

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

EDWARDS LIFESCIENCES CARDIAQ, LLC,	*
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Plaintiff,	*
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	*
v.	*
	Civil Action No. 1:16-cv-12246-ADB
	*
KENNETH PERRY and ECHOBIO, LLC,	*
	*
	*
Defendants.	*
	*

MEMORANDUM AND ORDER GRANTING MOTION FOR SUMMARY JUDGMENT

BURROUGHS, D.J.

Plaintiff Edwards Lifesciences CardiAQ, LLC (“CardiAQ”), the owner by assignment of several United States patents related to the development of a transcatheter mitral valve implant (the “Patents-at-Issue”),¹ brings claims for a declaration that Dr. Kenneth Perry (“Perry”) is not a co-inventor of those patents, and that he and his company, EchoBio, LLC, (together “Defendants”) do not own the Patents-at-Issue. See [ECF No. 1]. Perry brings counterclaims for a declaration that he is a co-inventor and co-owner of the Patents-at-Issue pursuant to 35 U.S.C. §§ 256 and 261. See [ECF No. 14 at 6–71]. Before the Court is CardiAQ’s motion for summary judgment pursuant to Federal Rule of Civil Procedure 56. [ECF No. 48].

Perry claims to have conceived of eight “Inventions-at-Issue,” which are features claimed in one or more of the Patents-at-Issue. See [ECF No. 48-1 (“CardiAQ Facts”) ¶ 1]. In support of this assertion, Perry offers his own testimony and the following notable exhibits: (1) a May 11,

¹ At issue are United States Patents Nos. 8,337,541; 8,403,983; 8,414,644; 8,795,356; 8,894,702; 8,911,455; 9,333,073; 9,333,074; 9,339,377; 9,339,378; 9,339,379; 9,339,380; 9,456,896, and certain new patents that may issue pursuant to CardiAQ’s pending applications.

2006 sketch that is unclear, is not specific to a mitral valve, was drawn before Perry was engaged by CardiAQ, and was not shown to CardiAQ during the relevant time period, see Figure 1, but which Perry claims displays two of the Inventions-at-Issue; (2) an undated, unsigned sketch that Perry claims he drew during a meeting with CardiAQ co-founders Dr. Arshad Quadri (“Quadri”) and J. Brent Ratz (“Ratz”) on October 24, 2007 that Perry says displays six of the Inventions-at-Issue (the “TCT Sketch”), see Figure 2; and (3) an August 8, 2008 Provisional Patent Application, Serial No. 61/087,473 (the “2008 Provisional Application”) that is focused on stent manufacturing methods, is not specific to heart valves, and was not shared with CardiAQ during the relevant time period, see [ECF No. 53-23 at 8–19]. These exhibits are supported by attestations about what they depict and circumstantial evidence related to Perry’s, Quadri’s, and Ratz’ respective experiences, interests, and technical abilities.

CardiAQ argues that Perry cannot corroborate his purported conception of any of the Inventions-at-Issue, and cannot prove his inventorship by clear and convincing evidence. [ECF No. 49 at 25]. Perry has focused his opposition to the motion for summary judgment on the TCT Sketch, which is the only purported contemporaneous record that may suggest that Perry, Quadri, and Ratz discussed the Inventions-at-Issue. See [ECF No. 69]. Perry supports his assertion that the TCT Sketch was drawn on October 24, 2007 with an ink formulation analysis performed by a forensic chemist, and offers affidavits from his co-worker Dr. Paul Labossiere (“Labossiere”) and his long-time friend Dr. Xiao-Yan Gong (“Gong”) to support his assertion that the TCT Sketch displays six of the Inventions-at-Issue. See [ECF No. 56-1 (“Gong Decl.”); ECF No. 56-2 (“Labossiere Decl.”); ECF No. 56-3 (“Lyter Decl.”)]. The Court finds that, even viewing the evidence in the light most favorable to Perry and taking account of the circumstantial evidence, Perry cannot prove that he is an inventor of the Patents-at-Issue by clear and convincing

evidence. What the TCT Sketch depicts, and the communication of whatever it shows to Quadri and Ratz, is unclear. Conversely, CardiAQ has proffered numerous sketches that document Quadri and Ratz' conception and development of the Inventions-at-Issue. For those reasons, as further explained below, CardiAQ's motion for summary judgment is GRANTED.

I. FACTS²

The following factual summary draws all reasonable inferences in favor of Perry, as the non-movant. This summary notes where Perry has made claims about his conception of relevant inventions, because under the applicable legal standard, Perry must corroborate his own assertions. See infra Section III.

In 2006, Quadri and Ratz began collaborating on cardiac medical devices. [ECF No. 50 (“Ratz Decl.”) ¶ 3]. Their initial focus was on aortic valve replacements. Id. ¶¶ 11–12. Quadri and Ratz ultimately used their aortic valve ideas in the design of mitral valve replacement technologies. Id. ¶¶ 43–53. Quadri and Ratz believed that Quadri’s “universal connector,” a patented invention with a stent-like structure that foreshortened by using diamonds or ovals that decreased in axial length when the stent expanded radially, could serve as the foundational technology for a replacement heart valve. Id. ¶ 11. They sought to design, develop, and

² This summary is drawn primarily from CardiAQ's Statement of Undisputed Material Facts [ECF No. 48-1 (“CardiAQ Facts”)], Defendants' Statements of Disputed Material Facts [ECF No. 57, as amended by ECF No. 66 (“Perry Response”)], and Defendants' Statement of Fact [ECF No. 56 at 10–26, as amended by ECF No. 69 at 11–28 (“Perry Facts”)], and from the associated affidavits and exhibits filed in support of, or in opposition to, the summary judgment motion. The Court credits Perry for all facts that are sufficiently supported by record citations in the Perry Facts and the Perry Response. To the extent that Perry has not contradicted CardiAQ Facts with succinct explanations and record citations, however, the CardiAQ Facts are deemed admitted in accordance with Local Rule 56.1. See L.R. D. Mass. 56.1 (requiring a party opposing a summary judgment motion to submit “a concise statement of the material facts of record as to which it is contended that there exists a genuine issue to be tried, with page references to affidavits, depositions and other documentation”).

commercialize an effective valve replacement system that could restore long-term heart valve function without the need for open-chest surgery. Id. ¶ 12.

By July 2007, Quadri and Ratz had conceived of a rapid fixation aortic replacement valve frame, CardiAQ Facts ¶ 116; Ratz Decl. ¶ 12, but had not achieved a final design that could be implanted in humans and lacked the materials and manufacturing expertise necessary to improve and capitalize upon their concept. Perry Facts § II.B.

Quadri and Ratz began looking for a third-party vendor who was experienced with nitinol³ and could help evaluate and optimize their valve frame design. Ratz Decl. ¶ 14. They wanted a vendor who could assist with the shape-setting process for the valve frame and who had the materials experience to help make the design more robust from a fatigue and fracture standpoint based on finite element analysis (“FEA”). Id. ¶ 14. In July 2007, Ratz asked his colleague, Neil Morgan, whether he had been able to “identify any contacts on the NiTi stent design side.” Perry Response ¶ 1. Morgan suggested Perry at EchoBio, who he described as “excellent with design and FEA and designing the shape set routine etc.,” and “probably the leading expert in this area.” Id.

On August 8, 2007, Quadri wrote to Perry, “We would like to find a partner that can offer a wide range of capabilities in the areas of design, analysis, and testing of cardiovascular implants so we are very much looking forward to receiving a detailed proposal from you.” [ECF No. 50-32 at 1]. Quadri shared several “design improvements” that CardiAQ was working on “for the next round of prototyping,” sent Perry a software file showing the prototype design, and noted that “depending on your proposal we are open to other suggestions.” See [id. at 1–2]; see

³ Nitinol is a shape-memory metal made of nickel and titanium that can be deformed and then spring-back to its original shape. This makes it well-suited for medical devices, but also difficult to work with. [ECF No. 69 at 9 n.5].

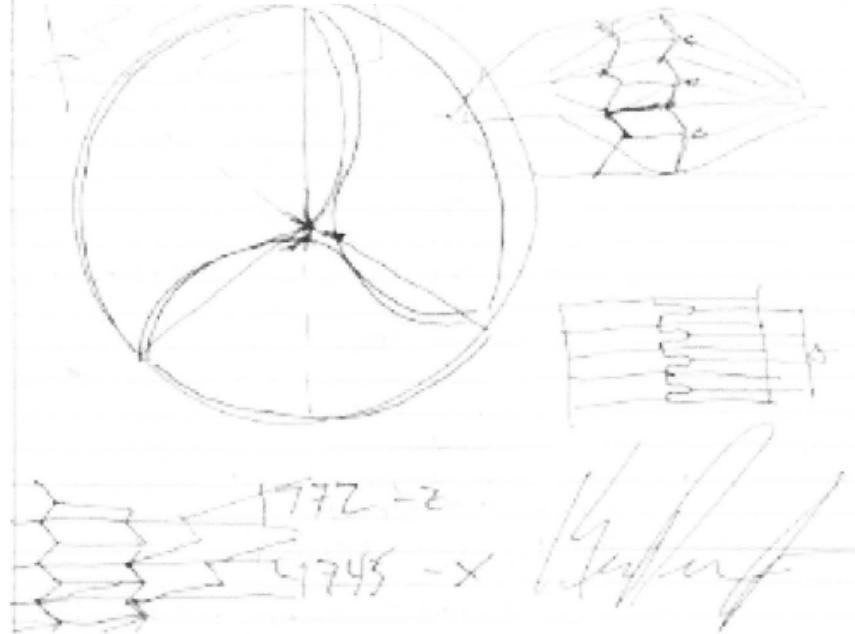
also Ratz Decl. ¶ 12. In August and September 2017, Perry agreed to perform various services for CardiAQ on a fixed cost basis, including optimizing shape-setting and the dimensions of CardiAQ's frame design, as well as constructing prototypes. Ratz Decl. ¶¶ 14–15; [ECF No. 51 ¶ 11 (“Quadri Decl.”)]. Dr. Perry encouraged certain modifications to Quadri and Ratz' design that were ultimately incorporated in the valve frames, but which are not among the Inventions-at-Issue. See Perry Response ¶ 1. These contributions included the shape of the struts in the foreshortening region of the stent, which Perry named “bignroundy,” and the placement of certain suture holes. Id.

Ratz learned that Perry planned to attend the Transcatheter Cardiovascular Therapeutics (“TCT”) Conference in October 2007 and arranged to meet with Perry at that conference. Ratz Decl. ¶ 16. On October 24, 2007, Ratz, Quadri, and Perry met as planned and discussed product requirements for the implant itself and ideas for CardiAQ's planned stretch delivery system. Quadri Decl. ¶ 12; [ECF No. 58 (“Perry Decl.”) ¶ 21]. According to Perry, prior to the October 2007 meeting, he had recalled two inventions that he had conceived in 2006 and wanted to share with CardiAQ: (1) reversing anchors, and (2) elongated control members that would allow a delivery catheter to precisely control the placement of a replacement valve. Perry Facts § II.C; see also Labossiere Decl. ¶¶ 6–10. Perry asserts that these two inventions are documented in a May 11, 2006 sketch, shown in *Figure 1*, which he did not show to Quadri or Ratz.⁴ Perry Facts § II.C; CardiAQ Facts ¶ 17. During the October 24, 2007 meeting, Perry claims to have conceived of five additional improvements to Quadri and Ratz' design, including: (3) “V-shaped apical anchors,” (4) “alternating anchors/circumferential offset,” (5) “barbs on V-shaped apical

⁴ Although the Court construes all facts in the light most favorable to Perry, what the May 11, 2006 sketch shows is not clear, particularly when compared to Ratz' detailed notes and sketches, which unambiguously show the Inventions-at-Issue.

anchors,” (6) transition shoulder “radial flare,” and (7) transition shoulder “changed diameter of frame.” Perry Facts § II.C; Perry Decl. ¶¶ 31–34. Perry also claims that his contributions ultimately (8) enabled foreshortening. Perry Facts § II.D.

Figure 1: Perry's May 11, 2006 Sketch



Perry says that he drew the TCT Sketch, shown below as *Figure 2*, at the October 24, 2007 meeting. Perry Decl. ¶ 26. The TCT Sketch is unsigned and undated, no third party witnessed Perry drawing the sketch, Perry never gave Quadri or Ratz a copy of the sketch, and Quadri and Ratz deny seeing the sketch prior to this lawsuit. CardiAQ Facts ¶¶ 6–9; Perry Response ¶¶ 6–9. Nonetheless, Perry attests that the sketch was drawn and shown to Quadri and Ratz at the meeting and there is some corroborating evidence that the TCT Sketch was drawn at least roughly contemporaneously with the meeting, including an affidavit from Perry's co-worker, Dr. Labossiere, attesting that he and Perry discussed the sketch in late October or November 2007. Labossiere Decl. ¶¶ 12–13. Additionally, potential tips for anchoring the replacement valve were drawn in Ratz' notebook with a pen containing the same ink formulation

that was used for the TCT Sketch, and Perry has offered an expert opinion that he was most likely the person who drew those potential anchor tips. Perry Facts § II.D; Perry Response ¶ 6.⁵ The October 24, 2007 meeting was the only in-person meeting between Perry, Quadri, and Ratz before April 2009. Perry Decl. ¶ 21.

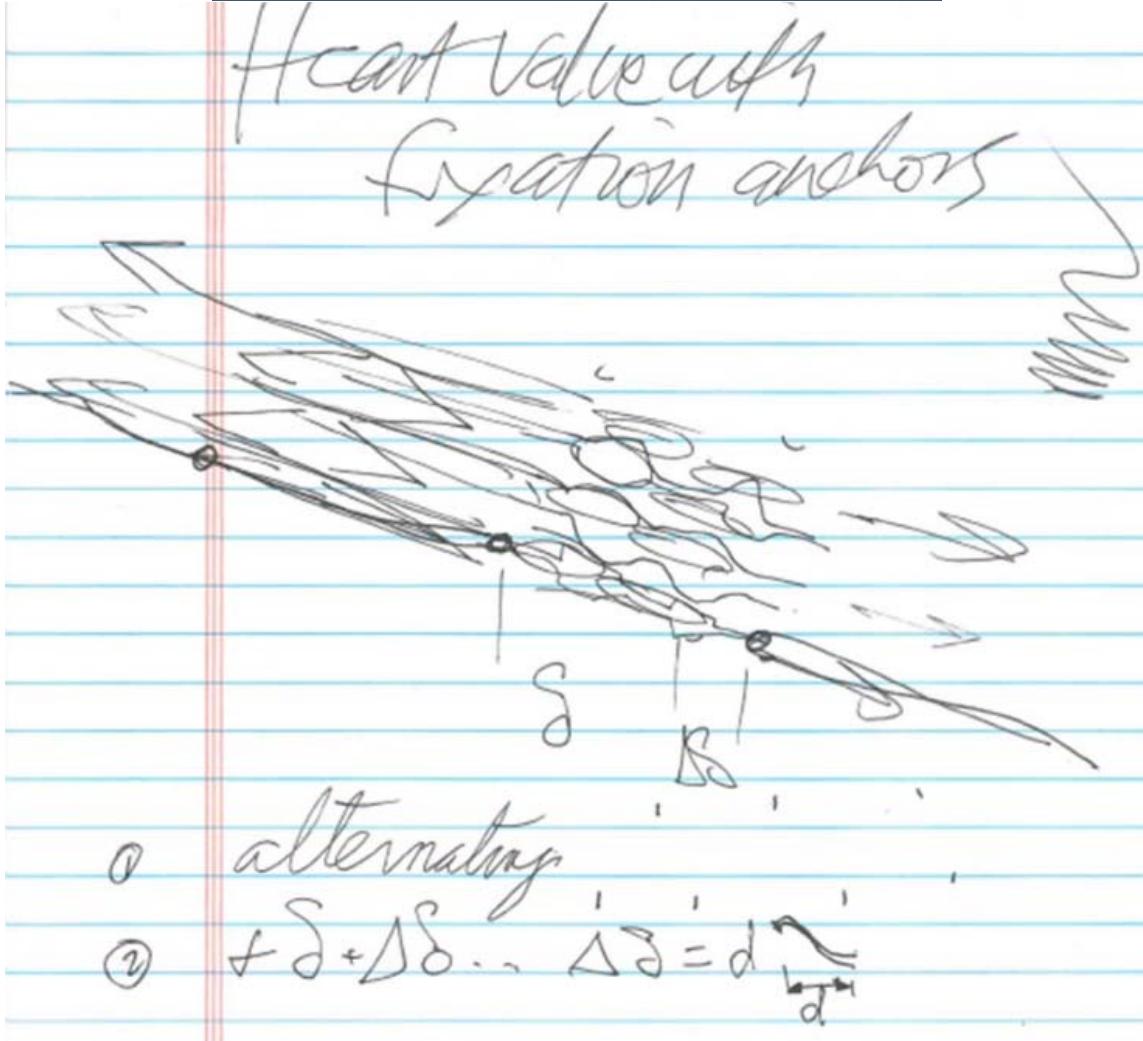
On October 29, 2007, Ratz emailed Perry a list of open items from their October 24 discussion, attached Ratz' notes and several images related to the CardiAQ prototype, and asked Perry to "let [him] know if [he] missed anything else from our discussion." [ECF No. 50-28]. The email does not reference the Inventions-at-Issue, nor does Perry respond that anything from the discussion is missing from the email summary. CardiAQ Facts ¶ 14. Although Quadri and Ratz were focused on a stretch delivery system for their replacement aortic valve at the time of the TCT conference, several days after the conference, Perry told a physician that he was working on the development of a percutaneous aortic valve. [ECF No. 90-3].

There were no notable communications between Perry, Ratz, and Quadri between November 2007 and September 2008. Although Perry completed prototypes and other work that CardiAQ had requested in December 2007, and Ratz and Perry exchanged several phone calls and numerous emails during this period, CardiAQ had limited resources and was focused on fundraising. Ratz Decl. ¶ 41. In connection with its fundraising efforts, CardiAQ listed Perry prominently on materials for investors and listed his responsibilities as "Contributor to brainstorming sessions – Nitinol implant expertise / Oversight of CAD design / Oversight of Finite Element Analysis / Oversight of Nitinol tube processing, laser cutting, and heat setting." [ECF No. 59-6 at 24]. On August 8, 2008, Perry filed the 2008 Provisional Application, which

⁵ Perry acknowledges that these anchor tips could have been used for any anchor, including non-reversing anchors. [Perry Facts § II.H].

was “focused on manufacturing methods,” but which Perry argues shows several of the Inventions-at-Issue. See Perry Facts § II.F n.12; see also [ECF No. 35-1].⁶ Perry did not show the 2008 Provisional Application to Quadri or Ratz. CardiAQ Facts ¶ 18.

Figure 2: Perry's October 24, 2007 TCT Sketch



Quadri and Ratz reengaged Perry on or about September 30, 2008, after they had shifted their focus from designing an aortic valve replacement to a mitral valve replacement. Perry

⁶ As with the May 11, 2006 sketch, the 2008 Provisional Application is not emphasized by Perry's briefing. The Perry Facts mention the 2008 Provisional Application in a footnote. See Perry Facts § II.F n.12. The Perry Response references the 2008 Provisional Application in response to CardiAQ assertions that relate specifically to it. See, e.g., Perry Response ¶¶ 5, 41–43, 60, 63, 65, 75, 84–87.

Decl. ¶ 37. Perry claims that between September 2008 and January 2009 he again reminded Ratz of the Inventions-at-Issue and “worked with CardiAQ virtually every day in early 2009 to develop [Perry’s] ideas.” Id. ¶¶ 38–46. Quadri and Ratz met with Perry in April 2009 for a “brainstorming session” concerning their frame design and asked Perry and Labossiere to continue brainstorming alternative approaches to the valve frame. Id. ¶¶ 21, 47. Although Perry has suggested that Ratz’ notes from January 2009 may reflect his input, see id. ¶ 40, no records clearly corroborate any discussion about the Inventions-at-Issue between Perry and either Quadri or Ratz after the October 24, 2007 TCT meeting.⁷

Perry believed that CardiAQ was seeking patents for its valve frame inventions at least as early as mid-2009, but did not assert that he should be named an inventor on any patents. CardiAQ Facts ¶¶ 120–21. In August 2009, Perry informed CardiAQ that he had been developing a wire form valve frame, as opposed to one cut out of nitinol, and CardiAQ began to rely on other venders, in part because it did not want to share ideas with Perry if he was developing competing technology. Ratz Decl. ¶ 71. Although CardiAQ’s patent applications, which disclosed all of the Inventions-at-Issue and listed Quadri and Ratz as inventors, were published no later than November 2010, Perry did not see the applications at issue until September 2015. CardiAQ Facts ¶¶ 124–27; Perry Response ¶ 127. In 2015, Edwards LifeSciences Corp. acquired CardiAQ for in excess of \$350 million. [ECF No. 49 at 2]. In September 2015, Perry was subpoenaed to give a deposition in an intellectual property lawsuit between CardiAQ and Neovasc. Perry Decl. ¶ 48. Through the process of preparing for and

⁷ Ratz’ notes reference multiple calls with Perry, see, e.g., [ECF Nos. 50-37, 50-47], and there are numerous emails between Perry, Quadri, and Ratz, but Perry doesn’t assert that those emails corroborate his conception of the Inventions-at-Issue. See, e.g., [ECF Nos. 50-38, 50-39, 50-40, 50-41, 50-43, 50-49, 58-4, 58-5, 58-5].

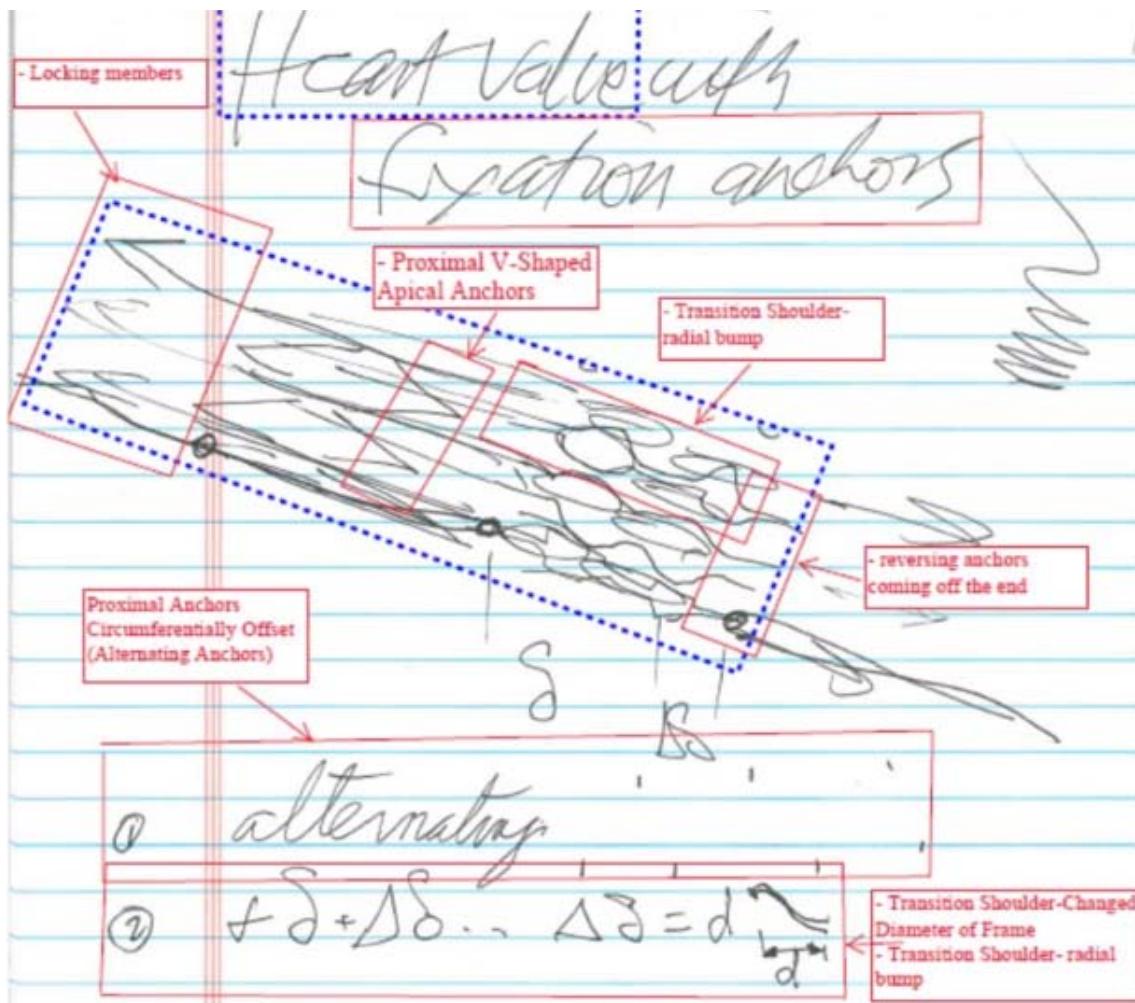
being deposed in connection with that lawsuit, Perry recognized that he might have a claim to be an inventor of the Patents-at-Issue. Id. Perry now claims to be a co-inventor of the following eight Inventions-at-Issue:

1. **Reversing Anchors:** anchors extending from the distal end of the valve frame and shaped to reverse back towards the proximal end of the frame
2. **Locking Members** extending from the proximal end of the valve frame and consisting of a plurality of longitudinally extending struts that temporarily frame to a catheter delivery device during deployment.⁸
3. **V-shaped Proximal Anchors:** proximal anchors formed at V-shaped apices of zigzagging circumferential struts in the nonforeshortening region of the valve frame.
4. **Barbs** extending from V-shaped proximal anchors.
5. **Circumferentially Alternating Anchors:** circumferentially offsetting the proximal anchors from the distal anchors.
6. **Transition Shoulder – Radial Flare:** creating an outward flare in the diameter of the valve frame to form a “transition shoulder” for proximal anchoring.
7. **Transition Shoulder – Changed Diameter of Frame:** creating a transition shoulder for proximal anchoring by reducing the diameter of the frame.
8. **Enabling Foreshortening** in the distal portion of the frame.

CardiAQ Facts ¶ 1; Perry Response ¶¶ 1a-1h.

Perry asserts that, as shown in *Figure 3*, he sketched at least six of the Inventions-at-Issue in the TCT Sketch, and supports his assertion with a declaration from Gong. See Gong Decl. Gong attests that he was able to identify the location in the TCT Sketch of the six inventions that Perry claims are depicted, based on “word description – not pictures – of the features.” Gong Decl. ¶ 10. Perry asserts that his conception of barbs extending from V-shaped proximal anchors, which are not shown in the TCT Sketch, is corroborated by his 2008 Provisional Application, and he claims that several of his contributions enable foreshortening in the stent. See Perry Response ¶¶ 75, 115, 118.

⁸ Perry has quarreled slightly with CardiAQ’s description of this feature. Perry Response ¶ 1b. The Court has attempted to accurately incorporate Perry’s description, but the precise description of this feature is immaterial to this ruling.

Figure 3: Perry's October 24, 2007 TCT Sketch with Notations

II. SUMMARY JUDGMENT STANDARD

Summary judgment is appropriate where the moving party can show that “there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a). “[A]n issue is ‘genuine’ if it ‘may reasonably be resolved in favor of either party.’” *Robinson v. Cook*, 863 F. Supp. 2d 49, 60 (D. Mass. 2012) (quoting *Vineberg v. Bissonnette*, 548 F.3d 50, 56 (1st Cir. 2008)). “A fact is material if its resolution might affect the outcome of the case under the controlling law.” *Cochran v. Quest Software, Inc.*, 328 F.3d 1, 6 (1st Cir. 2003) (citation omitted). Thus, “[a] genuine issue exists as to such a fact if there is evidence from which a reasonable trier could decide the fact either way.” *Id.* (citation omitted).

By invoking summary judgment, “the moving party in effect declares that the evidence is insufficient to support the nonmoving party’s case.” United States v. One Parcel of Real Prop. (Great Harbor Neck, New Shoreham, R.I.), 960 F.2d 200, 204 (1st Cir. 1992) (citing Celotex Corp. v. Catrett, 477 U.S. 317, 325 (1986)). “To succeed in showing that there is no genuine dispute of material fact,” the moving party must “‘affirmatively produce evidence that negates an essential element of the non-moving party’s claim,’ or, using ‘evidentiary materials already on file . . . demonstrate that the non-moving party will be unable to carry its burden of persuasion at trial.’” Ocasio-Hernández v. Fortuño-Burset, 777 F.3d 1, 4–5 (1st Cir. 2015) (quoting Carmona v. Toledo, 215 F.3d 124, 132 (1st Cir. 2000)).

Conversely, “[t]o defeat a properly supported motion for summary judgment, the nonmoving party must establish a trial-worthy issue by presenting enough competent evidence to enable a finding favorable to the nonmoving party.” ATC Realty, LLC v. Town of Kingston, N.H., 303 F.3d 91, 94 (1st Cir. 2002) (internal quotations and citation omitted). That is, the nonmoving party must set forth specific, material facts showing that there is a genuine disagreement as to some material fact. One Parcel of Real Prop., 960 F.2d at 204 (citing Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 256–57 (1986)).

In reviewing the record, the Court “must take the evidence in the light most flattering to the party opposing summary judgment, indulging all reasonable inferences in that party’s favor.” Cochran, 328 F.3d at 6 (citation omitted). The First Circuit has noted that this review “is favorable to the nonmoving party, but it does not give him a free pass to trial.” Hannon v. Beard, 645 F.3d 45, 48 (1st Cir. 2011). “The factual conflicts upon which he relies must be both genuine and material,” Gomez v. Stop & Shop Supermarket Co., 670 F.3d 395, 396–97 (1st Cir. 2012), and the Court may discount “conclusory allegations, improbable inferences, and

unsupported speculation,” Cochran, 328 F.3d at 6 (quoting Medina-Muñoz v. R.J. Reynolds Tobacco Co., 896 F.2d 5, 8 (1st Cir. 1990)).

III. CORRECTION OF INVENTORSHIP STANDARD

“Conception is the touchstone to determining inventorship.” Fina Oil & Chem. Co. v. Ewen, 123 F.3d 1466, 1473 (Fed. Cir. 1997). Accordingly, “each joint inventor must generally contribute to the conception of the invention.” Ethicon, Inc. v. U.S. Surgical Corp., 135 F.3d 1456, 1460 (Fed. Cir. 1998). “Conception is the ‘formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention.’” Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1376 (Fed. Cir. 1986) (quoting 1 Robinson on Patents 532 (1890)). An idea is sufficiently “definite and permanent” when “only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation.” Burroughs Wellcome Co. v. Barr Labs., Inc., 40 F.3d 1223, 1228 (Fed. Cir. 1994).

A co-inventor does not need to make a contribution to every claim of a patent. Ethicon, Inc., 135 F.3d at 1460. Nor does a co-inventor need to contribute to the conception of all the limitations in a single claim. Eli Lilly & Co. v. Aradigm Corp., 376 F.3d 1352, 1361 (Fed. Cir. 2004). A co-inventor’s contribution must, however, be “not insignificant in quality, when that contribution is measured against the dimension of the full invention.” Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc., 776 F.3d 837, 845 (Fed. Cir. 2015) (quoting Fina Oil & Chem. Co., 123 F.3d at 1473), abrogated on other grounds by Halo Elecs., Inc. v. Pulse Elecs., Inc., 136 S. Ct. 1923 (2016); see also Vanderbilt Univ. v. ICOS Corp., 601 F.3d 1297, 1303 (Fed. Cir. 2010) (“[T]he qualitative contribution of each collaborator is the key—each inventor must contribute to the joint arrival at a definite and permanent idea of the invention as it will be

used in practice.” (quoting Burroughs Wellcome Co., 40 F.3d at 1229)). “The determination of whether a person is a joint inventor is fact specific, and no bright-line standard will suffice in every case.” Fina Oil & Chem. Co., 123 F.3d at 1473.⁹

Patents issued by the U.S. Patent and Trademark Office are presumed to name the correct inventors and, as a result, “the burden of showing misjoinder or nonjoinder of inventors is a heavy one and must be proved by clear and convincing evidence.” Bard Peripheral Vascular, Inc., 776 F.3d at 845 (internal quotation marks omitted). “The clear and convincing burden of proof is applied to joint inventorship disputes because of a ‘strong temptation for persons who consulted with the inventor[s] and provided [them] with materials and advice, to reconstruct, so as to further their own position, the extent of their contribution to the conception of the invention.’” Eli Lilly & Co., 376 F.3d at 1366–67 (quoting Hess v. Advanced Cardiovascular Sys., Inc., 106 F.3d 976, 980 (Fed. Cir. 1997)). “Summary judgment is properly granted if the evidence, when viewed in a light most favorable to the non-moving party, fails to establish the inventorship of an omitted inventor by clear and convincing evidence.” Linear Tech. Corp. v. Impala Linear Corp., 379 F.3d 1311, 1327 (Fed. Cir. 2004).

Alleged co-inventors “must prove their contribution to the conception of the invention with more than their own testimony.” Gemstar-TV Guide Int'l, Inc. v. Int'l Trade Comm'n, 383

⁹ Merely “consult[ing] with the inventor[s] and provid[ing] [them] with materials and advice” is insufficient to prove the contribution to conception that is necessary to show co-inventorship. See Eli Lilly & Co. v. Aradigm Corp., 376 F.3d 1352, 1367 (Fed. Cir. 2004). “An inventor ‘may use the services, ideas, and aid of others in the process of perfecting his invention without losing his right to a patent.’” Shatterproof Glass Corp. v. Libbey-Owens Ford Co., 758 F.2d 613, 624 (Fed. Cir. 1985); see also Chirichillo v. Prasser, 30 F. Supp. 2d 1132, 1137 (E.D. Wis. 1998) (holding that alleged co-inventor plaintiff could not prove conception where defendant already had a prototype and plaintiff assisted defendant in making the invention safer and more workable).

F.3d 1352, 1382 (Fed Cir. 2004). “Whether the co-inventor’s testimony has been sufficiently corroborated is evaluated under a ‘rule of reason analysis,’ which requires that an ‘evaluation of *all* pertinent evidence must be made so that a sound determination of the credibility of the inventor’s story may be reached.’” Linear Tech. Corp., 379 F.3d at 1327 (quoting Price v. Symsek, 988 F.2d 1187, 1195 (Fed. Cir. 1993)). Corroborating evidence can include “contemporary records, oral testimony from someone other than the [] inventor, or other circumstantial evidence.” Univ. of Utah v. Max-Planck-Gesellschaft Zur Foerderung Der Wissenschaften e.V., 134 F. Supp. 3d 576, 583 (D. Mass. 2015); see also Linear Tech. Corp., 379 F.3d at 1327 (“Reliable evidence of corroboration preferably comes in the form of records made contemporaneously with the inventive process.”). “As with the conception,” to the extent that a plaintiff claims to have conceived of the invention independently and that a defendant derived the invention at issue from the plaintiff, “corroboration is required to support . . . testimony regarding communication” of the invention to the named inventors. Price, 988 F.2d at 1196.

IV. DISCUSSION

The Court must determine whether the evidence, when viewed in the light most favorable to Perry, could establish his inventorship of any of the Patents-at-Issue by clear and convincing evidence. This is a heavy burden for Perry given the legal presumption that Quadri and Ratz are the inventors, see Hess, 106 F.3d at 980 (Fed. Cir. 1997) (“The inventors as named in an issued patent are presumed to be correct.”) (quoting Amax Fly Ash Corp. v. United States, 514 F.2d 1041, 1047 (Ct. Cl. 1975))), coupled with the fact that Perry knew CardiAQ was pursuing patents for its inventions in 2009 and did not assert that he should be named among the inventors of the Patents-at-Issue until he learned that CardiAQ had been purchased for in excess of \$350

million. CardiAQ Facts ¶ 129; see Eli Lilly & Co., 376 F.3d at 1366–67. The Court concludes that the evidence is insufficient to meet the clear and convincing standard.

Perry advances two arguments that he claims help show that Quadri and Ratz are not the inventors of the Inventions-at-Issue based on their memories, abilities, and their company’s conduct. First, Perry asserts that Quadri and Ratz do not recall the conception of the inventions and that they lacked the requisite skill to conceive the inventions. [ECF No. 69 at 6–8, 12–14]. Second, Perry argues that in 2015, when he was subpoenaed to give a deposition in CardiAQ Valve Technologies v. Neovasc Inc., No. 14-cv-12405-ADB (D. Mass.), CardiAQ provided him counsel who tried to convince him that he could not have been an inventor and that he had already assigned his rights. [ECF No. 69 at 27–28].

Quadri and Perry both testified at their depositions that they conceived of the inventions jointly through a collaborative process and could not identify which of them conceived of which features. See [ECF No. 69 at 6–8]. Perry asserts that this shows a “[c]omplete absence of memory of any individual conception [of] every single invention-in-suit.” [Id. at 8]. Perry’s assertion overstates what the evidence shows. Quadri and Ratz have provided at least rough recollections of the process by which they conceived of the Inventions-at-Issue, and they have supported these recollections with contemporaneous records. See e.g., CardiAQ Facts ¶¶ 45, 67, 77, 89, 97, 109; [ECF No. 63-14 at 113:23–116:3, 155:17–156:11, 253:8–256:20, 389:18–390:23]. As discussed further herein, Ratz’ asserted conception of several of the Inventions-at-Issue is tied to particular events and studies that Perry was not involved in, and Ratz’ sketches clearly show reversing anchors, circumferentially offset proximal anchors, transitional shoulders, and locking members. See, e.g., Ratz Decl. ¶¶ 54–66, 70. Quadri and Ratz’ need to rely on contemporaneous records in recounting the point of conception during their depositions for

several of the Inventions-at-Issue is unsurprising given that more than eight years had passed between their asserted conception and the depositions. See Perry Response ¶ 1. Although Perry is more skilled in FEA and more experienced with nitinol, see Perry Facts § II.B, Quadri and Ratz' experience and the contemporaneous records of their conception indicate that they had the expertise necessary to conceive of the Inventions-at-Issue.

The Court will not address the ethical questions raised by Perry's assertion that CardiAQ's counsel offered him personal representation for a 2015 deposition and then acted contrary to his interests after Perry suggested that he might have an ownership claim in CardiAQ's patents, see Perry Facts § II.I, except to the extent it is relevant to the instant motion, but notes that Perry was not prejudiced by the attorney's conduct. Further, Perry's experience in 2015 cannot explain why he did not claim to be an inventor of the Patents-at-Issue between 2009 and 2015.

The only direct corroborating evidence that Perry conceived of the Inventions-at-Issue and discussed the inventions with Quadri and Ratz is Perry's TCT Sketch, which is undated, unsigned, and not mentioned in either Ratz' notes from the October 24, 2007 meeting or the follow-up email. CardiAQ Facts ¶¶ 6–9, 14–15. Further, Quadri and Ratz both attest that they did not see the sketch prior to this lawsuit. Quadri Decl. ¶ 16; Ratz Decl. ¶ 27. There are two pieces of evidence, other than Perry's testimony, that provide support for Perry's assertion that the sketch was composed on October 24, 2007. First, Labossiere attests that "in late October 2007 or early November 2007, [he] saw the sketch in Dr. Perry's notebook" and that he "would have seen it within a day or two of him drawing it because that was our standard practice." Labossiere Decl. ¶¶ 12–13. Second, Dr. Albert Lyter, a forensic chemist, analyzed the sketch and found that a single ink formulation was used for both Perry's October 24, 2007 sketch and a

portion of the sketches drawn in Ratz' notebook, which the parties agree were drawn on October 24, 2007. Perry Response ¶ 13. Even viewing the evidence in the light most favorable to Perry, however, the sum of the available evidence would be insufficient to rebut the presumption that Quadri and Ratz conceived of the Inventions-at-Issue or to demonstrate Perry's inventorship by clear and convincing evidence.

Even assuming the sketch was drawn and shared with Quadri and Ratz on October 24, 2007, what the sketch depicts, and what it therefore corroborates, is unclear, even "to one of skill in the art." Price, 988 F.2d at 1196; see infra subsections 1–7. Although "'corroboration' is not necessary to establish what a physical exhibit" proves, Price, 988 F.2d at 1195, "the evidence of corroboration must not depend solely on the inventor himself," Reese v. Hurst, 661 F.2d 1222, 1225 (C.C.P.A. 1981). Here, as discussed infra, it is not apparent that Perry's sketch depicts any of the Inventions-at-Issue. Cf. Apator Miitors ApS v. Kamstrup A/S, 887 F.3d 1293, 1297 (Fed. Cir. 2018) (finding that substantial evidence supported conclusion that conception had not been established because "unwitnessed emails and drawings, alone, cannot corroborate [] testimony of conception"). Perry's assertion that the TCT Sketch shows the Inventions-at-Issue appears to have informed the opinions of his co-worker Dr. Labossiere and his long-time friend Dr. Gong, whose affidavits Perry has proffered in support of his position. Specifically, Labossiere's understanding of the sketch is based, at least in part, on what Perry told him, and Gong's attestation that he was able to find the Inventions-at-Issue in the TCT Sketch appears to assume the presence of those inventions. CardiAQ Facts ¶ 23; Gong Decl. ¶ 10. Moreover, CardiAQ has offered an expert opinion that the TCT Sketch does not clearly depict the Inventions-at-Issue. See generally [ECF No. 52 ("Vesely Decl.")].

Additionally, as discussed with respect to each of the Inventions-at-Issue below, even when taking into account the other documents that Perry argues further support his argument about what is depicted in the TCT Sketch (most notably, his May 11, 2006 sketch and his 2008 Provisional Application), Perry has not offered sufficient corroborating evidence that he conceived of any of the Inventions-at-Issue. Further, the Court notes that the 2006 sketch and the 2008 Provisional Application were not shown to Quadri and Ratz, and the weight that a reasonable jurist could attribute to those documents is limited by their lack of specificity.

A. Perry's Conception of Reversing Anchors Is Not Shown by Sufficient Corroborating Evidence

Perry asserts that he conceived of reversing anchors on May 11, 2006 and that he recalled this invention in connection with his work for CardiAQ when he was trying to maximize the length and clamping ability of anchors given the limitations presented by the shape of the foreshortening cells. Perry Decl. ¶¶ 14–15. Perry claims that the concept of reversing anchors is depicted in his May 11, 2006 sketch, which shows concepts for positioning and anchoring a percutaneous heart valve. [ECF No. 69 at 14–15]; see Labossiere Decl. ¶¶ 6–7, 9. The May 11, 2006 sketch is, however, unclear and has not been emphasized by Perry in support of his opposition to the motion to CardiAQ's summary judgment motion. See Figure 1.¹⁰ The anchors in the sketch do not appear to reverse, which Perry attributes to the sketch showing a flat pattern, and Perry does not dispute that Quadri and Ratz did not see the sketch. See Perry Facts § II.C; see also CardiAQ Facts ¶¶ 17, 26–27; Perry Response ¶ 27. Even accepting that the 2006 Sketch contains reversing anchors, it is insufficient to corroborate Perry's assertion the he

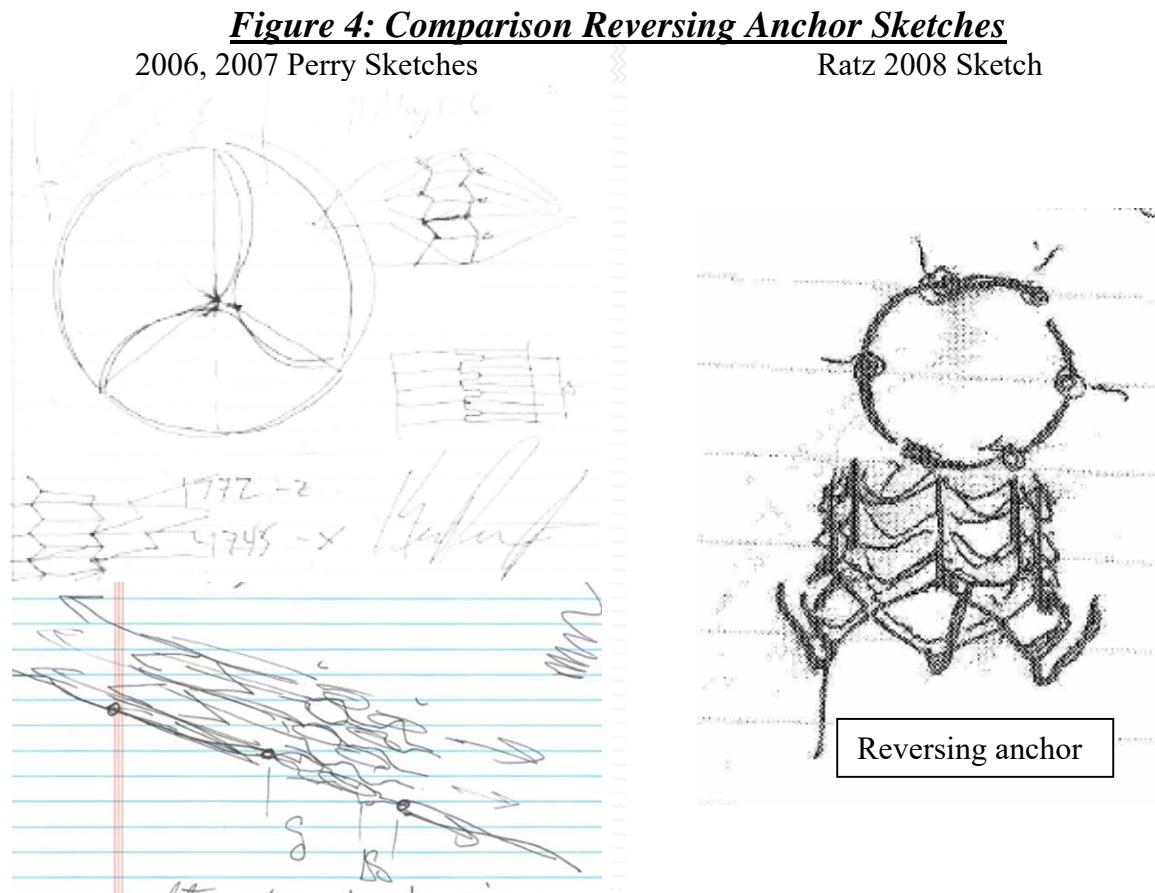
¹⁰ Perry's 18-page statement of facts makes only a passing reference to his 2006 conception of reversing anchors and no reference to the associated sketch. See generally Perry Facts.

communicated the concept of reversing anchors to Quadri and Ratz, or to show that Perry conceived of the reversing anchors at issue here. See Price, 988 F.2d at 1196.

The TCT Sketch also does not clearly show reversing anchors. In fact, the anchors in the TCT Sketch do not appear to reverse. CardiAQ Facts ¶¶ 20–21. Perry explains that the TCT Sketch, like his 2006 sketch, depicts a flat pattern, and that the stent’s anchors would reverse upon deployment. Perry Response ¶ 20. Perry acknowledges, however, that if the anchors shown are intended to reverse, “They’re a little short. And not really – not really long enough.” CardiAQ Facts ¶ 21. Further, Perry and his expert, Dr. Gong, have given inconsistent testimony as to which part of the TCT Sketch depicts the reversing anchors. See id. ¶ 22; [ECF No. 53-16 at 195:9–197:18, 203:5-23; ECF No. 63-8 at 77:7–79:1; ECF No. 63-9]. Perry has emphasized that there was some discussion of anchors at the October 24, 2007 meeting, and there is evidence from which a reasonable jurist could conclude that Perry most likely drew the anchors in Ratz’ notebook, see Perry Facts § II.E (quoting Lyter Declaration that “Perry was most likely the person that wrote the anchor tips”).¹¹ Even assuming a jurist concluded that Perry drew the anchor tips in Ratz’ notebook, however, that conclusion would not resolve the issue as even Perry acknowledges that the anchor tips could be used for reversing or non-reversing anchors. See id. § II.H. Although the TCT Sketch is titled “Heart valve with fixation anchors,” the title provides no indication that the anchors in the sketch were intended to reverse. See Figure 3.

¹¹ Correction of inventorship claims do not, standing alone, entitle a plaintiff to a jury trial. See Shum v. Intel Corp., 499 F.3d 1272, 1279 (Fed. Cir. 2007) (holding that while the plaintiff would not be entitled to a jury trial on his 35 U.S.C. § 256 inventorship claim alone, given the co-pendency of an asserted fraud claim, a jury should have determined the facts regarding inventorship).

Perry next asserts that his 2008 Provisional Application shows that he conceived of reversing anchors. Perry Response ¶¶ 28–29. Perry has not, however, contradicted CardiAQ's factual assertion that his 2008 Provisional Application does not show anything reversing toward the proximal end of a valve frame. See CardiAQ Facts ¶¶ 28–29; Perry Response ¶¶ 28–29. Even assuming a jurist could conclude that Perry's provisional application shows that he conceived of a use for reversing anchors, Perry has not linked his 2008 Provisional Application with the reversing anchors at issue, particularly where Perry did not share the provisional application with Quadri or Ratz. CardiAQ Facts ¶ 18.



Against Perry's evidence that he conceived of reversing anchors, Quadri and Ratz have offered considerable evidence to show that they conceived of reversing anchors independent of

Perry's involvement between August 2008 and January 2009, including attestations and contemporaneous notes. See CardiAQ Facts ¶ 31; Ratz Decl. ¶¶ 54–58; [ECF No. 50-36; ECF No. 50-46]. Ratz' dated sketches from 2008 show a progression of the anchoring concept and depict reversing anchors. As shown in *Figure 4*, the comparison between Perry's 2006 and 2007 sketches and Ratz 2008 sketches is stark. Ratz' sketches distinctly show reversing anchors; Perry's do not. Considering the available evidence, Perry has not offered sufficient corroborating evidence to prove that he invented the reversing anchors.

B. Perry's Conception of Locking Members Is Not Shown by Sufficient Corroborating Evidence

As with the reversing anchors, Perry asserts that his May 11, 2006 sketch shows locking members. Perry Decl. ¶ 20; Perry Response ¶ 40. Labossiere attests that the sketch shows “elongated control elements coming off the left side of the frame in the sketch . . . , which elements are for attachment of the frame to, and control by, a catheter delivering the frame to a heart valve.” Labossiere Decl. ¶ 8. As discussed, the 2006 sketch was not specific to a mitral valve, nor was it shared with Quadri or Ratz. CardiAQ Facts ¶ 17; Labossiere Decl. ¶ 7. Therefore, although the 2006 sketch provides some evidence that Perry had conceived of using locking members to correctly position a replacement heart valve by 2006, it does not provide strong evidence that Perry conceived of the specific locking members at issue here or adequately corroborate Perry's claim to have discussed his idea for locking members with Quadri and Ratz.

Perry claims that the arrows coming off the left side of the frame in his TCT Sketch show both stretching forces and locking members, and demonstrate that he discussed the locking member concept with Quadri and Ratz on October 24, 2007. Perry Response ¶¶ 33–34. Perry argues that Quadri and Ratz had limited their focus to a valve frame delivered by a non-catheter device at the time of their 2007 meeting, which would have no need for locking members, but

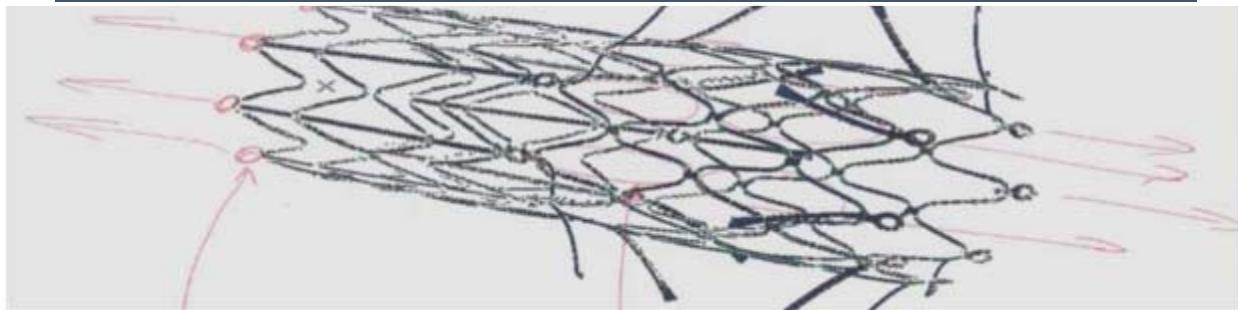
that his own interest was not so limited, and that he told his own physician only days later that he was working on the development of a percutaneous aortic valve, which the parties agree is outside the work CardiAQ hired Perry to perform. Id. ¶ 35; [ECF No. 90 at 1–2]. Perry further argues that his 2008 Provisional Application shows “a type of locking member.” Perry Response ¶ 41.

Although it is conceivable that Perry suggested using a percutaneous delivery system with locking members on October 24, 2007, Perry has not supported the contention that he did so with clear, corroborating evidence. CardiAQ Facts ¶ 45. Ratz asserts that CardiAQ developed the locking member concept in October 2008 and informed Perry of the design change in November and December 2008. Ratz Decl. ¶ 48. In a December 2, 2008 email to Perry, Ratz writes, “I’ve put together a draft version of the design considerations for the trans-catheter mitral valve frame. Please take a look and let’s set up a time to touch base this week if you can. I’d like to walk through it with you. Also take a look at the attached video . . . Need to add in the frame itself, but this walks through *my current concept* for the delivery catheter/process.” [ECF No. 50-38 (emphasis added)]. Ratz attaches a document titled “TMVR – Implant Frame / Design Consideration” that references “locking feature (i.e. holes).” Id. Although Perry now asserts that he was “delighted” to see that Ratz had “adopted the fixation approach for the frame,” see Perry Decl. ¶ 39, Perry did not respond at the time. Considering that CardiAQ has supported Quadri and Ratz’ conception of locking members with an assertion in contemporaneous records that Perry did not contradict, Perry has not offered sufficient corroboration to show that he conceived of, or contributed to the conception of, the locking members at issue.

C. Perry's Conception of the V-Shaped Proximal Anchors At-Issue Is Not Shown by Sufficient Corroborating Evidence

Although Perry now argues that the TCT Sketch shows V-shaped proximal anchors, Perry previously testified that proximal anchors are not shown in that sketch. CardiAQ Facts ¶¶ 46, 53. Perry maintains that this testimony was a mistake, Perry Response ¶ 46; [ECF No. 69 at 15 n.9], and argues that the V-shaped proximal anchors are shown by the zigzagging circumferential feature in the TCT Sketch, CardiAQ Facts ¶ 50; Perry Response ¶ 50. The V-shapes in the TCT Sketch are not, however, discernably different from the V-shapes that appear in the animation shown in *Figure 5*, which Perry prepared at CardiAQ's request prior to the 2007 meeting, and which the parties agree does not show the Inventions-at-Issue, other than foreshortening. CardiAQ Facts ¶ 53; [ECF No. 53-15].

Figure 5: 2007 Animation with Lines Drawn by Perry To Show Stretching



Perry also references his 2008 Provisional Application in support of his argument that he conceived of the V-shaped proximal anchors. See Perry Facts § 11.F n.12. Perry and CardiAQ dispute the degree of similarity between the anchors shown in Perry's 2008 Provisional Application and the proximal anchors at issue here. See CardiAQ Facts ¶¶ 56–65; Perry Response ¶¶ 56–65. Although Perry's provisional application indisputably references anchors, see CardiAQ Facts ¶¶ 58, 61, Perry has not linked those anchors to the V-shaped proximal anchors at issue here. Conversely, Quadri and Ratz have supported their asserted conception of the V-shaped proximal anchors at issue with contemporaneous records. Id. ¶ 67.

Considering the unclear nature of the V-shapes in the TCT sketch, the lack of a link between the anchors discussed in Perry's 2008 Provisional Application, and the other circumstantial evidence, Perry has not shown sufficient corroborating evidence that he conceived of, or made a meaningful contribution to the conception of, the V-shaped proximal anchors.

D. Perry's Conception of Barbs Extending from the V-Shaped Proximal Anchors Is Not Shown by Sufficient Corroborating Evidence

Perry cannot corroborate his assertion that he conceived of the barbs at issue, which extend from the V-shaped proximal anchors, for the same reasons he cannot prove his conception of the proximal anchors. Additionally, Perry acknowledges that his TCT Sketch does not show the barbs at issue. Id. ¶¶ 69–70.

Perry's 2008 Provisional Application contains a lengthy segment on the potential placement of barbs on a variety of potential stents. It reads in part:

[O]pposing barbs can be disposed on substantially every surface/tip of the lattice structure of a stent that presents itself for such use . . . , or on every other such surface, or in other patterns, random or specified, as desired. Further, the barbs can be provided in single, double, triple or other presentation from each such surface. In addition, if desired . . . , one or more of the barbs can be provided on centrally-located surfaces of the stent such as the tips of the bends in the lattice structure of the stent, or otherwise as desired The barbs can also be incorporated into stress relieving apexes (e.g., larger diameter bends connecting adjacent struts, and/or tapered struts or apex profiles, etc.) to minimize the localized loading that may occur in the stent structure and/or due to the actual loading of the barbs.

[ECF No. 35-1 at 3]. Perry's assertion that barbs could be used on stents for blood vessels and, although not stated explicitly, also potentially for heart valves, is evidence that he considered the placement of barbs generally. It is not, however, sufficient to corroborate Perry's conception of the layout of the barbs at issue in this action.

E. Perry’s Conception of Circumferentially Alternating Anchors Is Not Shown by Sufficient Corroborating Evidence

Perry asserts that his participation in the conception of alternating anchors is shown by the text at the bottom of his TCT Sketch, which reads, “(1) Alternating” Perry Response ¶ 79. CardiAQ has plausibly suggested that “alternating” in Perry’s TCT Sketch may reference alternating positions for suture holes, an idea that Perry had proposed. CardiAQ Facts ¶ 81. Further, Gong’s ability to identify the location of alternating anchors in the TCT Sketch, after assuming their presence, is weak corroboration for claims about what the TCT Sketch depicts, given that the feature was described to him using the word “alternating.” See Gong Decl. ¶ 13. As such, the meaning of “alternating” in the TCT Sketch is unclear, and the meaning that Perry sponsors is not well corroborated.

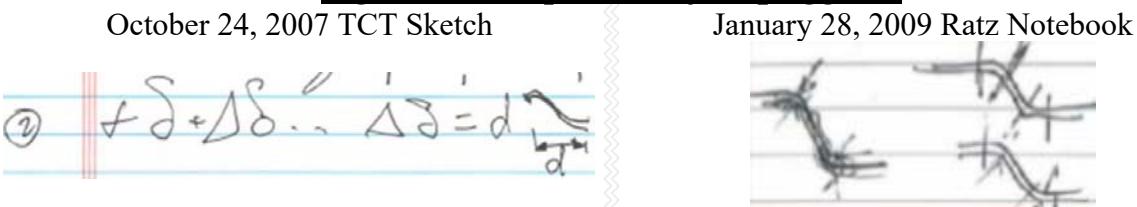
Perry also argues that a reference to barbs “on every other surface” in his 2008 Provisional Application refers to barbs that are circumferentially offset, see Perry Response ¶¶ 85–87; Perry Decl. ¶ 36, but the provisional application does not corroborate Perry’s conception of the circumferentially alternating anchors at issue here, whereas Quadri and Ratz have proffered contemporaneous records to support their own conception of circumferentially alternating anchors. CardiAQ Facts ¶ 89; Ratz Decl. ¶ 46. Specifically, Quadri and Ratz considered circumferentially offsetting the anchors in October 2008, among other modifications to the frame design, and shared these ideas with Perry in November 2008. Ratz Decl. ¶¶ 47–48.

Considering the lack of corroboration for the meaning of the “alternating” text in the TCT Sketch, the lack of a link between Perry’s 2008 Provisional Application and the circumferential alternating at issue here, and the other circumstantial evidence, Perry has not offered sufficient corroboration for his claim to have conceived of, or made a meaningful contribution to the conception of, circumferentially alternating anchors.

F. Perry's Conception of Transition Shoulder Radial Flare and Changed Diameter of the Frame Is Not Shown by Sufficient Corroborating Evidence

Perry argues that the TCT Sketch shows that he conceived of the transition shoulders, including both a radial flare and the changed diameter of the valve frame, based on a slight V-shape in the foreshortening region in his TCT sketch and the similarity between the “squiggles” in the TCT Sketch and those that show a diameter change in a January 28, 2009 entry in Ratz’ notebook. See [ECF No. 69 at 2]; Perry Response ¶¶ 90–94, 98–99, 102–103, 106. *Figure 6* shows side-by-side the squiggles in the TCT Sketch and the 2009 notebook sketch that Perry’s argument rests on.

Figure 6: Comparison of “Squiggles”



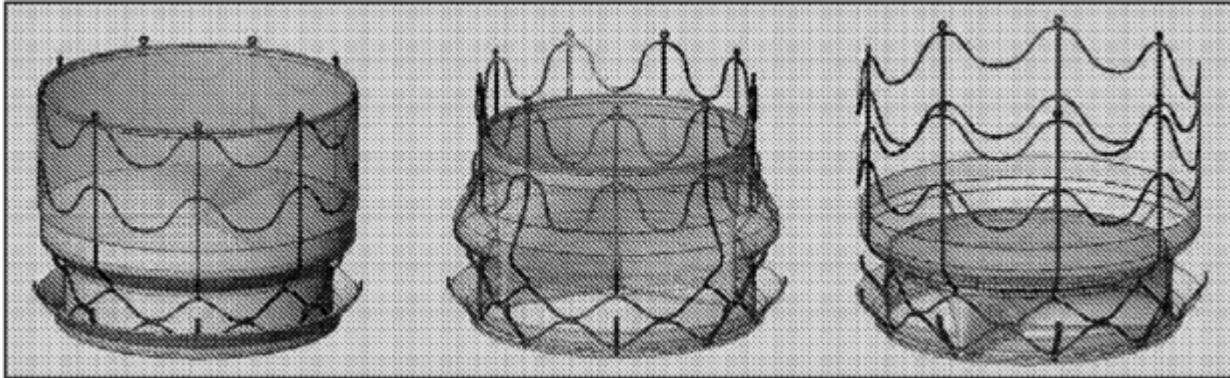
Perry claims that Ratz drew the 2009 squiggles fifteen months after the TCT conference because during a January 28, 2009 telephone conversation, Perry said, “Brent, remember when I drew that sketch for you at the TCT conference? Remember that I told you that one day I’d ask for you to sketch the specific shape set side profile for that feature? Could you please do that now?”

Perry Decl. ¶ 40; see [ECF No. 69 at 2].

Perry’s argument that the TCT Sketch shows the transition shoulder features is weakened by contradictory evidence that raises doubts about what the slight V-shapes in the foreshortening region and the squiggles in the text show. Gong suggested during his deposition that the line of text with the squiggles might show reversing anchors, see [ECF No. 63-8 at 77:7–79:1; ECF No. 63-9], and Perry has testified that understanding the meaning of the text with the delta signs in the TCT Sketch requires context provided by his own description, [ECF No. 53-16 at 216:24–

217:7]. Conversely, CardiAQ's explanation that the text, although unclear, likely references a change in the axial length of the foreshortening region of the frame is both supported by an expert attestation and appears plausible given that the parties agree that they discussed that subject on October 24, 2007. CardiAQ Facts ¶ 101; see Vesely Decl. ¶¶ 43–46. Additionally, Quadri and Ratz have proffered contemporaneous records to support their own asserted conception of the transition shoulder related inventions in December 2008 and January 2009. CardiAQ Facts ¶¶ 97, 109; see Ratz Decl. ¶¶ 61–64. Although most of the contemporaneous sketches of transition shoulders have been filed under seal, the diameter change concept is shown in *Figure 7*, with the radial flare feature shown by the middle drawing. Ratz Decl. ¶ 37.

Figure 7: Transition Shoulders



Perry has not claimed that his conception of the transition shoulders' radial flare and changed diameter are supported by his 2006 sketch, the 2008 Provisional Application, or any other tangible evidence, aside from the TCT Sketch. Perry Response ¶¶ 95–96, 107–08. Considering the unclear nature of the TCT Sketch, the contemporaneous records of Quadri and Ratz' asserted conception, and the other circumstantial evidence, Perry has not sufficiently corroborated his asserted conception of, or meaningful contribution to the conception of, the transition shoulder features.

G. Perry Did Not Conceive of Foreshortening and His Contributions to Foreshortening Cannot Establish Inventorship by Clear and Convincing Evidence

It is undisputed that Quadri conceived of using foreshortening for a heart valve frame before CardiAQ engaged Perry, and that Perry did not contribute to the concept of foreshortening. CardiAQ Facts ¶¶ 110–11. Perry argues that his design contributions, including certain of the other Inventions-at-Issue, were required for CardiAQ to achieve a workable design. *Id.* ¶ 117. To the extent that Perry’s claim to have enabled foreshortening is dependent upon his contribution to the other Inventions-at-Issue, the claim fails because he cannot show by clear and convincing evidence that he conceived of those inventions. Perry’s opposition to the motion for summary judgment also asserts that he contributed “numerous non-claimed features,” [ECF No. 69 at 10, 16], including his suggestion that they change the configuration of the struts to be more rounded and his recommendation that a row of suture holes be added to the middle of the valve frame, [ECF No. 69 at 4–5, 14]. Although a co-inventor may show that he contributed to conception through contribution “to only one claim or one aspect of one claim of a patent,” *Vapor Point LLC v. Moorhead*, 832 F.3d 1343, 1348–49 (Fed. Cir. 2016), Perry has not shown how his contribution of these “non-claimed features” alone can be construed to have enabling foreshortening, particularly where Perry acknowledges that he did not contribute the conception of foreshortening and Perry cannot show by clear and convincing evidence that he contributed any claimed feature. *See Ethicon, Inc.*, 135 F.3d at 1460 (“[O]ne does not qualify as a joint inventor by merely assisting the actual inventor after conception of the claimed invention.”).

V. CONCLUSION

Perry has not shown that a trier of fact could find by clear and convincing evidence that he should be named as an inventor of the Patents-at-Issue, including because he has not offered sufficient corroboration for his claim to have conceived of the Inventions-at-Issue. Accordingly,

Edwards Lifesciences CardiAQ, LLC's motion for summary judgment [ECF No. 48] is GRANTED on all counts. The Court finds that Kenneth Perry is not an inventor of the Patents-at-Issue, and that Perry and Echobio, LLC do not have an ownership interest in the Patents-at-Issue. The parties shall bear their own costs.

SO ORDERED.

March 31, 2019

/s/ Allison D. Burroughs
ALLISON D. BURROUGHS
U.S. DISTRICT JUDGE