser. No. 12/824,734, filed Jun. 28, 2010 [now U.S. Pat. No. 8,142,413]entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures" and issued as U.S. Patent 8,142,413, which is a divisional of application Ser. No. 11/416,629, filed May 3, 2006 [now U.S. Pat. No. 8,048,032]entitled "Coaxial Guide Catheter for Interventional Cardiology Procedures" and issued as U.S.

Page 686

Patent 8,048,032. Notice: more than one reissue application has been filed for the reissue of U.S. Patent 8,292,850. The reissue applications are Application Nos. 14/070,161 (issued as U.S. Patent RE45,380), 14/195,385 (issued as U.S. Patent RE45,760), 14/195,413 (issued as U.S. Patent RE45,776), 14/195,435 (issued as U.S. Patent RE46,116), and 14/984,273 (this application).

Allowable Subject Matter

Claims 25-45 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent claim 25 and claims 26-37 and 42 that depend therefrom and independent claim 38 and claims 39-41 and 43-45 that depend therefrom, the prior art fails to teach at least defining a side opening portion, including forming, in a proximal to distal direction, an arcuate cross-sectional shape and a hemi cylindrical cross-sectional shape. The prior art most similar is to Solar. However, Solar only discloses transversely extending holes 21 through the side wall that do not include the claimed arcuate cross-sectional shape and hemi cylindrical cross section shape in a proximal to distal direction.

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 CATHERINE SERKE WILLIAMS whose telephone number is (571)272-4970. The examiner can normally be reached on Monday through Friday core hours 8am-4pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eileen Lillis can be reached on 571-272-6928. 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.

/CATHERINE S WILLIAMS/
Primary Examiner, Art Unit 3993

Conferees: /cew/ and /E.D.L/
SPRS, Art Unit 3993

Page 688

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/984,273	Root et al.
	Examiner	Art Unit
	CATHERINE S WILLIAMS	3993

CPC - Searched*		
Symbol	**Date**	**Examiner**
A61M 25/01; 25/0102; 25/0067-0069; 2025/0681; 25/005,0051,0052; 25/0053-0054; 25/0141; 25/007; 2025/008,0081	7/7/17	CSW
updated	5/11/18	CSW

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
none		7/717	CSW

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
reviewed prosecution history of US Pat.8,292,850 including applications 14/070,161; 12/824,734; 11/416,629; 14/195,385; 14/195,413	7/717	CSW
see search history		
updated	5/11/18	CSW

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
none	A61M 25/01; 25/0102; 25/0067-0069; 2025/0681; 25/005,0051,0052; 25/0053-0054; 25/0141; 25/007; 2025/008,0081	7/7/17	CSW
updated		5/11/18	CSW

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/984,273	Root et al.
	Examiner	**Art Unit**
	CATHERINE S WILLIAMS	3993

CPC						
Symbol					**Type**	**Version**
A61M	/	25	/	01	F	2013-01-01
A61M	/	25	/	0052	I	2013-01-01
A61M	/	25	/	0662	I	2013-01-01
A61M	/	25	/	0069	I	2013-01-01
A61M	/	25	/	0026	I	2013-01-01
A61M	/	25	/	0051	A	2013-01-01
A61M	/	25	/	0068	A	2013-01-01
A61M	/	2025	/	0081	A	2013-01-01
A61M	/	25	/	008	A	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	21	
/CATHERINE S WILLIAMS/ Primary Examiner, Art Unit 3993		O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	25	1 &2

U.S. Patent and Trademark Office — Part of Paper No.: 20190213

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/984,273	Root et al.
	Examiner	Art Unit
	CATHERINE S WILLIAMS	3993

INTERNATIONAL CLASSIFICATION				
CLAIMED				
A61M	/	5	/	178
A61M	/	25	/	00

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
604	164.01

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	21	
/CATHERINE S WILLIAMS/ Primary Examiner, Art Unit 3993		O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	25	1 &2

U.S. Patent and Trademark Office — Part of Paper No.: 20190213

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/984,273	Root et al.
	Examiner	Art Unit
	CATHERINE S WILLIAMS	3993

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

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19		28		37						
	2		11		20		29		38						
	3		12		21		30		39						
	4		13		22		31		40						
	5		14		23		32		41						
	6		15		24		33		42						
	7		16		25		34		43						
	8		17		26		35		44						
	9		18		27		36		45						

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	21	
/CATHERINE S WILLIAMS/ Primary Examiner, Art Unit 3993		O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	25	1 &2

U.S. Patent and Trademark Office — Part of Paper No.: 20190213

Page 692

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.S.W/

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	1	of	1	Attorney Docket Number	2005.86USREI7

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-4,838,268	06-13-1989	Keith et al.
		US-4,943,278	07-24-1990	Euteneuer et al.
		US-5,415,639	05-16-1995	VanderEinde et al.
		US-5,567,203	10-22-1996	Euteneuer et al.
		US-5,571,087	11-05-1996	Ressemann et al.
		US-5,720,724	02-24-1998	Ressemann et al.
		US-5,843,022	12-01-1998	Willard et al.
		US-6,071,273	06-06-2000	Euteneuer et al.
		US-6,270,465	08-07-2001	Keith et al.
		US-6,299,628 B1	10-09-2001	Harrison et al.
		US-6,443,912 B1	09-03-2002	Mazzola et al.
		US-6,733,487 B2	05-11-2004	Keith et al.
		US-7,763,012 B2	07-24-2010	Petrick et al.
		US-7,959,603 B2	06-14-2011	Wahr et al.
		US-2008/0243171 A1	10-02-2008	Ressemann et al.
		US-2009/0005755 A1	01-01-2009	Keith 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	/CATHERINE S WILLIAMS/	DATE CONSIDERED	02/13/2019

*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.

Bibliographic Data

Application No: 14/984,273

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /CATHERINE S WILLIAMS/ Examiner's Signature | Initials

Title: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/30/2015	604	3993	2005.86USREI7
RULE			

APPLICANTS

Teleflex Innovations S.a.R.L., Grand Duchy, LUXEMBOURG

INVENTORS

Howard C. Root Tonka Bay, MN, UNITED STATES

Gregg Sutton Plymouth, MN, UNITED STATES

Jeffrey M. Welch Maple Grove, MN, UNITED STATES

Jason M. Garrity Lima, NY, UNITED STATES

CONTINUING DATA

This application is a CON of 14195435 03/03/2014 PAT RE46116

14195435 is a CON of 14070161 11/01/2013 PAT RE45380

14070161 is a REI of 13359059 01/26/2012 PAT 8292850

14195435 is a REI of 13359059 01/26/2012 PAT 8292850

This application is a REI of 13359059 01/26/2012 PAT 8292850

13359059 is a DIV of 12824734 06/28/2010 PAT 8142413

12824734 is a DIV of 11416629 05/03/2006 PAT 8048032

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

01/21/2016

STATE OR COUNTRY

UNITED STATES

ADDRESS

PATTERSON THUENTE PEDERSEN, P.A.
80 SOUTH 8TH STREET
4800 IDS CENTER

MINNEAPOLIS, MN 55402-2100
UNITED STATES

FILING FEE RECEIVED

$3,180

Page 695

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.S.W/

At the correct date for Yock Substitute for form 1449/PTO CORRECTED INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	1	of	2	Attorney Docket Number	2005.86USREI7

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-5,040,548 A	08-20-1991	Yock
		US-5,290,247 A	03-01-1994	Crittenden
		US-5,413,560 A	05-09-1995	Solar
		US-5,439,445 A	08-08-1995	Kontos
		US-RE 45,380 E	02-17-2015	Root et al.
		US-RE 45,760 E	10-20-2015	Root et al.
		US-RE 45,776 E	10-27-2015	Root et al.
		US-RE 46,116 E	08-23-2016	Root et al.
		US-		
		US-		
		US-		
		US-		
		US-		
		US-		
		US-		

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.**

Page 696

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.S.W/

Substitute for form 1449/PTO CORRECTED INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	2	of	3	Attorney Docket Number	2005.86USREI7

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]
		Alegria, Jorge R. and Holmes, David R., Jr., Topol, "Textbook of Interventional Cardiology," Saunders Elseveir, 5th Edition, 2008, 2 pages.	
		Iqbal et al., "Coronary Stents: Historical Development Current Status and Future Directions," British Medical Bulletin, 2013; 106, pp. 194-211.	
		Tully, "Blood Feud This Little Piece of Metal is Worth $4.5 Billion This Year, Generates More Profits Than a Blockbuster Drug, and has Sparked One of the Weirdest Corporate Battles Ever. It could Also Save Your Life," CNN Money.com, 2004, 5 pages.	
		Bertrand, "The Evoluation of Cardiac Catheterization and Interventional Cardiology," European Society of Cardiology, 2006, 10 pages.	
		Bonzel et al., "The Sliding Rail System (Monorail): Description of a New Technique for Intravascular Instrumentation and its Application to Coronary Angioplasty," Z. Kardiol. 76, Supplement 6 (1987), 5 pages.	
		Takahashi, "New Method to Increase a Backup Support of a 6 French Guiding Coronary Catheter," Catheter Cardiovasc Interv 2004; 63: 452-456, 5 pages.	
		Application and File History for U.S. Patent Application No. 13/359,059 filed January 26, 2012, now U.S. Patent No. 8,292,850. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/070,161 filed November 1, 2013, now U.S. Reissue Patent No. RE 45,380. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,385 filed March 3, 2014, now U.S. Reissue Patent No. RE 45,760. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,413 filed March 3, 2014, now U.S. Reissue Patent No. RE 45,776. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,435 filed March 3, 2014, now U.S. Reissue Patent No. RE 46,116. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	

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.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.S.W/

Substitute for form 1449/PTO CORRECTED INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	3	of	3	Attorney Docket Number	2005.86USREI7

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]
		U.S. District Court, QXMedical, LLC v. Vascular Solutions, LLC et al., "Expert Report of Brian Brown re Invalidity," dated 01/04/2019, 251 pages.	
		U.S. District Court, QXMedical, LLC v. Vascular Solutions, LLC et al., "Expert Report of Peter T. Keith re on Infringement, Claim Coverage, and Lack of Acceptable Noninfringing Alternatives," dated 01/02/2019, 83 pages.	

EXAMINER SIGNATURE	/CATHERINE S WILLIAMS/	DATE CONSIDERED	02/13/2019

*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.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Page 698

UNITED STATES PATENT AND TRADEMARK OFFICE

Reissue Terminal Disclaimer Review Form

Application No.	Art Unit:
14/984,273	3993

Examiner: Catherine S. Williams

Original Patent Number of Patent to be Reissued is: 8292850

The Maintenance fee status is:

- (•) up to date.
- ( ) not up to date. (Consult with SPRS)

Is there a terminal disclaimer filed and accepted during the prosecution of (i) the current reissue application, (ii) the underlying patent, and/or (iii) reexamination proceeding(s) of the underlying patent?

- (•) NO
- ( ) YES (Complete the rest of the form)

This reissue patent is subject to Terminal Disclaimer(s) that was/were:

- [X] filed and accepted (DISQ or DISQ.E.FILE) during the prosecution of the current reissue application. (Enter terminal disclaimer(s) filing date(s) below).

1. 1/25/18 2. _____ 3. _____

The underlying patent of the current reissue application is subject to Terminal Disclaimer(s) that was/were:

- [X] accepted (DISQ or DISQ.E.FILE) and of record in the prosecution of the underlying patent and/or reexamination proceeding(s) of the underlying patent. (Enter application/control no(s) and terminal disclaimer(s) filing date(s) below).

1. 14/195,435 3/25/14 12/19/14 2. 14/070,161 3/25/14 12/19/14 3. _____ _____

(**Examiner's note:** Assign Doc Code "REIS.REVFORM" to this form.)

U.S. Patent and Trademark Office Last revised: 12/2016

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.S.W/

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	1	of	2	Attorney Docket Number	2005.86USREI7

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-5,040,848 A	08-20-1991	Irie et al.
		US-5,290,247 A	03-01-1994	Crittenden
		US-5,413,560 A	05-09-1995	Solar
		US-5,439,445 A	08-08-1995	Kontos
		US-RE 45,380 E	02-17-2015	Root et al.
		US-RE 45,760 E	10-20-2015	Root et al.
		US-RE 45,776 E	10-27-2015	Root et al.
		US-RE 46,116 E	08-23-2016	Root et al.
		US-		
		US-		
		US-		
		US-		
		US-		
		US-		
		US-		

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.**

Page 700

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.S.W/

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	2	of	3	Attorney Docket Number	2005.86USREI7

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]
		Alegria, Jorge R. and Holmes, David R., Jr., Topol, "Textbook of Interventional Cardiology," Saunders Elseveir, 5th Edition, 2008, 2 pages.	
		Iqbal et al., "Coronary Stents: Historical Development Current Status and Future Directions," British Medical Bulletin, 2013; 106, pp. 194-211.	
		Tully, "Blood Feud This Little Piece of Metal is Worth $4.5 Billion This Year, Generates More Profits Than a Blockbuster Drug, and has Sparked One of the Weirdest Corporate Battles Ever. It could Also Save Your Life," CNN Money.com, 2004, 5 pages.	
		Bertrand, "The Evoluation of Cardiac Catheterization and Interventional Cardiology," European Society of Cardiology, 2006, 10 pages.	
		Bonzel et al., "The Sliding Rail System (Monorail): Description of a New Technique for Intravascular Instrumentation and its Application to Coronary Angioplasty," Z. Kardiol. 76, Supplement 6 (1987), 5 pages.	
		Takahashi, "New Method to Increase a Backup Support of a 6 French Guiding Coronary Catheter," Catheter Cardiovasc Interv 2004; 63: 452-456, 5 pages.	
		Application and File History for U.S. Patent Application No. 13/359,059 filed January 26, 2012, now U.S. Patent No. 8,292,850. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/070,161 filed November 1, 2013, now U.S. Reissue Patent No. RE 45,380. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,385 filed March 3, 2014, now U.S. Reissue Patent No. RE 45,760. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,413 filed March 3, 2014, now U.S. Reissue Patent No. RE 45,776. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	
		Application and File History for U.S. Reissue Application No. 14/195,435 filed March 3, 2014, now U.S. Reissue Patent No. RE 46,116. Inventors Root et al., *as available on PAIR at www.uspto.gov.*	

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.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.S.W/

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				*Complete if Known*	
				Application Number	14/984,273
				Filing Date	December 30, 2015
				First Named Inventor	Root et al.
				Art Unit	3993
				Examiner Name	Catherine Serke Williams
Sheet	3	of	3	Attorney Docket Number	2005.86USREI7

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]
		U.S. District Court, QXMedical, LLC v. Vascular Solutions, LLC et al., "Expert Report of Brian Brown re Invalidity," dated 01/04/2019, 251 pages.	
		U.S. District Court, QXMedical, LLC v. Vascular Solutions, LLC et al., "Expert Report of Peter T. Keith re on Infringement, Claim Coverage, and Lack of Acceptable Noninfringing Alternatives," dated 01/02/2019, 83 pages.	

EXAMINER SIGNATURE	/CATHERINE S WILLIAMS/	DATE CONSIDERED	02/13/2019

*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.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Page 702

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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 02/22/2019
PATTERSON THUENTE PEDERSEN, P.A.
80 SOUTH 8TH STREET
4800 IDS CENTER
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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/984,275	12/30/2015	Howard C. Root	2005.86USRE17	5300

TITLE OF INVENTION: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$1000.00	$0	05/23/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
WILLIAMS, CATHERINE SERKE	3993	604-523000

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 03-09 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 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: TELEFLEX INNOVATIONS S.A.R.L.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): LUXEMBOURG, GRAND DUCHY OF LUXEMBOURG

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

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 160631.

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature: /Paul C. Onderick/ Date: February 22, 2019

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

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Electronic Acknowledgement Receipt	
EFS ID:	35225163
Application Number:	14984273
International Application Number:	
Confirmation Number:	5700
Title of Invention:	COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES
First Named Inventor/Applicant Name:	Howard C. Root
Customer Number:	24113
Filer:	Paul C. Onderick/Michelle Arcand
Filer Authorized By:	Paul C. Onderick
Attorney Docket Number:	2005.86USREI7
Receipt Date:	22-FEB-2019
Filing Date:	30-DEC-2015
Time Stamp:	13:42:39
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	Issue Fee Payment (PTO-85B)	2005_86USREI7_ISSUEFEE.pdf	295422 b9bb206d65a0d189b2516cea5764302db3e7cd44	no	1
Warnings:					

Information:	
Total Files Size (in bytes):	295422

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), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

2860 02/22/2019

PATTERSON THUENTE PEDERSEN, P.A.
80 SOUTH 8TH STREET
4800 IDS CENTER
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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

Typed or printed name	
Signature	
Date	

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/386,279	12/30/2015	Howard C. Root	2005.88USU1(7	5280

TITLE OF INVENTION: COAXIAL GUIDE CATHETER FOR INTERVENTIONAL CARDIOLOGY PROCEDURES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$1000.00	$0	05/22/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
WILLIAMS, CATHERINE SPEER	3695	604-523000

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 03-09 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 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 3.73(b). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: TELEFLEX INNOVATIONS S.A.R.L.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): LUXEMBOURG, GRAND DUCHY OF LUXEMBOURG

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

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies

4b. Method of Payment: (Please first comply with any particularly paid for shown above).

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency or credit any overpayment to Deposit Account No. 160631

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Paul C. Onderick/ Date February 22, 2019

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

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Page 706

United States Patent and Trademark Office

- Sales Receipt -

Adjustment date: 02/26/2019 SDIRETA2

10/15/2018 INTEFSW 00012345 14984273

01 FC:1511 -1000.00 OP

Page 707

United States Patent and Trademark Office

- Sales Receipt -

02/26/2019 SDIRETA2 00000004 14984273

01 FC:1501 1000.00 OP

Page 708

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.
14/984,273	05/07/2019	RE47379	2005.86USREI7	5700

24113 7590 04/17/2019

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

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Extension or Adjustment under 35 U.S.C. 154 (b)

A reissue patent is for "the unexpired part of the term of the original patent." See 35 U.S.C. 251. Accordingly, the above-identified reissue application is not eligible for Patent Term Extension or Adjustment under 35 U.S.C. 154(b).

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 C. Root, Tonka Bay, MN;
Teleflex Innovations S.a.R.L., Grand Duchy, LUXEMBOURG, Assignee (with 37 CFR 1.172 Interest);
Gregg Sutton, Plymouth, MN;
Jeffrey M. Welch, Maple Grove, MN;
Jason M. Garrity, Lima, NY;

IR103 (Rev. 10/09)