

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

IMPERATIVE CARE, INC.,
Petitioner,

v.

INARI MEDICAL, INC.,
Patent Owner.

Case No. IPR2025-01021
U.S. Patent No. 11,969,333

PATENT OWNER'S SUR-REPLY

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EXHIBIT LIST

	Petitioner's Exhibits
Exhibit	Description
1001	U.S. Patent No. 11,969,333 ("the '333 patent")
1002	'333 Patent Prosecution History
1003	Expert Declaration of Troy Thornton
1004	Resume of Troy Thornton
1005	U.S. Patent No. 8,734,374 B2 to Aklog et al. ("Aklog")
1006	U.S. Patent Publication No. 2015/0173782 A1 to Garrison et al. ("Garrison")
1007	WIPO Publication No. WO 2006/124307 A2 to Goff et al. ("Goff")
1008	U.S. Patent Publication No. 2003/0116731 A1 to Hartley ("Hartley")
1009	U.S. Patent No. 6,776,770 B2 to Trerotola ("Trerotola")
1010	U.S. Patent Publication No. 2010/0042118 A1 to Garrison et al.
1011	U.S. Patent No. 8,535,283 B2 to Heaton et al. ("Heaton")
1012	U.S. Patent Publication No. 2017/0043066 A1 to Laub ("Laub")
1013	U.S. Patent Publication US 2003/0225379 A1 to Schaffer et al. ("Schaffer")
1014	U.S. Patent No. 5,938,645 to Gordon ("Gordon")
1015	U.S. Patent Publication No. 2014/0296868 A1 to Garrison et al.
1016	U.S. Patent No. 7,998,104 B2 to Chang ("Chang")
1017	U.S. Patent No. 8,157,760 B2 to Criado et al. ("Criado")
1018	U.S. Patent No. 6,481,439 B1 to Lewis et al.
1019	U.S. Patent No. 8,075,510 B2 to Aklog et al.
1020	WIPO Publication No. WO 2018/019829 A1 to Brady et al. ("Brady")

	Petitioner's Exhibits
Exhibit	Description
1021	U.S. Patent Application No. 16/117,519 (the "519 application")
1022	Expert Declaration of Dr. Aquilla S. Turk, III, DO
1023	Resume of Dr. Aquilla Turk, III, D.O.
1024	Shani, Jacob M.D., et al., Mechanical Manipulation of Thrombus: Coronary Thrombectomy, Intracoronary Clot Displacement, and Transcatheter Aspiration, 72 Am. J. Cardiol. 116G-118G (1993)
1025	Bose, A et al., The Penumbra System: A Mechanical Device for the Treatment of Acute Stroke due to Thromboembolism, 29 Am. J. Neuroradiol. 1409-1413 (Aug. 2008)
1026	Turk, Aquilla S. et al., Initial clinical experience with the ADAPT technique: A direct aspiration first pass technique for stroke thrombectomy, 6 J. NeuroIntervent. Surg. 231-237 (2014)
1027	Turk, Aquilla S. et al., ADAPT FAST study: a direct aspiration first pass technique for acute stroke thrombectomy, 6 J. NeuroIntervent. Surg. 260-264 (2014)
1028	April 24, 2024 Letter from Inari to Imperative Care
1029	Turk, Aquilla S. et al., Aspiration thrombectomy versus stent retriever thrombectomy as first-line approach for large vessel occlusion (COMPASS): a multicentre, randomized, open label, blinded outcome, non-inferiority trial, 393 Lancet 998-1008 (March 2019)
1030	Save, Jeffrey L., Time is Brain – Quantified, American Heart Association Journals, available at http://www.stokeaha.org (2005).
1031	U.S. Patent No. 9,980,813 B1 to Eller ("Eller")
1032	US 2018/0064453 A1 ("Garrison II")
1033	US 2005/0054995 A1 ("Barzell")
1034	Decision Granting Institution of <i>Inter Partes</i> Review for U.S. Patent No. 11,697,011 (Paper 7) in <i>Imperative Care, Inc. v. Inari Medical, Inc.</i> , IPR2024-01157 (P.T.A.B. Jan. 23, 2025)

	Petitioner's Exhibits
Exhibit	Description
1035	Decision Granting Institution of <i>Inter Partes</i> Review for U.S. Patent No. 11,697,012 (Paper 6) in <i>Imperative Care, Inc. v. Inari Medical, Inc.</i> , IPR2025-00156 (P.T.A.B. Apr. 22, 2025)
1036	U.S. Patent No. 12,109,384 B2 to Merritt et al.
1037	Patent Owner's Exhibit 2002 filed in <i>Imperative Care, Inc. v. Inari Medical, Inc.</i> , IPR2025-00289 (P.T.A.B.)
1038	Indigo Aspiration System-Penumbra Engine Pump and Canister, 510(k) No. K180105 (Mar. 8, 2018) ("Indigo Aspiration System")
1039	AXS Universal Aspiration Set Brochure (2017)
1040	VacLok Negative Pressure Syringe Brochure
1041	O. Nikoubashman et al., Under Pressure: Comparison of Aspiration Techniques for Endovascular Mechanical Thrombectomy, 39 Am. J. Neuroradiol. 905-909 (May 2018) ("Nikoubashman")
1042	Inari's Supplemental Infringement Contentions (without claim charts) from <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , No. 24- cv-3117 (N.D. Cal.) (served February 7, 2025)
1043	Inari's Notice of Motion and Motion for Leave to File Third Amended Complaint (Dkt. #88) in <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , 24-cv-03117-EKL (N.D. Cal.) (filed March 5, 2025)
1044	Case Management & Scheduling Order (Dkt. #54) in <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , 24-cv-03117-EKL (N.D. Cal.) (issued December 19, 2024)
1045	Decision Denying Institution of <i>Inter Partes</i> Review for U.S. Patent No. 11,744,691 (Paper 10) in <i>Imperative Care, Inc. v. Inari Medical, Inc.</i> , IPR2024-01257 (P.T.A.B. Feb. 7, 2025)
1046	U.S. Patent No. 7,984,730 B2 to Ziv et al.
1047	Imperative Care's Opposition to Inari's Motion for Leave to File Third Amended Complaint (Dkt. #98) in <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , 24-cv-03117-EKL (N.D. Cal.) (filed March 26, 2025)

	Petitioner's Exhibits
Exhibit	Description
1048	Imperative Care's Notice of Motion and Motion to Stay Pending <i>Inter Partes</i> Review (Dkt. #100) in <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , 24-cv-03117-EKL (N.D. Cal.) (filed April 2, 2025)
1049	Ahmed Pasha et al., Successful Management of Acute Massive Pulmonary Embolism Using Angiovac Suction Catheter Technique in a Hemodynamically Unstable Patient, 15 Cardiovasc. Revasc. Med. 240-243 (2014)
1050	Certified File History of U.S. Patent Application 10/371,190 (Schaffer File History)
1051	Maureen Kohi, Catheter Directed Interventions for Acute Deep Vein Thrombosis, 6 Cardiovasc. Diagn. Ther. 599-611 (2016)
1052	Decision Denying Patent Owner's Request for Discretionary Denial (Paper 9) in <i>Imperative Care, Inc. v. Inari Medical, Inc.</i> , IPR2025-00289 (P.T.A.B. June 12, 2025)
1053	Decision Referring the Petition to the Board (Paper 9) in <i>Imperative Care, Inc. v. Inari Medical, Inc.</i> , IPR2025-00728 (P.T.A.B. July 31, 2025)
1054	Decision Granting Institution of <i>Inter Partes</i> Review for U.S. Patent No. 11,554,005 (Paper 10) in <i>Imperative Care, Inc. v. Inari Medical, Inc.</i> , IPR2025-00289 (P.T.A.B. June 18, 2025)
1055	Order Denying Motion for Preliminary Injunction (Dkt. #136) in <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , 24-cv-03117-EKL (N.D. Cal.) (issued September 29, 2025)
1056	Joint Stipulation to Continue the Stay of Litigation Pending IPR Decisions and Vacate Upcoming Case Management Conference (Dkt. #139) in <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , 24-cv-03117-EKL (N.D. Cal.) (filed January 21, 2026)
1057	Order Granting Joint Stipulation to Continue the Stay of Litigation Pending IPR Decisions and Vacate Upcoming Case Management Conference (Dkt. #140) in <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , 24-cv-03117-EKL (N.D. Cal.) (issued January 21, 2026)

	Petitioner's Exhibits
Exhibit	Description
1058	Final Written Decision Determining All Challenged Claims Unpatentable (Paper 33) in <i>Imperative Care, Inc. v. Inari Medical, Inc.</i> , IPR2025-00156 (P.T.A.B. Apr. 7, 2026)
1059	RESERVED
1060	Decision Granting Institution of Inter Partes Review for U.S. Patent No. 11,974,910 (Paper 15) in <i>Imperative Care, Inc. v. Inari Medical, Inc.</i> , IPR2025-01025 (P.T.A.B. December 11, 2025)
1061	Notice of Decisions on Institution of <i>Inter Partes</i> Review for U.S. Patent No. 12,016,580 (Paper 11) in <i>Imperative Care, Inc. v. Inari Medical, Inc.</i> , IPR2025-01264 (P.T.A.B. December 11, 2025)
1062	U.S. Patent No. 11,432,835 B2 to Shaffer et al. ("Pons")
1063	Deposition Transcript of PO's Expert Brian Brown dated May 13, 2026
1064	Redacted Deposition Transcript of PO's Expert Brian Brown dated August 27, 2024 in <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , 24-cv-03117-EKL (N.D. Cal.)
1065	Deposition Transcript of PO's Expert Dr. Christopher Morris dated May 4, 2026
1066	Deposition Transcript of PO's Expert Dr. Paul Zalesky in IPR2025-00289 dated November 7, 2025
1067	Supplemental Expert Declaration of Troy Thornton
1068	Penumbra, Optimizing Direct Aspiration (May 2013)
1069	Gibbs, et al., Temporary Stent as a bail-out device during percutaneous transluminal coronary angioplasty: preliminary clinical experience, 71 British Heart J., 372-377 (1994)
1070	Edwards Lifesciences, Fogarty® Occlusion Catheters (product brochure) http://web.archive.org/web/20150228193218/http://www.edwards.com/products/vascular/atraumaticocclusion/pages/occlusioncatheter.aspx
1071	U.S. Patent No. 5,030,201

	Petitioner's Exhibits
Exhibit	Description
1072	U.S. Patent No. 8,657,867
1073	U.S. Patent No. 8,721,714
1074	Redacted Deposition Transcript of Troy Thornton dated September 30, 2024 in <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , 24-cv-03117-EKL (N.D. Cal.)
1075	MitraClip Clip Delivery System Instructions for Use (2013)
1076	FDA Summary of Safety and Effectiveness Data (SSED) for the MitraClip Clip Delivery System (2013)
1077	Troy Thornton and Liz McDermott, MitraClip System Design and History of Development, published as Ch. 7 in Percutaneous Mitral Leaflet Repair (1st ed. 2012)
1078	James I. Fann et al., Beating Heart Catheter-Based Edge-to-Edge Mitral Valve Procedure in a Porcine Model Efficacy and Healing Response, 110 Circulation, 988-993 (2004)
1079	U.S. Patent Publication No. 2004/0092962 A1
1080	U.S. Patent Publication No. 2003/0130721 A1
1081	U.S. Patent Publication No. 2010/0145434 A1
1082	U.S. Patent No. 11,638,585

	Patent Owner's Exhibits
Exhibit	Description
2001	U.S. Patent Application Publication No. 2017/0274180 to Garrison et al.
2002	U.S. Patent Application Publication No. 2013/0035628 to Garrison et al.
2003	U.S. Patent Application Publication No. 2018/0042623 to Batiste ("Batiste")
2004	U.S. Patent No. 6,059,745 to Gelbfish ("Gelbfish")
2005	Declaration of Brian Brown
2006	Order Granting in Part Motion to Stay, <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , No. 5:24-cv-03117-EKL (N.D. Cal. Sept. 29, 2025), ECF No. 137
2007	Hearing Transcript, dated February 6, 2026
2008	Supplemental Declaration of Brian Brown
2009	Instructions for Use for Medtronic Bio-Pump™ BP-50, CBBP-50
2010	Instructions for Use for Maquet Getinge Group ROTAFLOW Centrifugal Pump
2011	40 Year Bio Pump Timeline
2012	OPERATING INSTRUCTIONS for the Pump Drive BVP-BP for centrifugal blood pump heads BP-50/BP-80 and SP-45
2013	Deposition Transcript of Troy L. Thornton (February 18, 2026)
2014	Deposition Transcript of Troy L. Thornton (February 19, 2026)
2015	Deposition Transcript of Aquilla S. Turk (February 25, 2026)
2016	Declaration of Dr. Christopher S. Morris
2017	Redacted version of Declaration of Brian Brown, <i>Inari Medical, Inc. v. Imperative Care, Inc.</i> , No. 5:24-cv-03117-EKL (N.D. Cal. July 24, 2024), ECF No. 24-2
2018	Deposition Transcript of Troy L. Thornton (July 1, 2026)
2019	Deposition Transcript of Troy L. Thornton (March 19, 2025)

I. INTRODUCTION

Petitioner has not shown that Claims 1-12, 14-31, and 33-38 (“the Claims”) of the ’333 Patent are unpatentable as explained here and in Patent Owner’s Response (“POR”; Paper 27). The Patent Office agreed—expressly finding the Claims patentable over Garrison, Petitioner’s only reference for all grounds. EX1002, pp.46-47.

Petitioner’s Reply to PO’s Response (“Reply”; Paper 32) confirms that the Petition (Paper 1) failed to establish unpatentability. For grounds 1A/2A, the Petition relied on modifying Laub’s and Aklog’s aspiration-and-reinfusion systems by adding Garrison’s valve and operating those modified systems to generate vacuum while the valve is closed. Petition, pp.38-41. The POR explained why a POSA would not have made those modifications: Laub’s and Aklog’s pumps move blood from inlet to outlet for reinfusion, and operating those pumps against a closed intervening valve would risk damaging the pump and/or blood. POR, pp.38-44; EX2008, ¶¶86-91.

The Reply does not defend the combinations actually presented. Instead, Petitioner shifts to aspiration-only pumps—Brady, Pons, the Penumbra pump, and the Medela pump—that were not part of the asserted grounds. Reply, pp.8-16. That is not a rebuttal; it is a new obviousness theory. And even if considered, those pumps do not cure the Petition’s defects because they aspirate blood/material into a canister

and do not generate outlet flow for reinfusion. Thus, Laub's and Aklog's pumps can reinfuse blood but cannot be operated as Petitioner proposes; Petitioner's reply-only pumps may avoid that closed-valve problem but cannot reinfuse blood. Either way, the combinations fail.

Grounds 3A/4A fail for the same reasons and because Petitioner has not shown that a POSA would have modified Garrison to treat pulmonary embolism ("PE") or deep vein thrombosis ("DVT"). EX2016, ¶¶62-76. Petitioner's contrary argument rests on expert testimony that should receive little or no weight. Reply, pp.23-24. Mr. Thornton lacks experience in the field of the invention, and Dr. Turk is Petitioner's Chief Medical Officer, owns "a lot" of Petitioner's stock, did not review the '333 Patent or asserted references, and has no meaningful PE/DVT treatment experience. POR, pp.16-21. By contrast, PO's experts—Dr. Morris and Mr. Brown—have extensive relevant clinical and device-development experience. EX2016, ¶¶8-18; EX2008, ¶¶7-16.

The Board should disregard Petitioner's Reply because it rests on new theories not presented in the Petition. And even if considered, those theories do not cure the Petition's deficiencies. Accordingly, Petitioner has not carried its burden.

II. A POSA MUST HAVE EXPERIENCE IN THE FIELD OF THE INVENTION

The POR explained that Petitioner's proposed definition of a POSA improperly omits the undisputed field of the invention, "systems, methods, and devices for the intravascular treatment of emboli and/or thrombi within a blood vessel of a human patient." POR, pp.15-19; EX1001, 1:23-26; Reply, pp.27-28.

In reply, Petitioner argues that Mr. Thornton's broader definition reflects "real-world experience" because he would assign the design of "catheters, sheaths, and related components such as hemostasis valves for use in cardiovascular procedures." Reply, p.27. That generalized catheter experience does not define the relevant POSA and does not qualify Mr. Thornton.

Mr. Thornton admits he has no experience designing devices for the "treatment of emboli and/or thrombi within a blood vessel of a human patient." EX2013, 49:24-50:10; POR, pp.17-18. And PO's experts explained why that matters. Mr. Brown testified that a POSA must understand "what the device is trying to treat," including the physiology, risks, and disease state. EX1063, 78:17-23. Dr. Morris confirmed that "experience working actually with clot" is "very paramount" and that "a POSA has to be familiar with clot." EX1065, 206:11-20. Petitioner's expert likewise confirmed in a related IPR that engineers design to the specific needs of the physician, procedure, and environment. EX2019, 24:10-14.

PO's reference to "mechanical thrombectomy industry or comparable industry experience" does not support Petitioner's broader definition. Reply, p.27. Comparable experience must relate to treating or removing clots, not general catheter design. The Board should adopt PO's definition.

III. PETITIONER'S EXPERTS SHOULD BE AFFORDED LITTLE OR NO WEIGHT

The POR explained why Petitioner's expert testimony should be afforded little or no weight. POR, pp.19-21. Contrary to Petitioner's arguments in reply, both of PO's experts explained that "comparable industry experience" requires experience treating or removing clots, not merely preventing clot formation (i.e., formation of thrombus or emboli). Reply, pp.28-30.

When asked about Mr. Thornton's purported comparable experience "minimiz[ing] coagulation around" stents, Dr. Morris testified that working with clots themselves, not just preventing the formation of clots is required for "comparable industry experience." EX1065, 206:11-14. Dr. Morris explained "[b]ecause there's all different types of clot and sizes of clot, consistencies of clot. ... a POSA has to be familiar with clot." EX1065, 206:15-21. Mr. Brown likewise testified that understanding the disease state is fundamental: "[y]ou keep asking me about questions to design the catheter, but designing the catheter is almost secondary to understanding the disease state because if we don't understand the disease state,

you can't design the catheter to treat the disease state.” EX1063, 78:24-79:3; *see also id.* at 80:1-9.

Petitioner's purported expert, Mr. Thornton, has no experience designing devices for treating or removing clots. His catheter design experience relating to clots is limited to preventing or reducing clot formation. *See* Reply, p.28. At deposition Mr. Thornton confirmed that his blood clot related catheter experience does not include treating or removing a clot. *See* EX2018, 46:13-48:24. His remaining experience concerns catheter design generally and is unrelated to removing or treating clots at all. *See* Reply, p.29.

Preventing clot formation is not comparable to designing systems and methods for treating or removing clots. By Petitioner's logic, Mr. Thorntons's selecting MitraClip materials to reduce allergy risk would make Mr. Thornton an expert in treating allergic reactions. It does not. EX2018, 27:17-28:2. Mr. Thornton's testimony about what a POSA would or would not do when designing systems and methods for treating or removing clots should therefore receive little or no weight and should not be credited over the testimony of Patent Owner's experts with extensive experience in the technical field of the invention.

Dr. Turk's testimony should likewise be afforded little or no weight. As the POR explained, Dr. Turk is biased: he is Petitioner's Chief Medical Officer, receives significant compensation from Petitioner, and owns “a lot” of equity in Petitioner.

POR, p.20. Petitioner also does not dispute that Dr. Turk did not review the challenged patent or prior art and has no experience treating PE/DVT—the subject matter of the claims at issue here. His testimony should not be credited over PO's experts' testimony.

IV. GROUNDS 1A/2A: INDEPENDENT CLAIMS 1 AND 20 ARE NOT RENDERED OBVIOUS BY AKLOG OR LAUB AND GARRISON

A. Petitioner's Reply Should Not Be Considered Because It Creates New Combinations Based on New Art and Arguments Not Asserted in the Petition, and Confirms the Defects Identified in the POR

Petitioner's Reply does not cure a fundamental defect identified in the POR. It confirms that defect and replaces the Petition. The Petition proposed modifying the systems of Laub and Aklog by adding Garrison's valve 3325 and then generating vacuum while that valve is closed. Petition, pp.38-41. PO explained that a POSA would not have been motivated to make that modification because closing an intervening valve while operating the pumps disclosed in Laub and Aklog would damage those pumps and/or blood. POR, pp.38-44; EX2008, ¶¶86-91.

Petitioner's Reply shifts theories. Rather than rebut that the pumps actually disclosed in Laub and Aklog would be incompatible with the closure of an intervening valve, Petitioner characterizes the exemplary pumps identified by PO as "bypass pumps" that a POSA supposedly would not have used, and then asserts that a POSA instead would have selected different "known aspiration pumps," including Brady, Pons, the Penumbra pump, and the Medela pump (collectively "the reply-

only pumps”). Reply, pp.8-16. That argument is improper and substantively wrong. Petitioner did not rely on Brady or Medela for grounds 1A and 2A as applied to independent Claims 1 and 20, and relied instead on Laub’s pump 400 and Aklog’s pump 15. Petition, pp.30-34. Pons and the Penumbra pump were not presented in the Petition at all.

The Reply introduces new pump substitutions, new art, new annotated figures, and a supplemental declaration attempting to show for the first time how those pumps could be incorporated into Laub and Aklog. Reply, pp.11-16; EX1067. That is improper. *See Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (holding a reply brief and declaration exceeded the proper scope for reply because they cited “a number of non-patent literature references which were not relied upon to support unpatentability in the Petition”); *see also Axonics, Inc. v. Medtronic, Inc.*, 75 F.4th 1374, 1383 (Fed. Cir. 2023) (“We have held that a petitioner may not in reply rely on new prior art to teach a claim limitation.”). At minimum, the Board should disregard Petitioner’s new pump-based theories and evidence. But the Board should not consider the entirety of the Reply because once it identifies new issues, it need not parse the Reply to determine which portions are responsive and which are improper. *Intelligent Bio-Sys.*, 821 F.3d at 1369.

Even if Petitioner's new combinations are considered, those new combinations also fail on the merits. They require more than substituting Garrison's valve into Laub or Aklog. They further require replacing Laub's pump 400 and Aklog's pump 15 with one of Petitioner's newly cited reply-only pumps. Reply, p.10. A POSA would not have made that substitution because Petitioner's newly cited pumps do not operate like the pumps in Laub and Aklog. They do not move blood through the pump from an inlet to an outlet for return to the patient, and they do not generate positive pressure for reinfusion. Petitioner effectively concedes this point, stating that the prior-art aspiration pumps "were designed to *prevent* blood flow through the pump." Reply, p.16.

Laub discloses a materially different system. As shown in Figure 1A below, aspiration catheter 200 communicates with inlet port 410 of pump 400, and return catheter 500 communicates with discharge port 420. EX1012, ¶[0024]; POR, pp.26-29; EX2008, ¶¶61-63. During use, blood is aspirated into pump 400 and expelled through return catheter 500 back to the patient. *Id.* Laub's pump therefore both generates suction at the inlet and positive pressure at the discharge port for reinfusion.

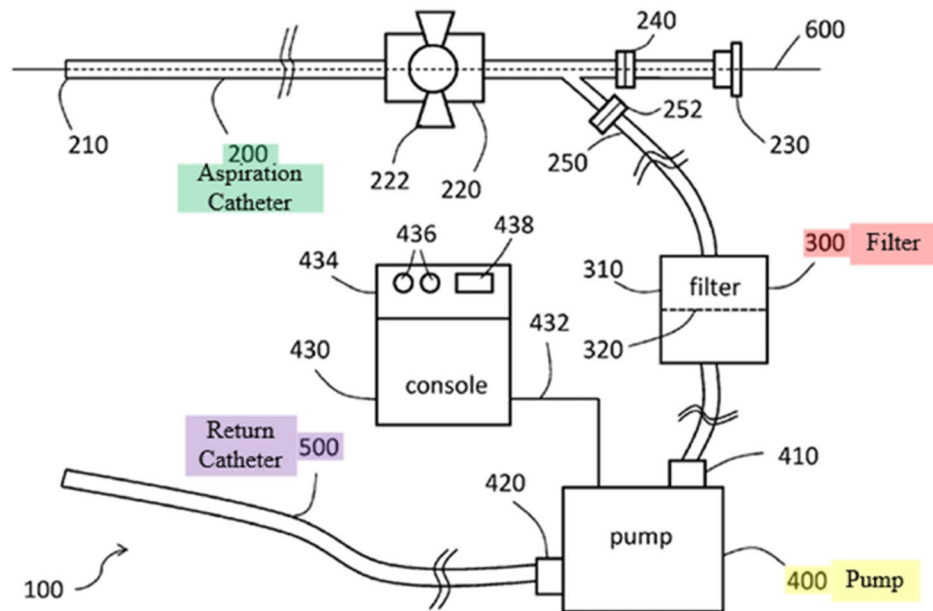


FIG. 1A

Aklog is materially the same. As shown in Figure 1 below, pump 15 sits between aspiration catheter 10 and return catheter 16, with intake port 151 receiving filtered blood and exit port 152 providing “reinfusion of fluid removed from the site of interest back into the body.” EX1005, 11:62-12:6; POR, pp.29-32; EX2008, ¶¶64-66. Like Laub, Aklog draws blood in through an intake port and expels that blood through an exit port for reinfusion.

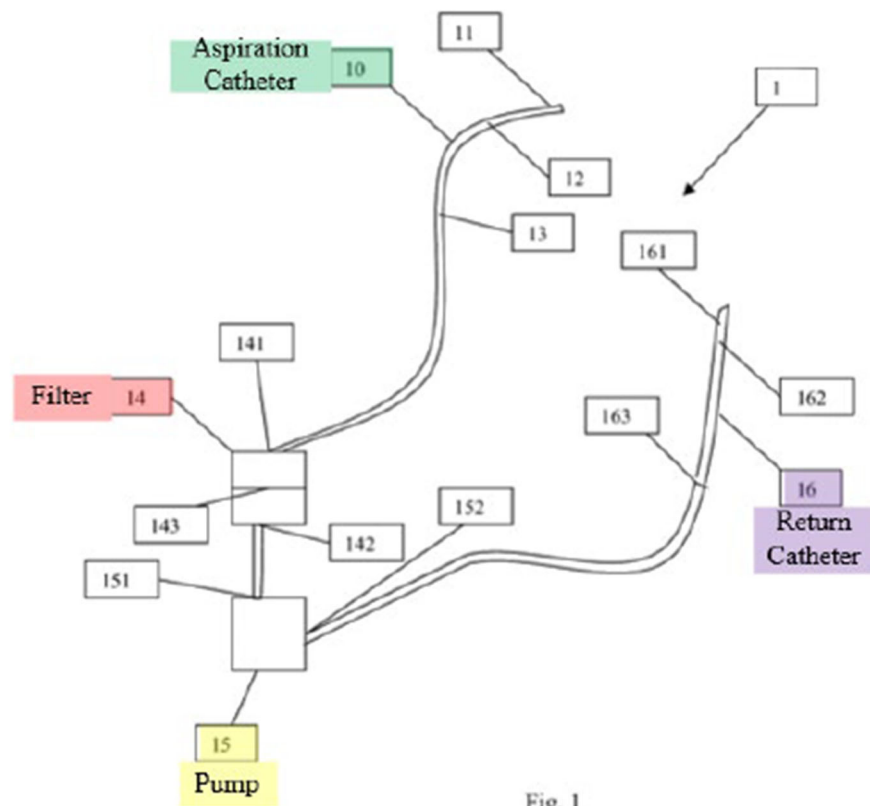


Fig. 1

The “bypass pumps” discussed in the POR are relevant for precisely that reason. They operate like Laub’s and Aklog’s pumps in the respect that matters: they move blood through the pump by drawing fluid through an inlet and expelling it through an outlet. POR, pp.38-43; EX2008, ¶¶86-91; EX2018, 71:24-73:6. Petitioner’s criticism of those pumps therefore underscores PO’s point. Petitioner concedes that a POSA would not operate such pumps without flow, including with an intervening valve closed. Reply, pp.9-10. That concession applies directly to the pumps disclosed in Laub and Aklog because those pumps likewise depend on through-flow from aspiration to reinfusion.

By contrast, Petitioner's reply-only pumps do not perform Laub's and Aklog's reinfusion function. EX2018, 63:9-12. The reply-only pumps use a vacuum source to draw blood/material into a canister or chamber where the aspirated material remains. *See* EX1020, 21:16-32; EX1062, Fig.2. They do not disclose a pump that generates positive pressure to move aspirated blood out of the canister through a discharge or exit port and back to the patient. Petitioner's expert agrees. EX2018, 61:13-18 (“Q: Does vacuum pump 714 ... can that vacuum pump be used to move the blood out of the vacuum chamber 707? A: I don't think that is the intent.”), 62:15-19. Petitioner even admits that “the prior-art aspiration pumps were designed to *prevent* blood flow through the pump.” Reply, p.16. And, Petitioner's own evidence confirms that the reply-only pumps are not used for reinfusion. For example, a 510(k) statement identifying the Penumbra pump as a predicate device states that “blood or body fluids collected in the canister are not reintroduced to the patient.” EX1038, p.5.

Accordingly, there can be no dispute that the reply-only pumps are aspiration-only arrangements that collect aspirated material in a sealed container and are not configured to aspirate blood through an inlet and reinfuse it through an outlet. Petitioner's new pump theory would therefore fundamentally alter Laub and Aklog. Substituting an aspiration-only canister system for Laub's pump 400 or Aklog's pump 15 would eliminate outlet flow to the return catheter. Even if Petitioner's

reply-only pumps could tolerate operation against a closed valve, a POSA would not make that substitution because it would defeat those systems' aspiration-and-reinfusion function.

Laub and Aklog each broadly state that different pump types may be used. EX1012, ¶[0041]; EX1005, 12:9-14. But a POSA would read those disclosures in context. The selected pump must be capable of performing the functions the disclosed systems require—aspiration and reinfusion. The through-flow pumps discussed in the POR (Petitioner's "bypass pumps") are capable of those functions, but they are incompatible with Petitioner's proposed closed-valve vacuum generation. Petitioner's reply-only pumps may avoid the through-pump blood flow that Petitioner identifies as unsuitable for use with a closed valve (Reply, p.16), but only by eliminating reinfusion. Neither option supports Petitioner's obviousness theory.

Petitioner's reliance on PO's expert testimony regarding peristaltic pumps does not change the analysis. Petitioner asserts that PO's expert conceded there "may have been peristaltic pumps that could generate a vacuum" while a valve is closed. Reply, p.17; EX1063, 111:16-25. That testimony addressed a general hypothetical. It did not address whether operating the pump in that manner would damage the pump or blood, nor did it establish that a POSA would use such a pump in Laub or Aklog. And the reply-only pumps do not solve the problem because those pumps do

not move blood through the pump for reinfusion. A POSA would not have substituted the reply-only pumps into Laub or Aklog because doing so would eliminate the very blood-return functionality those references disclose.

Nor has PO ignored that a POSA would know how to select an appropriate pump. Reply, pp.17-18. The point is that an “appropriate” pump for Laub and Aklog would need to aspirate blood and allow for reinfusion. POR, pp.38-52. A POSA would also know not to add an intervening valve that could damage such a pump or the blood. And a POSA would not select Petitioner’s reply-only pumps because Petitioner identifies no evidence that those pumps can generate positive pressure for reinfusion at all. That the ’333 Patent does not “disclose or claim” specific pumps (Reply, pp.17-18) is neither correct nor relevant to the patentability of the challenged Claims. For example, the specification is more broad than the challenged Claims, disclosing, e.g., embodiments for “treating cerebral embolism” (EX1001, 4:57) that would require orders of magnitude smaller catheters than the Claims here requiring treatment of PE/DVT.

B. Petitioner’s New Reply-Only Pumps and Combinations Would Harm Blood Return

The POR also explained that Petitioner’s proposed modifications to Laub and Aklog would endanger the patient by compromising blood return. POR, pp.44-52; EX2008, ¶¶92-104. Petitioner’s Reply does not rebut that showing. Instead,

Petitioner first argues that blood return is optional in Laub and Aklog, and then points to the reply-only pumps that cannot return blood at all. Reply, pp.18-19. Those arguments misread Laub and Aklog and confirm that Petitioner's new combinations depart from the systems those references actually disclose.

Petitioner's assertion that Laub does not require blood return rests on improperly narrow reading of paragraph [0045]. Petitioner argues that although Laub states that continuous blood return can permit greater flow rates, Laub does not say greater flow rates or blood return are necessary. Petitioner's Reply, pp.19, 22. But that does not negate Laub's disclosure of a system (in every embodiment) with an aspiration catheter upstream of the pump and a return catheter downstream of the pump, configured to return blood to the patient. EX1012, ¶[0024]; POR, pp.26-29; EX2008, ¶¶61-63.

Petitioner's reading of Aklog is similarly flawed. Petitioner points to Aklog's statement that the disclosed systems and methods "may simultaneously reinfuse aspirated" fluid and that large catheters may aspirate an unacceptable volume of blood. Reply, p.19; EX1005, 5:19-22, 7:23-25. But each of Aklog's disclosed embodiments likewise includes an aspiration catheter, a pump, and a return catheter arranged to return blood to the patient. POR, pp.29-32; EX2008, ¶¶64-66. Both Laub and Aklog emphasize the importance of blood return to patient safety when treating large clots, including PE and DVT. POR, p.44; EX1012, ¶[0045]; EX1005, 5:19-23.

In any event, Petitioner's optionality argument does not salvage its new pump theory. Whether Laub and Aklog require *continuous/simultaneous* blood return in every use case is not the dispositive point. The relevant point is that the pumps disclosed in Laub and Aklog are capable of returning blood, and the systems are configured to do so. Petitioner's reply-only pumps are not. Those pumps simply aspirate material into a container, and do not generate positive pressure to return blood to the patient. Substituting any of them for Laub's pump 400 or Aklog's pump 15 would render the modified systems unable to return blood continuously, discontinuously, or at all.

That defect is fatal. Petitioner's Reply attempts to identify pumps that allegedly could generate vacuum with a closed valve without damaging the pump or blood. Reply, p.19. But Petitioner's new combinations address one alleged problem only by creating a larger one: the reply-only pumps cannot perform blood return. A POSA would not have viewed an aspiration-only canister system as a suitable replacement for the aspiration-and-reinfusion pumps disclosed in Laub and Aklog.

Petitioner also mischaracterizes the Institution Decision. PO addressed the Board's preliminary observations that blood return in the disclosed systems can run continuously or intermittently. POR, pp.50-52; Reply, p.18. Petitioner's new combinations do not merely change whether blood return is continuous/intermittent—they eliminate blood return altogether.

Finally, Petitioner's argument about Garrison's disclosure concerning static blood does not affect the obviousness analysis. Reply, pp.19-20. The question is what a POSA would have understood from the prior art at the time of invention—not how Petitioner can use the '333 Patent's disclosure to reconstruct its combinations with hindsight.

C. Garrison Does Not Disclose the Buildup/Storage and Release of Vacuum Pressure in a Clot Canister Having a Filter

Petitioner's reliance on Garrison has the same defect: it mixes isolated components without accounting for how a POSA would understand the system to operate. As the POR explained, Garrison does not disclose an embodiment that builds up and subsequently releases vacuum pressure in a clot canister having a filter, as recited in the Claims. POR, pp.33-38.

Petitioner asserts that PO identified no new evidence undermining the Board's preliminary finding. Reply, p.5. That is incorrect. PO explained that a POSA would understand the valve 3325 in Garrison's Figure 34 to switch connection between different catheters—not to build negative pressure by stopping flow to pump 3430. POR, p.35; EX2008, ¶82. Garrison's Figure 34 uses a positive displacement pump with blood through-flow, and stopping inlet flow to that pump would be understood to risk damaging the pump and blood in the system. *Id.* PO also explained why a

POSA would not import the syringe embodiment from paragraph [0134] into Figure 34: doing so would reduce—not maximize—aspiration. POR, pp.36-37.

Petitioner's Reply confirms the gap. Petitioner notes that paragraph [0134] references components also present in Figure 34. Reply, p.6. But the relevant omission is dispositive. The “one embodiment” in paragraph [0134] involving a locking syringe does not include or reference the filter 3418 on which Petitioner relies for the claimed clot canister having a filter. EX1006, ¶[0134]; POR, pp.36-37, 58-61. That omission makes sense: adding the filter to the locking-syringe embodiment would impede, not “enable the maximum level of aspiration.” EX1006, ¶[0134]; POR, pp.33-38, 53-55.

Petitioner also mischaracterizes PO's expert testimony. Petitioner contends that Mr. Brown testified that the aspiration source of Figure 34 would build vacuum in components distal to the valve when the valve is closed, regardless of whether the source is a pump or syringe. Reply, p.6; EX1063, 163:13-164:4. That testimony responded to a hypothetical. It did not establish that Garrison discloses operating Figure 34 in that manner, nor did it establish that a POSA would do so. Mr. Brown explained that while an electric pump could theoretically build vacuum if the valve 3325 were closed, a POSA would not operate Garrison's Figure 34 system that way because of pump and blood damage. EX2008, ¶¶67-79. Likewise, while a syringe could theoretically build vacuum if used in a modified Figure 34 system, a POSA

would not have made that modification because it would undermine Garrison's stated purpose of enabling maximum aspiration in that embodiment. EX1006, ¶[0134]; EX2008, ¶¶80-85.

The other testimony Petitioner cites suffers from the same problem, and more. Petitioner points to testimony that generating vacuum with a closed fluid control device was known. Reply, p.6. But Mr. Brown expressly testified that he did not “recall whether [those methods] included a pressure canister or an area to store [the] vacuum,” like the “clot canister” claimed here. EX1064, 43:8-15. Petitioner also relies on testimony that a syringe used with Figure 34 and a closed valve would generate a “minimal amount of aspiration pressure.” Reply, p.6; EX1065, 151:11-152:5. That testimony supports PO, not Petitioner. A POSA seeking to “enable the maximum level of aspiration” would not use a configuration that generates only minimal aspiration pressure. EX1006, ¶[0134].

Paragraph [0134] of Garrison does state broadly that the “active source of aspiration may be an aspiration pump, a regular pump, a regular or locking syringe, a hand-held aspirator, hospital suction, or the like.” EX1006, ¶[0134]. But the specific disclosure Petitioner relies on for building and releasing vacuum pressure refers to another “embodiment” where a locking syringe is attached to the flow controller. *Id.* That embodiment does not include an intervening filter. POR, pp.33-38, 58-61. Thus, even if different aspiration sources may be used elsewhere in

Garrison, Petitioner still has not identified a Garrison embodiment that discloses building, storing, and releasing vacuum pressure in a clot canister having a filter as claimed. Figure 35 does not fill that gap. Reply, pp.7-8. That figure does not disclose anything materially different from the Figure 34 theory Petitioner already advanced.

Nor does Mr. Brown's testimony that Garrison discloses embodiments with a syringe and a filter between the syringe and catheter help Petitioner. Reply, p.8; EX1063, 168:14-25. Mr. Brown correctly explained that such an arrangement does not include the claimed method and "would change the performance of the device." *Id.* That is the point. A POSA would not use a syringe to build vacuum pressure in the Figure 34 filter because doing so would conflict with Garrison's stated objective of enabling the maximum level of aspiration. EX1006, ¶[0134]; EX2008, ¶¶80-85.

Garrison therefore does not disclose the claimed buildup, storage, and release of vacuum pressure in a clot canister having a filter, and it does not support Petitioner's further substitution of incompatible reply-only pumps into Laub and Aklog.

D. Petitioner Abandons Its Original "Maximum Level of Aspiration" Rationale and Fails to Show That Its Combinations Would "Improve Aspiration"

The Petition asserted that a POSA would have been motivated to supplement Laub or Aklog with Garrison because Garrison's valve manipulation allegedly "enable[s] the maximum level of aspiration in a rapid fashion with one user."

Petition, p.38; EX1006, ¶[0134]. The POR explained why that rationale does not apply to Laub or Aklog. In systems using pumps like Laub's pump 400 and Aklog's pump 15, the pump controls the maximum aspiration level; adding a valve does not increase the pump's maximum capacity. POR, pp.53-55.

Petitioner does not meaningfully dispute that point in reply. Instead, Petitioner reframes its motivation theory. Petitioner now argues that the motivation did not include maximizing aspiration, but only improving "temporary aspiration power" so that Laub's and Aklog's systems could aspirate PE more quickly and thereby become safer and more effective. Reply, pp.20-21; Petition, pp.38-39. That revised theory is unsupported and contradicted by the record.

Despite Petitioner's assertions to the contrary, PO has consistently disputed that adding Garrison's valve would make Laub or Aklog safer or more effective. Reply, p.20. The POR explained that Petitioner's proposed modifications would do the opposite. Namely, they would risk damaging the pumps in Laub and Aklog, compromise blood return, and prevent continuous aspiration and reinfusion. POR, pp.38-52, 55-57; EX2008, ¶¶86-104, 111-113. Petitioner's Reply does not rebut those points. Instead, it proposes replacing Laub's and Aklog's pumps with the reply-only pumps that do not return blood at all.

PO's experts did not concede improved aspiration. Reply, p.20. The cited testimony addressed Garrison hypotheticals, not a POSA's motivation to modify

Laub or Aklog, and established only that a closed-valve hypothetical could generate some vacuum in certain components. EX1063, 163:13-164:4; EX1065, 150:9-152:10. They did not concede that a POSA would operate Garrison that way, that a POSA would add Garrison's valve to Laub or Aklog, or that such a modification would improve aspiration or make Laub's or Aklog's systems safer or more effective. Reply, p.20; Petition, pp.38-39.

Petitioner's reliance on Dr. Morris' declaration is likewise misplaced. Reply, p.20. Paragraph 53 of Dr. Morris' declaration concerns the limits imposed by Poiseuille's law on the maximum level of aspiration. EX2016, ¶53. That testimony does not support Petitioner's revised "temporary aspiration power" theory. To the contrary, it bears on the original "maximum level of aspiration" rationale that Petitioner now appears to abandon.

At bottom, Petitioner's Reply illustrates why grounds 1A and 2A fail. The pumps disclosed in Laub and Aklog are capable of aspiration and reinfusion, but a POSA would not operate them against a closed valve as Petitioner proposes. Petitioner's newly cited reply-only pumps may be configured to avoid blood flowing through the pump, but they do not reinfuse blood and therefore are incompatible with Laub and Aklog. Garrison does not disclose the claimed buildup and release of vacuum in a clot canister having a filter. And Petitioner has not shown a valid

motivation to combine that would have made the resulting systems safer, more effective, or consistent with the teachings of the prior art.

V. GROUNDS 3A-4A FAIL FOR THE SAME REASONS AS GROUNDS 1A-2A AND BECAUSE A POSA WOULD NOT HAVE MODIFIED GARRISON TO TREAT PE/DVT

Grounds 3A-4A rely on the same references as grounds 1A-2A: Garrison, Laub, and Aklog. They therefore fail for the same reasons explained above and in the POR. POR, pp.58-63.

Grounds 3A and 4A also fail for an independent reason: Petitioner has not shown that a POSA would have modified Garrison to treat PE or DVT. Petitioner's Reply simply asserts that the "evidence reflects that POSITAs routinely optimized catheters for use in other parts of the vasculature, and that selecting appropriately sized catheters was standard practice" and that "PO does not dispute that evidence." Reply, pp.23-24. That is incorrect.

First, Petitioner's "evidence" rests principally on expert opinions that PO specifically challenged. PO explained that Petitioner's expert, Mr. Thornton, does not qualify as a POSA—let alone an expert—because he lacks any experience in the field of the '333 Patent. POR, pp.15-19. PO also explained why Petitioner's other expert, Dr. Turk, should be afforded limited weight and should not be credited over PO's experts. POR, pp.19-21.

Second, PO presented affirmative (and new) evidence showing that a POSA would not have modified Garrison to treat PE/DVT. POR, pp.61-64; EX2016, ¶¶62-76; EX2008, ¶¶133-146. Dr. Morris explained that a POSA would have expected Petitioner's proposed modification to introduce significant patient risks and complications without sufficiently improving the ability to remove clots associated with PE or DVT. EX2016, ¶¶62-76. Petitioner does not address that evidence. Instead, Petitioner repeats the same expert-based assertions that PO already showed should not be credited over PO's evidence.

Because Petitioner fails to rebut PO's evidence that a POSA would not have modified Garrison to treat PE or DVT, grounds 3A and 4A fail for that additional reason. Indeed, the Patent Office expressly recognized that a POSA would not modify Garrison to treat PE/DVT as Petitioner proposes, even in view of other references identified by the Office that did teach aspiration of those types of clots. EX1002, pp.46-47 ("modified Garrison does not teach an aspiration catheter configured to aspirate pulmonary embolism or deep vein thrombosis"). That is, in allowing the Claims challenged here, the Examiner considered the disclosure of Garrison and found that a POSA would not have modified Garrison to treat PE/DVT, even in view of other art (e.g., Batiste) which the Examiner described as teaching an aspiration catheter used to treat DVT and PE (just like Petitioner relies on Laub and Aklog for here). EX2008, ¶146.

VI. UNEXPECTED RESULTS

PO's expert, Dr. Morris, has testified that for the claimed method, "the ability to remove a clot when treating PE or DVT ... greatly exceeded any expectation of POSA at the time and thus was surprising and unexpected." EX 2016, ¶85. Dr. Morris based that opinion on more than 35 years treating PE/DVT, including use of the Inari FlowTrievers system and methodology that includes features that meet the limitations of the Claims, in addition to many other systems. EX2016, ¶¶9, 16, 77-79. Dr. Morris testified that he has actually observed the unexpected results:

And actually there's a literal vibration that occurs. When the clot is sucked into the catheter, it has a chugging effect. And so everyone's waiting, when this process occurs, for the chug. The catheter chugs, chugs and chugs as the clot is aspirated out. It's -- I never thought that would ever happen. I was actually pretty pessimistic that it was going to work, with all the other devices that we had used, and remarkably surprised at how well it worked. That was the unexpected result.

EX1065, 192:12-22; *see also id.* at 189:15-21. That testimony stands unchallenged and un rebutted.

Petitioner provides no basis for its assertion that the claims must also recite negative limitations (an "unrestricted catheter" or not slowly opening a valve). Reply, p.25. To the contrary, the Claims expressly recite "generating vacuum pressure" then "moving the valve from the first position to a second position thereby

applying *the vacuum pressure* to the lumen of the aspiration catheter.” EX1001, cls.1, 18 (emphasis added). The recited “vacuum pressure” must be applied, not some portion of that vacuum pressure by the inclusion of a restriction or by only partially/slowly opening the valve. As Dr. Morris explained, a POSA would understand what is required to meet the “moving the valve” limitations of the Claims, and a POSA would understand what would prevent the claimed “applying the vacuum pressure.” EX1065, 191:2-8 (“Q. And when you say abrupt opening of the on/off switch, what do you mean by abrupt? A. Turning it quickly to the open position, which generates the vacuum at the end of the catheter.”); 193:2-194:1. *See also* EX1001, 4:37-39, 7:8-12. In short, neither of Petitioner’s proposed negative limitations demonstrate that the unexpected result is due to unclaimed features.

Dr. Morris has also explained how and why that result is unexpected over the closest prior art. He explained that the purported “maximum level of aspiration” is limited in Garrison as expressly explained in Garrison itself. EX2016, ¶¶49-56 (that disclosure “is limited by the size and length of the catheters for use in the cerebral vasculature”). As such:

[A] POSA would not have expected a quick burst of pre-charged vacuum as provided by the current claims could so effectively remove the clot material, particularly in view of the difficulty in mechanically removing (PE and DVT) clot material using other methods and systems, including the AngioVac system.

EX2016, ¶84; *see also id.* at 193:2-194:1 (explaining why Garrison does not disclose the “dramatic generation of vacuum at the tip or the terminus of the catheter” like the Claims, and “[f]or good reasons, because if it did, it would injure to the cerebral artery” treated in Garrison.). That testimony is also unrebutted.

Accordingly, PO has established unrebutted evidence of unexpected results tied to the claimed method. Petitioner offers no contrary expert testimony, no basis to require additional negative limitations, and no rebuttal to Dr. Morris's explanation that Garrison would not have led a POSA to expect the dramatic vacuum effect and clot removal achieved by the Claims.

VII. CONCLUSION

For the reasons set forth herein and in the POR, Petitioner has failed to demonstrate that any of the Claims are unpatentable.

Respectfully submitted,

Dated: July 9, 2026

By: / Joseph Hamilton /
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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), I, Joseph Hamilton, certify that **PATENT OWNER'S SUR-REPLY** contains 5,427 words, excluding those portions identified in 37 C.F.R. § 42.24(a), as measured by the word-processing system used to prepare this paper.

Dated: July 9, 2026

By: / Joseph Hamilton /
Joseph Hamilton
Reg. No. 51,770

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I certify that on July 9, 2026, a copy of
PATENT OWNER'S SUR-REPLY and EXHIBITS 2018-2019 were served
upon the below-listed counsel by electronic mail:

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