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Transcript of Troy L. Thornton

Date: March 19, 2025

Case: Imperative Care, Inc. -v- Inari Medical, Inc. (PTAB)

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Inari-2028

Imperative Care, Inc. v. Inari Medical, Inc.

IPR2025-00289

Transcript of Troy L. Thornton
Conducted on March 19, 2025

1 (1 to 4)

1	UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE PATENT TRIAL AND APPEAL BOARD	3
2		
3	IMPERATIVE CARE, INC., :	
4	Petitioner, :	
5	versus : CASE: IPR2024-01157	
6	INARI MEDICAL, INC., : PATENT NO: 11,697,011B2	
7	Patent Owner. :	
8		
9	VIDEOTAPED DEPOSITION OF TROY L. THORNTON	
10		
11	9:03 a.m.	
12	March 19, 2025	
13	KNOBBE MARTENS OLSON & BEAR, LLP	
14	333 Bush Street	
15	21st Floor	
16	San Francisco, California	
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19		
20	Job No.: 575710	
21	Pages: 1 - 216	
22	Stenographically Reported By:	
23	Susan DiFilippantonio, RPR, RMR, California CSR 14383	
24		
25		
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9	E X H I B I T S	
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11	Exhibit 2006, US Patent Number	199
12	7,682,380 82, dated March 23, 2010	
13	(s4) KTNK-RESISTANT BIFURCATED	
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1	APPEARANCES:	4
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20	Also Present: Philip Astor, videographer	
21		
22		
23		
24		
25		
1	(Wednesday, March 19, 2025 9:03 a.m.)	
2	THE VIDEOGRAPHER: Here begins Media	
3	Number 1 in the videotaped deposition of Troy	
4	Thornton in the matter of Imperative Care, Inc. v.	
5	Inari Medical, Inc. in the United States Patent and	
6	Trademark Office before the Patent Trial and Appeal	
7	Board, Case Number IPR202401157.	
8	Today's date is March 19, 2025. The time	
9	on the video monitor is 9:03. The videographer	
10	today is Philip Astor, representing Planet Depos.	
11	This video deposition is taking place at Knobbe	
12	Martens Olson & Bear, San Francisco, California.	
13	Would counsel please voice-identify	
14	themselves and state whom they represent.	
15	MR. HAMILTON: This is Joseph Hamilton	
16	from Perkins Coie, representing the patent owner.	
17	MR. STOWELL: Joshua Stowell of Knobbe	
18	Martens, representing the petitioner, Imperative	
19	Care, and the witness.	
20	THE VIDEOGRAPHER: The Court Reporter	
21	today is Susan DiFilippantonio, representing Planet	
22	Depos. The witness will now be sworn.	
23	THE REPORTER: This is Susan	
24	DiFilippantonio, California CSR Number 14383.	
25	TROY L. THORNTON,	

5 1 called as a witness at the instance of the Patent Owner, 2 being first duly sworn, was examined and deposed as 3 follows: 4 EXAMINATION 5 BY MR. HAMILTON: 6 Q. Mr. Thornton, have you been deposed before? 7 A. Yes. 8 Q. How many times? 9 A. Excuse me. I believe two times. 10 Q. There's a couple ground rules. I'm sure you're 11 familiar with some of them. I'm just going to go over 12 them again. 13 You understand you're under oath? 14 A. I do. 15 Q. At the conclusion of the deposition, sometime 16 after, you'll be given a transcript, with an opportunity 17 to correct errors. Do you understand that any 18 substantive changes may be commented upon and may affect 19 your credibility? 20 A. Can you repeat that? 21 Q. If you change your testimony after the 22 deposition, do you understand that might affect your 23 credibility? 24 A. Yes. 25 Q. I'm going to be asking questions. There's a	7 1 complete and full truthful testimony here today? 2 A. No. 3 Q. If you need a break, please just ask. My only 4 request is we don't take a break while the question is 5 pending. Occasionally I'll be in a line of questioning 6 and I'll want to finish that up, as well, but -- but 7 please feel free to ask if you need a break. 8 Did you bring any documents with you here today? 9 A. Not in here, no. 10 Q. And when you say "not in here," you mean you 11 brought some to this office? 12 A. I have a binder in the other room. 13 Q. Does that binder relate to this case? 14 A. Yes. 15 Q. And -- and what's in that binder? 16 A. Several documents, including my declaration. 17 Q. Are there any notes in that binder, on those 18 documents? 19 A. I don't think so. 20 Q. Are there any notes in that binder at all? 21 A. I don't believe so. 22 Q. So the binder you have are documents from this 23 case. And are they limited to documents from this case? 24 A. Yes. 25 Q. And is it your understanding those documents are
6 1 Court Reporter taking down everything. If I could ask, 2 to make it easier on her, that we not spoke over each 3 other. I'll try to wait until you're finished with your 4 answer before I ask the next question. If you could 5 wait until I finish my question to answer. 6 Can you do that for me? 7 A. Yes. 8 Q. Great. 9 If there's anything that's unclear in my 10 question, please ask for clarification, definition, 11 explanation, and any issue you have with the question. 12 If you don't ask, we're going to assume you understand 13 the question. 14 Is that fair? 15 A. Yes. 16 Q. Because everything is taken down via the Court 17 Reporter, if you could give an audible answer, as 18 opposed to a head nod. So a yes or no. Do you 19 understand that? 20 A. Yes. 21 Q. Are you on any medications or have any health 22 conditions that might affect your ability to testify 23 truthfully here today? 24 A. No. 25 Q. Is there any reason you cannot give your	8 1 marked as exhibits in this case? 2 A. There were some exhibits, yes. 3 Q. Is there anything besides exhibits in that 4 binder? 5 A. No. 6 Q. I'm going to hand you what has been marked 7 previously as Exhibit 1003. 8 (Tendered.) 9 MR. HAMILTON: For some of these I have 10 an extra copy. Would you like it? 11 MR. STOWELL: Thanks, John. 12 MR. HAMILTON: As many as I can get rid 13 of. 14 MR. STOWELL: Yeah, right. You don't 15 want to take them back. I get it. 16 BY MR. HAMILTON: 17 Q. Okay. Do you -- do you recognize Exhibit 1003? 18 A. Yes. 19 Q. And what is Exhibit 1003? 20 A. It's a Declaration of Troy L. Thornton in 21 Support of Petition for Inter Partes Review of U.S. 22 Patent Number 11,697,011. 23 Q. Is this the declaration you submitted in 24 connection with the interference for which we're -- 25 you're testifying here today?

9 1 MR. STOWELL: Objection. Form. 2 THE WITNESS: Yes. 3 BY MR. HAMILTON: 4 Q. I noticed you turned to the last page, 133. Is 5 that your signature on page 133? 6 A. My electronic signature, yes. 7 Q. And do you see in the paragraph above your 8 signature, 186, an oath that your declaration is 9 truthful? Do you see that? 10 A. Yeah. Paragraph 186? 11 Q. Yes. 12 A. Yes. 13 Q. Since signing your declaration on July 8, 2024, 14 have you reviewed your declaration? 15 A. Yes. 16 Q. Have you found anything that's not truthful in 17 your declaration? 18 A. No. 19 Q. Have you found anything that is an error or 20 incorrect in your declaration? 21 A. Not that I've noticed. 22 Q. Is there anything you want to change in your 23 declaration as you sit here today? 24 A. No. 25 Q. Let's take a look at paragraph 16.	11 1 What other patents did you review? 2 A. I don't recall. 3 Q. Did you rely on anything that's not in this 4 table of exhibits in forming your opinions in the 5 declaration? 6 A. I don't believe so. 7 Q. Why did you look at those other patents? 8 A. One always looks at a wide range of patents to 9 decide which ones are most appropriate to consider. 10 Q. And you determined everything in the list on the 11 table of exhibits were most appropriate; is that 12 correct? 13 A. We determined that these were appropriate to 14 include. 15 Q. You just said "we." What do you mean, "we"? 16 A. Working with counsel. 17 Q. So you and counsel together determined that this 18 was the list of exhibits you should -- you should 19 include as what you considered; is that right? 20 A. Yes. 21 Q. Did counsel provide all these exhibits to you? 22 A. Yes. 23 Q. Did you go find any of these exhibits on your 24 own? 25 A. I don't believe so.
10 1 A. (Complying.) 2 Q. And that's on page 5. Let me know when you're 3 there. 4 A. Yes. 5 Q. Does paragraph 16 state that you've considered 6 the materials identified in the attached list of 7 exhibits to your declaration? 8 A. Yes. 9 Q. And is that -- if you go to page -- it's going 10 to be a couple pages in, titled "Table of Exhibits." Is 11 that your list of exhibits that you're referring to in 12 paragraph 16? 13 A. Yes. 14 Q. Is this everything that you considered in 15 preparing your declaration? 16 A. I believe there were other patents that we also 17 looked at and considered. 18 Q. And -- and just before I get into a line of 19 questioning, when I say "declaration" today, I'm going 20 to refer to Exhibit 1003. I understand you've done some 21 declarations in other IPRs. So is it -- is it -- is it 22 fair that we define, when I say "declaration" or you say 23 "declaration," we're referring to this Exhibit 1003? 24 A. Yes. 25 Q. Okay. Great.	12 1 Q. Did you go look for other material related to 2 the subject matter of this case on your own? 3 A. I did some other searches, yes. 4 Q. And did you find anything that changed your 5 opinions in this matter? 6 A. No. 7 Q. Did you rely on everything in the table of 8 exhibits of Exhibit 1003 in forming your opinions in 9 this matter? 10 A. Can you repeat the question? 11 Q. So there's -- there's a list of exhibits here. 12 And in paragraph 16 you said, "In preparing this 13 declaration, I have considered the materials referenced 14 in the declaration and identified in the attached list 15 of exhibits." 16 So in preparing your declaration, you considered 17 everything listed in that attached list of exhibits; is 18 that correct? 19 A. Yes. 20 Q. Are you sure? 21 A. Yes. 22 Q. And let's -- let's just look at that list of 23 exhibits. If you take a look, you can see Exhibit 1003. 24 A. (Complying.) 25 Q. What's Exhibit 1003 in that list of exhibits?

13 1 A. I would have to see the document to be able to 2 answer that. 3 Q. Is -- this is your declaration, isn't it? 4 A. Sorry. I thought this was 001, so... 5 Yes, this is Exhibit 1003. 6 Q. So in the list of exhibits, you reference 7 Exhibit 1003, which is -- which is your declaration -- 8 A. Yes. 9 Q. -- as being considered in preparing that 10 declaration; is that right? 11 MR. STOWELL: Objection. Form. 12 THE WITNESS: So maybe that wasn't 13 appropriate, to say it was used in the paragraph 14 16. Maybe it wasn't appropriate to say I've 15 considered the materials referenced in this 16 declaration and identified them in the list of the 17 exhibits, because it wasn't prepared at the time 18 that the declaration was prepared. 19 BY MR. HAMILTON: 20 Q. Okay. So in this paragraph 16, you say that in 21 preparing the declaration, you considered the material 22 in the identified -- excuse me -- the attached list of 23 exhibits. And what you're telling me here today is you 24 - you didn't consider Exhibit 1003 because this is 25 Exhibit 1003; is that right?	15 1 here. 2 BY MR. HAMILTON: 3 Q. Were there earlier versions? 4 A. Yes. There were several drafts during 5 preparing -- during the preparation of this document. 6 Q. Did you rely on those drafts in preparing your 7 declaration? 8 MR. STOWELL: Objection. Form. 9 THE WITNESS: No. 10 BY MR. HAMILTON: 11 Q. If you look at the next paragraph, paragraph 12 17 -- you can take a moment just to read that. 13 A. Yes. 14 Q. Do you see the last clause in that paragraph 15 "field of the '011 Patent"? 16 What did you mean by the "field of the '011 17 Patent"? 18 A. Field relates to hemostasis valves. 19 Q. So the field of the '011 Patent is hemostasis 20 valves; is that right? 21 A. If I can get a copy of the '011 Patent, I can 22 confirm that. 23 Q. You bet. 24 So I'm going to hand you what's been previously 25 marked as Exhibit 1001.
14 1 MR. STOWELL: Objection. Misstates 2 testimony. 3 THE WITNESS: It wasn't completed at the 4 time that the declaration was completed, so it was 5 probably a mistake to list it as a -- or to say 6 that this was considered -- that this was one of 7 the materials considered and referenced in this 8 declaration. 9 BY MR. HAMILTON: 10 Q. Okay. So for -- for paragraph 16, this isn't 11 correct, at least with respect to Exhibit 1003; is that 12 right? 13 MR. STOWELL: Objection. Misstates 14 testimony. Form. 15 THE WITNESS: Yes; 0 -- 1003 possibly 16 should not be in this list. 17 BY MR. HAMILTON: 18 Q. You had said there were earlier versions of 19 Exhibit 1003. Did you rely on those versions in 20 preparing your declaration? Is that what you meant by 21 paragraph 16? 22 MR. STOWELL: Objection. Misstates 23 testimony. 24 THE WITNESS: I don't believe I said 25 there were earlier versions that were included	16 1 (Tendered.) 2 And, you know, if -- if it's helpful, I'll also 3 refer you to paragraph 26 of your declaration, where you 4 also discuss the field, and that might help you 5 articulate what the field is, if -- if you'd like to 6 look at that. 7 A. So your question again? 8 Q. So my question is, what is the field of the '011 9 Patent? 10 A. As I reference in paragraph 26 of the 11 declaration, hemostasis valves were used during 12 intravascular procedures. 13 Q. So is it fair to say, then, the field of the 14 invention of the '011 patent is what's set forth here on 15 -- on paragraph 26, "hemostasis valves for use during 16 intravascular procedures"? 17 Is that the field of the invention of the '011 18 Patent? 19 A. That's my understanding, "hemostasis valves for 20 use during intravascular procedures." 21 Q. Does the field of the invention of the '011 22 Patent include anything else? 23 And the reason I ask is in paragraph 26, you say 24 "e.g." I just want to make sure that's not just an 25 example of one of the fields of the invention. I want

17 1 to -- I want to -- I want to clarify what the actual 2 field of the invention of the '011 Patent is. 3 A. That's my understanding of the field that's 4 focused on with this '011 Patent. 5 Q. And when you say "focused on," what do you mean 6 by focused on? 7 A. That the main thrust of the entire patent is 8 focused on sealing -- is focused on hemostasis valves 9 for use during intravascular procedures. 10 Q. Okay. What -- what -- what is a hemostasis 11 valve? 12 A. It's a valve used on the proximal end of a 13 catheter to prevent leakage of blood from the patient. 14 Q. Is that your complete answer? 15 A. Yes. 16 Q. When you say "on the proximal end of a 17 catheter," are hemostasis valves only used with 18 catheters? 19 A. In my experience, they are used with 20 intravascular catheters. 21 Q. Are you aware of hemostasis valves being used in 22 any other application that doesn't involve intravascular 23 catheters? 24 MR. STOWELL: Objection. Form. 25 THE WITNESS: Well, the word "hemo"	19 1 Q. So when you say you were involved with the 2 design in working with the engineer who reported to you, 3 is that the only time you've been involved in the design 4 of a hemostasis valve? 5 A. I've been involved in speccing out hemostasis 6 valves that we purchased for other applications. 7 Q. Okay. So just to be clear, the experience in 8 designing was with one engineer for one valve; is that 9 right? 10 MR. STOWELL: Objection. Misstates 11 testimony. 12 THE WITNESS: For the most recent product 13 that I was responsible for, there were three 14 hemostasis valves on three different catheters. 15 BY MR. HAMILTON: 16 Q. When you say three valves, three different types 17 of valves or three of the same valve? 18 A. Three different types of valves. 19 Q. Were all -- those all used at the same time? 20 A. During the same procedure, there were three 21 catheters used, and all three were used at some points 22 during the procedure. 23 Q. So in this project that you worked on with the 24 engineer, the result of that project was three different 25 types of hemostasis valves; is that right?
18 1 implies blood. So in my experience, they're always 2 used in a patient's vascular system. 3 BY MR. HAMILTON: 4 Q. In your definition, you also said "to prevent 5 leakage of blood from the patient." Do hemostasis 6 valves have any other use other than to prevent leakage 7 of blood from the patient? 8 A. They also are there to prevent entrainment of 9 air into the patient. 10 Q. Is it fair to say air or -- or any other foreign 11 substance or particle, things like that? Is that fair 12 to say? 13 A. In my experience, it's to prevent air 14 introduction into the patient. 15 Q. Okay. So hemostasis valves prevent leakage of 16 blood and they prevent air into a patient during an 17 intravascular procedure; is that right? 18 A. Based on my experience, that's what I would say. 19 Q. When you say based on your experience, have you 20 ever designed a hemostasis valve? 21 A. I have hired engineers who design hemostasis 22 valves, yes. 23 Q. Have you ever designed a hemostasis valve? 24 A. I was involved with the design in working with 25 the engineer who reported to me.	20 1 A. Yes. 2 Q. And other than that project and -- and working 3 with this engineer on three different types of 4 hemostasis valves, have you been involved in the design 5 of any other hemostasis valve? 6 A. On an earlier project there were two hemostasis 7 valves on two different components of the system. 8 Q. And you designed those two valves in that 9 earlier project? 10 A. In that project I believe we specced out 11 off-the-shelf valves. We were able to find more 12 standard off-the-shelf valves to use. 13 Q. And what does that mean, specced out? 14 A. We set out the design requirements to the 15 vendors. 16 Q. Specced out mean anything else besides setting 17 out the design requirements to the vendors? 18 A. Not really. 19 Q. Okay. So there are many types of hemostasis 20 valves; is that correct? 21 MR. STOWELL: Objection. Form. 22 THE WITNESS: I am familiar with several 23 types of hemostasis valves. 24 BY MR. HAMILTON: 25 Q. And so in this project that we were just

21 1 discussing, you went to a vendor and said, These are our 2 requirements for the hemostasis valve. And that's what 3 you mean by spec'd out; is that right? 4 A. For the valves that we specced out that were 5 readily available from vendors, yes, we gave them the 6 design requirements, we made sure that they functioned 7 as they were supposed to. 8 Q. And -- and how do you figure out what the design 9 requirements were in that project? 10 A. We needed to -- sorry. We required a certain 11 diameter of device to fit within the valve. 12 Q. Uh-huh. 13 A. Can you repeat the question? 14 Q. How did you -- how did you determine what the 15 design requirements were for the hemostasis valve in 16 that project? 17 A. How did we determine it? 18 Q. Yes. 19 A. We're engineers trying to solve the problem. 20 Q. So did you have to figure out what the procedure 21 was? 22 A. We were developing a procedure. 23 Q. Uh-huh. 24 A. We knew the requirements for the size of 25 catheter would need to go through with the valve.	23 1 requirements? 2 A. Those are some examples of design requirements. 3 Q. What other design requirements are there for a 4 hemostasis valve? 5 A. We had requirements for the ability to seal 6 around whatever device is going through it, at given 7 pressures or vacuums. 8 Q. Anything else? 9 A. Those are the ones I can think of at this 10 moment. 11 Q. Okay. So I've heard four: The diameter, what 12 goes through the valve, the friction requirements, and 13 the ability to seal at a pressure or a vacuum. Other 14 than those four, as you sit here today, can you think of 15 any other design requirements in selecting a hemostasis 16 valve for a particular procedure? 17 A. We also had to consider what it was attaching 18 to, so the attachment component; if we were buying an 19 off-the-shelf component, how it would attach to our 20 catheter, let's say. 21 Q. Any others? 22 A. Those are the ones I can think of offhand at 23 this moment. 24 Q. And all these design requirements are driven by 25 the particular procedure; is that right?
22 1 Q. So different procedures would require different 2 hemostasis valves; is that right? 3 MR. STOWELL: Objection. Misstates 4 testimony. 5 THE WITNESS: For the projects I'm 6 discussing, these were different size catheters, 7 different sized valves. They had different 8 requirements. 9 BY MR. HAMILTON: 10 Q. So as an engineer trying to figure out what 11 hemostasis valve to use with a particular procedure, you 12 would need to know what the procedure is first, wouldn't 13 you? 14 MR. STOWELL: Objection. Form. 15 THE WITNESS: We did know the procedure 16 we were developing; yes. 17 BY MR. HAMILTON: 18 Q. And you would choose a hemostasis valve that was 19 particularly suited for that procedure; is that right? 20 A. We would choose the hemostasis valve based on 21 the needs of what had to go through it, what the size 22 was, what the frictional requirements might be. 23 Q. Are those design requirements you just listed -- 24 so what went through it, the frictional requirements, 25 are those -- is that what you mean by design	24 1 MR. STOWELL: Objection. Form. 2 THE WITNESS: It was driven by the needs 3 of the procedure. 4 BY MR. HAMILTON: 5 Q. So then is it fair to say, in selecting a 6 hemostasis valve for use with a procedure, to determine 7 the design requirements for the hemostasis valve, you 8 would need to understand the needs of the procedure? 9 MR. STOWELL: Objection. Form. 10 THE WITNESS: I think, as engineers, we 11 always design to the needs of the physician, the 12 procedure, the environment, the sterilization plan, 13 which was another design requirement I just thought 14 of. 15 BY MR. HAMILTON: 16 Q. And all those requirements relate to the needs 17 from the procedure; is that right? 18 MR. STOWELL: Objection. Form. 19 THE WITNESS: Needs from the physician, 20 the needs of the procedure, the needs of the 21 patient. 22 BY MR. HAMILTON: 23 Q. And do different procedures have different needs 24 or requirements? 25 MR. STOWELL: Objection. Form.

25 1 THE WITNESS: Of course. 2 BY MR. HAMILTON: 3 Q. And is it fair to say that -- 4 A. Excuse me. My phone was ringing. I forgot to 5 turn it off. 6 Q. Is it fair to say, then, that different designs 7 of hemostasis valves will satisfy different design 8 requirements depending on the procedure? 9 MR. STOWELL: Objection to form. 10 THE WITNESS: We certainly had different 11 hemostasis valves for the different catheters 12 because they had different needs and requirements. 13 BY MR. HAMILTON: 14 Q. So one hemostasis valve design isn't going to 15 satisfy every need and every medical procedure; is that 16 right? 17 A. Certainly for the examples I'm familiar with, 18 that is -- different -- different hemostasis valves were 19 important to have for the different aspects of the 20 system. 21 Q. Why is -- why is diameter an important design 22 requirement? 23 MR. STOWELL: Objection. Form. 24 THE WITNESS: For some hemostasis valves, 25 only a guide wire needed to go through. For some	27 1 THE WITNESS: I'm not sure. 2 BY MR. HAMILTON: 3 Q. If you were just going to put a guide wire in, 4 would you choose a hemostasis valve that was 24 French, 5 for example? 6 MR. STOWELL: Objection. Vague. 7 THE WITNESS: For example, the catheters 8 I worked on, when a guide wire was going through, 9 it was a relatively small hemostasis valve designed 10 to fit the guide wire. 11 BY MR. HAMILTON: 12 Q. And why would you choose a relatively small 13 hemostasis valve designed to fit the guide wire, as 14 opposed to a bigger valve, in that instance? 15 A. It just makes sense from an engineering 16 standpoint. 17 Q. And what do you mean by "makes sense from an 18 engineering standpoint"? What about it makes sense? 19 A. It wouldn't make sense to have a huge valve if 20 you were only trying to seal against a small-diameter 21 guide wire. So -- 22 Q. Why not -- oh, you had more to say. Sorry. 23 A. Hemostasis valves to go around guide wires are 24 very readily available off the shelf, so it wouldn't 25 have made sense to design your own extra large valve,
26 1 hemostasis valves, a 20 French catheter needed to 2 go through. So diameter would be pretty important. 3 BY MR. HAMILTON: 4 Q. You said "20 French catheter." Is that a large 5 catheter? 6 MR. STOWELL: Objection. Vague. 7 BY MR. HAMILTON: 8 Q. A large-diameter catheter? Let me clarify. 9 MR. STOWELL: Same objection. 10 THE WITNESS: It depends on the 11 procedure. There are larger catheters used in 12 medical procedures that I'm familiar with, and 13 smaller catheters used. 14 BY MR. HAMILTON: 15 Q. So the size of the catheter generally depends on 16 the specific procedure; is that right? 17 A. It depends on the procedure and depends on the 18 vessel you're going through. 19 Q. If the size of the catheter was, let's say, 20 relatively small compared to the vas- -- vasculature, 21 would the diameter of the hemostasis valve -- would a 22 design requirement be to have the diameter of the 23 hemostasis valve as close to that small size as 24 possible? 25 MR. STOWELL: Objection. Vague.	28 1 which were less available at the time of my -- these 2 projects I'm talking about. 3 Q. So other than availability, is that the only 4 reason you choose a smaller hemostasis valve if you're 5 just inserting a guide wire? 6 A. Just makes sense from an engineering standpoint. 7 Q. What about blood loss? Wouldn't you have more 8 risk of blood loss if you chose a larger-diameter 9 hemostasis valve? 10 MR. STOWELL: Objection. Form. 11 BY MR. HAMILTON: 12 Q. One that was much larger than the needs of 13 what's being inserted? 14 MR. STOWELL: Same objection. 15 THE WITNESS: Even if it were designed to 16 be much larger, the doctor wouldn't open it up much 17 larger than the guide wire, so I'm not sure it 18 would make much difference for blood loss. 19 BY MR. HAMILTON: 20 Q. So is it your testimony that a person of skill 21 in the art, in choosing a hemostasis valve for a 22 procedure that's just inserting a catheter, could choose 23 a 24 French hemostasis valve or a much smaller 24 hemostasis valve and it doesn't make much difference? 25 Is that your testimony?

29 1 A. Can you repeat the question? 2 Q. Is it your testimony that a person of skill in 3 the art choosing a hemostasis valve for a procedure that 4 includes just inserting a catheter would choose a 24 5 French hemostasis valve or a much smaller hemostasis 6 valve and it doesn't make much difference for blood 7 loss? 8 A. I haven't really considered that. 9 Q. Why would someone choosing a hemostasis valve 10 for insertion of just a catheter choose a 24 French 11 hemostasis valve? 12 MR. STOWELL: Objection. Vague. 13 THE WITNESS: Just a catheter? What size 14 catheter are you talking about? 15 BY MR. HAMILTON: 16 Q. Excuse me. The guide wire. Pardon me. 17 A. Can you repeat the question, then? 18 Q. Why would someone selecting a hemostasis valve 19 for insertion of just a guide wire select a 24 French 20 hemostasis valve? Why would that not make much 21 difference? 22 A. I don't believe a typical engineer would select 23 a large hemostasis valve if you were trying to seal just 24 against the guide wire. 25 Q. So it would make a difference, then; is that	31 1 was that a consideration? 2 A. I've never really considered that as a 3 consideration for the valves that I've worked on. 4 Q. So the amount of blood loss based on the size of 5 the valve is not a design consideration for anything 6 that you've worked on; is that right? 7 A. For the devices I've worked on, it was -- always 8 made the most sense to design a valve that was the right 9 size for the device going through it, and that's what we 10 did. 11 Q. So it made sense to match the size of the 12 hemostasis valve to the device going through it in every 13 project you've worked on; is that right? 14 A. In all the valves that I worked on, the size of 15 the valve was closely matched to the size of the 16 catheter or guide wire going through it, yes. 17 Q. And would a POSITA designing a -- and when I say 18 "POSITA," a person of ordinary skill in the art, as 19 you've used the term in your declaration -- match the 20 size of the hemostasis valve to the device going through 21 it, just like you did in every project you've worked on? 22 MR. STOWELL: Objection. Vague. 23 Misstates testimony. 24 THE WITNESS: Certainly I and the 25 engineers I worked with, that was how we typically
30 1 right? 2 MR. STOWELL: Objection. Misstates 3 testimony. 4 THE WITNESS: I just don't think it would 5 make sense to design a huge hemostasis valve if you 6 were only trying to seal against a guide wire. 7 BY MR. HAMILTON: 8 Q. Let's -- let's just be clear. When you say 9 "huge hemostasis valve," what do you mean by huge? 10 A. I believe you said 24 French. That's on the 11 large side. 12 Q. 20 French on the large side? 13 A. Difficult to say. There are a range of 14 catheters out there now from very tiny to 35 French for 15 some procedures. 16 Q. Compared to insertion of a guide wire, is 20 17 French huge? 18 MR. STOWELL: Objection. Vague. 19 THE WITNESS: I would characterize that 20 as being larger than necessary to seal against a 21 guide wire. 22 BY MR. HAMILTON: 23 Q. And would one of the reasons you wouldn't select 24 a hemostasis valve that is larger than necessary -- the 25 risk of more blood loss with a regular hemostasis valve,	32 1 designed the hemostasis valves, for the size of the 2 device going through it. 3 BY MR. HAMILTON: 4 Q. And what about for a person of ordinary skill in 5 the art? 6 A. I and those engineers would have been people of 7 ordinary skill in the art. 8 Q. So a person of ordinary skill in the art would 9 match the size of the hemostasis valve to the device 10 going through it -- 11 MR. STOWELL: Objection. Misstates the 12 testimony. 13 BY MR. HAMILTON: 14 Q. -- when designing a hemostasis valve for a 15 particular application; is that correct? 16 MR. STOWELL: Objection. Misstates the 17 testimony. 18 THE WITNESS: I would say that's what we 19 did; we matched the size of the valve closely to 20 the device going through it. 21 BY MR. HAMILTON: 22 Q. Do you have an opinion on what a person of 23 ordinary skill in the art would do in that circumstance? 24 A. I think they would do the same thing. 25 Q. Let's turn to page 81 of your declaration,

33 1 Exhibit 1003. 2 A. (Complying.) 3 Q. Actually, before we do that, let's just clarify 4 something. Paragraph 35 of your declaration, if you 5 could turn to that. It's on page 12. 6 A. (Complying.) 7 Q. Page 12, paragraph 35. 8 A. Oh, I'm sorry. 9 Q. No problem. I'll try to be consistent when I 10 say it. 11 Does paragraph 35 set forth the definition of a 12 person of ordinary skill in the art as you've applied it 13 in your declaration? 14 A. Yes. 15 Q. Is that your complete definition of a person of 16 ordinary skill in the art? 17 A. Yes. 18 Q. Is anything missing from that definition in 19 paragraph 35 that you'd like to include? 20 A. No. 21 Q. Okay. So when I say "a person of ordinary skill 22 in the art" or "POSITA," your understanding is that it's 23 this definition in paragraph 35; is that fair? Do we 24 have that understanding? 25 A. Yeah, this is my definition of POSITA for	35 1 engineering experience would still be a person of skill 2 in the art, under your definition? 3 A. I believe so. 4 Q. So in applying your definition of a person of 5 ordinary skill in the art, what's set forth in paragraph 6 35 says two to four years, but actually the definition 7 that you applied is someone that could have more 8 experience than two to four years; is that right? 9 MR. STOWELL: Objection. Misstates 10 testimony. 11 THE WITNESS: Certainly I think if 12 someone had more than four years, they would be a 13 person of skill in the art also. 14 BY MR. HAMILTON: 15 Q. They would have more experience than a person of 16 ordinary skill in the art, wouldn't they? 17 A. They would have at least this requirement, yes. 18 Q. What if they have 30 years of experience; would 19 they be a person of ordinary skill in the art? 20 A. If they had the other requirements, yes. 21 Q. So the definition of a person of ordinary skill 22 in the art that you applied in rendering your opinions 23 is someone that could have anywhere from two to 24 four years of experience, up to an unlimited amount of 25 experience in the field; is that right?
34 1 this -- related to the '011 Patent. 2 Q. And you've applied that definition in rendering 3 all your opinions in your declaration; is that right? 4 A. Yes. 5 Q. I want to clarify one other thing. So is there 6 a particular time period for the POSITA that you applied 7 in your declaration? A POSITA as of a particular date? 8 A. Yes. September 6th, 2017. 9 Q. And how did you choose that date? 10 A. This is the relevant priority date from the '011 11 Patent. 12 Q. So the perspective of a POSITA as you've applied 13 it in your declaration is someone who has the 14 qualifications in paragraph 35 -- and nothing more, 15 nothing less -- as of the date you just specified; is 16 that right? 17 MR. STOWELL: Objection. Form. 18 THE WITNESS: As of the date 2017, yes. 19 BY MR. HAMILTON: 20 Q. Is that your complete answer? 21 A. The two to four years of product design or 22 engineering experience, I suppose one could have more 23 than that number of years of product design or 24 engineering experience. 25 Q. So someone with more product design and	36 1 MR. STOWELL: Objection. Misstates 2 testimony. 3 THE WITNESS: I think two to four years 4 would be an appropriate range, but if someone had 5 more experience, that could also be a person of 6 ordinary skill. 7 BY MR. HAMILTON: 8 Q. And you've applied that definition in rendering 9 your opinions in this declaration; is that right? 10 A. I've applied the two to four years in rendering 11 the opinion. 12 Q. Are you a person of ordinary skill in the art? 13 A. I believe I do meet the definition of this with 14 more than two to four years of experience. 15 Q. So your opinions in this matter, for example, 16 are -- are -- when you say a person of ordinary skill in 17 the art would think this or do this, you mean someone 18 just like you? 19 MR. STOWELL: Objection. Misstates 20 testimony. 21 THE WITNESS: No. I mean someone just 22 like I wrote in paragraph 35, with two to 23 four years of product design or engineering 24 experience. 25 BY MR. HAMILTON:

37 1 Q. Okay. Let's go to -- what did I say, paragraph 2 81? 3 A. (Complying.) 4 Okay. 5 Q. Do you understand what is shown in the image in 6 paragraph 81? 7 A. Let me read the section. 8 Okay. Can you repeat the question? 9 Q. Sure. 10 Do you understand what is shown in the image in 11 paragraph 81? 12 A. Yes. 13 Q. What's depicted in the image in paragraph 81? 14 A. U-shaped -- U-shaped actuating members in 15 orange; the interventional tool shown in the center in 16 red; and the -- and the cylindrical diaphragm in green. 17 It's labeled as "lumen," which is really the interior of 18 the cylindrical diaphragm. 19 Q. And those components you just referenced, are 20 those components from an embodiment in the Shafer 21 publication? 22 A. This section is talking about Shaffer's U-shaped 23 members, yes. 24 Q. So is this a depiction of what you believe 25 happens when Shaffer's U-shaped members are used --	39 1 that's shown in the patent. 2 Q. When you say you do believe it seals well, you 3 mean you do believe it doesn't form these gaps as shown 4 in the image on page 81? 5 MR. STOWELL: Objection. Misstates 6 testimony. 7 THE WITNESS: I think it depends on the 8 materials of the lumen, the materials of the 9 actuators, the size of the tool going through. The 10 other aspects, like the spring force, would all 11 vary and may seal very well if it's designed 12 appropriately. 13 BY MR. HAMILTON: 14 Q. So if you take the design of Shafer, including 15 all those things you mentioned, like the materials of 16 the lumen, the materials of the actuators, the size of 17 the tool, et cetera, as disclosed in Shafer, these gaps 18 would not form; is that right? 19 MR. STOWELL: Objection. Vague, 20 misstates testimony. 21 THE WITNESS: It's unclear if they would 22 or would not form, because many of those details 23 are not provided in Shafer. 24 BY MR. HAMILTON: 25 Q. So what you say here in paragraph 81 is, "A
38 1 MR. STOWELL: Objection. 2 BY MR. HAMILTON: 3 Q. -- in a hemostasis valve? 4 MR. STOWELL: Objection. Form. 5 MR. HAMILTON: Withdraw the question. 6 BY MR. HAMILTON: 7 Q. So does this figure show what you believe 8 happens in the hemostasis valve disclosed in Shafer? 9 A. Not necessarily. I think Shafer would seal very 10 well most of the time. It's possible, if it didn't seal 11 well, that gaps could form as shown in the -- in the 12 image on page 56, Section 81. 13 Q. Why would Shafer seal very well most of the 14 time? 15 A. Because it's designed to seal as a hemostasis 16 valve. 17 Q. And it would accomplish that goal, right? 18 MR. STOWELL: Objection. Vague. 19 THE WITNESS: The patent states that it 20 does seal against when tools are inside or with no 21 tool inside. 22 BY MR. HAMILTON: 23 Q. And do you have any reason to doubt that 24 statement in Shafer? 25 A. I do believe it seals well, given the design	40 1 person of ordinary skill in the art would have 2 recognized that if a tool did not fit the size of 3 Shafer's U-shaped members, small gaps could form between 4 the tool and the valve's lumen." 5 Is that a true statement? 6 A. I'd like to see a copy of Shafer. 7 Q. What do you need to see in Shafer? 8 A. The components, the materials, the additional 9 information. 10 Q. And that's not mentioned in your figure there? 11 A. This is a simple graphic. 12 Q. So I'm going to hand you what's been previously 13 marked as Exhibit 1005. 14 (Tendered.) 15 Is 1005 the Shafer we were just referring to and 16 that's referred to in paragraph 81? 17 A. Yes. 18 Q. So when I refer to Shafer, is it fair that we 19 both understand I'm referring to Exhibit 1005? 20 A. I believe there's another Shafer in my table of 21 exhibits which has better images, Exhibit 1009. 22 Q. So you want to include Exhibit 1009 and, when we 23 refer to Shafer, includes both those exhibits? Is that 24 -- is that what you're saying? 25 A. I'd like to see 1009.

41 1 Q. Is it -- is it 1009? Are you sure that's what 2 it is? 3 Does this look like it? Is this what you're 4 referencing, or are you referencing something else? 5 A. Sorry. 1008, the drawings submitted during 6 prosecution. 7 Q. All right. I'll just give you that, 8 Exhibit 1008, previously marked. 9 A. Yes. 10 Q. Sorry, I don't have an extra copy of that, I 11 don't believe. 12 So when you refer to Shafer, you're referring to 13 both these exhibits, is that right, in your declaration? 14 A. Yes. 15 Q. And you used Exhibit 1008 to understand the 16 disclosure of Exhibit 1005; is that right? 17 A. Yes. They were better images of the -- of 18 certain figures, specifically Figures 30 through 34, 19 that had used from 1008. 20 Q. When you say "better images," you can see 21 features in the images in 1008 that you can't see in 22 1005; is that right? 23 MR. STOWELL: Objection. Vague. 24 THE WITNESS: The images seem to be 25 almost photographs and were unclear for certain	43 1 Shafer's metallic/plastic U-shaped actuating members," 2 and continued on with the sentence you read: "A person 3 of ordinary skill in the art would have recognized that 4 if a tool did not fit the size of the Shafer's U-shaped 5 member, that small gaps could form between the tool and 6 the valve's lumen, as illustrated below." 7 Q. So let me just jump back. Earlier you had said 8 Shafer has -- Shafer does seal well in some embodiments; 9 is that right? 10 MR. STOWELL: Objection. Misstates 11 testimony. 12 THE WITNESS: Shafer shows in Figure 32 13 that it seals well with no tool inside. 14 BY MR. HAMILTON: 15 Q. So with no tool, Shafer doesn't have the gap 16 problem; is that right? 17 A. Shafer also discusses sealing well with tools 18 inside. 19 Q. So Shafer -- this embodiment of Shafer -- and 20 let's just be clear, the embodiment we're talking about 21 is the embodiment that's shown in Figures 30 through 22 34 -- seals well when there's nothing inside the lumen 23 and when there's tools inside the lumen; is that right? 24 MR. STOWELL: Objection. Misstates 25 testimony.
42 1 features in 1005. 2 BY MR. HAMILTON: 3 Q. And for those features that were unclear, you 4 looked at Exhibit 1008; is that right? 5 A. Yes. 6 Q. So when you refer to Shafer in your declaration, 7 you're referring to Exhibit 1005 and Exhibit 1008; is 8 that right? 9 A. Yes. 10 Q. Okay. So with that, let's go back to the 11 question. And you said you wanted to understand and see 12 a copy of Shafer to answer the question, so I'm just 13 going to read back the question to you. 14 A. Okay. 15 Q. So when you say here in paragraph 81, "A person 16 of ordinary skill in the art would have recognized that 17 if a tool did not fit the size of Shafer's U-shaped 18 members, small gaps could form between the tool and the 19 valve's lumen," is that a true statement? 20 A. Which sentence are you reading? 21 Q. It's the last sentence prior to the image in 22 paragraph 81. 23 A. The first sentence says, "Second, a person of 24 ordinary skill in the art would have recognized that 25 Hartley's flexible string may better seal the valve than	44 1 THE WITNESS: Let me look at Shafer to 2 see how they describe sealing. 3 Well, I'll just point to the abstract on 4 page 1 that says "a valve for blocking the flow of 5 gas or fluid, with or without an instrument in 6 place, within the gas fluid path. The valve 7 includes the seal module having a proximal end, 8 distal end and a lumen side to allow passage of 9 fluids or gases." 10 BY MR. HAMILTON: 11 Q. So when this says a valve -- what you just read 12 in the abstract, "a valve for blocking the flow of gas" 13 -- "gas or fluid, with or without an instrument in 14 place, within the gas fluid path," that's referring to 15 an instance where gap -- gaps are not formed as shown in 16 81; is that -- is that right? Am I understanding that 17 correctly? 18 MR. STOWELL: Objection. Vague. 19 THE WITNESS: It's certainly designed to 20 block the flow of gas or fluid with or without an 21 instrument in place. 22 BY MR. HAMILTON: 23 Q. So the gaps that you show in paragraph 81, 24 that's not what -- that -- that's -- is not happening 25 when -- with -- for a valve that blocks the flow of gas

45 1 or fluid with or without an instrument in place within 2 the gas fluid path; is that correct? 3 MR. STOWELL: Objection. Form. 4 THE WITNESS: It's designed to seal with 5 or without a tool in place. 6 BY MR. HAMILTON: 7 Q. So when it -- when it seals with or without a 8 tool in place, these gaps that you show in 81 are not 9 formed; is that right? 10 And let me just finish. And then if it doesn't 11 seal well, that's because these gaps are formed; is that 12 correct? 13 MR. STOWELL: Objection. Form. 14 THE WITNESS: That's what I'm describing 15 here, that if it weren't sealing well, then there 16 may be gaps formed. 17 BY MR. HAMILTON: 18 Q. Okay. So Shafer discloses a valve that seals 19 well so no gaps are formed, with or without a tool; is 20 that correct? 21 MR. STOWELL: Objection. Misstates 22 testimony. 23 THE WITNESS: Certainly Shafer's designed 24 to block the flow of gas or fluid with or without 25 an instrument.	47 1 inserted in the lumen in this figure. 2 Q. And when no tool is inserted, there are no gaps 3 in the lumen; is that correct? 4 A. That's what figure 32 is showing. 5 Q. And so for Figure 32, when you have this image 6 of gaps in figure 81, there's -- that wouldn't occur, 7 right? There's no tool, there's no gaps, you have a 8 complete seal in Figure 32; is that right? 9 MR. STOWELL: Objection. Vague. 10 THE WITNESS: Figure 32 is showing a 11 sealed lumen with no tool in place. 12 BY MR. HAMILTON: 13 Q. And when you say "a sealed lumen," that means 14 the lumen is completely closed? Is that what you mean? 15 A. It means no air or fluid could pass, so they're 16 in contact with each other. 17 Q. And is another way to -- to phrase that 18 "completely closed"? 19 MR. STOWELL: Objection. Vague. 20 THE WITNESS: A portion of it is 21 completely closed, where it's touching each other. 22 BY MR. HAMILTON: 23 Q. Okay. Now, let's -- let's focus on 81 and the 24 figure in 81 and the gaps. And what I want to 25 understand is, in what instance would gaps be formed in
46 1 BY MR. HAMILTON: 2 Q. And does Shafer accomplish that design goal? 3 A. I believe it could accomplish that goal with 4 appropriate materials and design features. 5 Q. Well, what about the materials and design 6 features shown with respect to Figures 30 through 34; 7 would that accomplish that goal? 8 A. I believe it would. 9 Q. So let's just make sure our -- our -- we're 10 using the same language. So for a complete seal or 11 seals well, that would mean there's no gaps when I say 12 that. And then if -- if it doesn't seal well or if it's 13 not a complete seal -- seal, then there are gaps as 14 shown in 81. Is -- is that a fair characterization of 15 those terms? 16 MR. STOWELL: Objection to form. 17 THE WITNESS: I think that's fair. 18 BY MR. HAMILTON: 19 Q. Okay. You -- a moment ago you pointed to Figure 20 32 of Exhibit 1008. Can you take a look at that? 21 A. Yes. 22 Q. And -- and does that show a complete seal, 23 meaning no gaps, when nothing is inserted in the -- in 24 the lumen? 25 A. Yes. There's no instrument inserted or tool	48 1 this embodiment of Shafer, Figures 30 through 34? 2 A. In the instance that if -- if the tool did not 3 fit the size of the U-shaped members and small gaps 4 formed, then small gaps could form. 5 Q. And what do you mean by "not fit the size"? 6 A. If certain tools were of a different shape or 7 size that wasn't compatible with the design of the -- 8 design and materials of the actuated members, the 9 compression -- the tube, the springs, then small gaps 10 could form between the tool and the valve lumen. 11 Q. So I'm looking at the tool that you have 12 depicted in paragraph 81. It looks like a circle to me, 13 and it looks pretty dang close to the circle that's 14 formed by the two actuating members, but that's not -- 15 that doesn't fit the size of the U-shaped members. Is 16 that -- is that -- is that right? 17 A. I'm just saying that it may not work in all 18 cases, depending on the materials chosen and the size 19 and diameter -- size and shape of the tool. And in that 20 case, a person of ordinary skill in the art would have 21 recognized that a flexible string may seal better around 22 the valve. 23 Q. Okay. So let's talk about the U-shaped members 24 that are shown in 81. And to form these gaps, would 25 those U-shaped members have to be rigid?

49 1 A. I don't know what level of rigidity you're 2 suggesting. 3 Q. More rigid than a string; how about that? 4 A. Not necessarily. 5 Q. So if the U-shaped members were strings, you 6 would still get these gaps; is that right? 7 A. I believe a string may seal better depending on 8 the characteristics of the string, depending on the 9 characteristics of the U-shaped members, depending on 10 the other material choices and dimensions for these 11 different components. 12 Q. So in this paragraph you talk about replacing 13 the U-shaped members with strings, and I'm trying to 14 figure out why these U-shaped members don't seal and 15 form the gaps and why a string would. Can you explain 16 why that would be? 17 A. It could occur depending if -- depending on the 18 size and shape and material properties of the U-shaped 19 members and depending on the tool inserted. 20 Q. Size, shape and material properties of the 21 U-shaped members; what do you mean by that? 22 A. Exactly what I said. 23 Q. So let's take material properties. What do you 24 -- what did you mean by the material properties? What 25 properties?	51 1 BY MR. HAMILTON: 2 Q. So you said "not designed appropriately, 3 perfectly for every indication, for every type of tool 4 to go through." Does that mean if it's -- if a tool is 5 inserted that it wasn't designed for? Is that what you 6 mean by that? 7 A. Can you repeat the question? 8 Q. I'm trying to understand what you meant by "not 9 designed appropriately, perfectly for every indication, 10 for every type of tool." What did you mean by that? 11 A. Just what I said. 12 Q. The U-shaped actuating members were not designed 13 for the tool that is being inserted through the lumen; 14 is that what that means? 15 A. If it weren't working appropriately for a range 16 of tools that the -- were necessary for the procedure, 17 then some adjustments might have to be made to the 18 actuating members or the lumen material or the spring 19 force, maybe other parameters also. 20 Q. And if an engineer knew the procedure, they 21 could design a hemostasis valve with actuating members 22 so that the gaps wouldn't form; isn't that correct? 23 MR. STOWELL: Objection. Form. 24 THE WITNESS: It would certainly be the 25 goal to create a valve that sealed around a variety
50 1 A. The relative flexibility of the U-shaped 2 members. 3 Q. And if the relative flexibility was too rigid 4 such that the gaps would form -- I'll withdraw that 5 question. 6 Relative flexibility to what? 7 A. To something more flexible or less flexible. 8 Q. What about to the -- to the lumen? Would that 9 be a good way to think of the relative flexibility? 10 MR. STOWELL: Objection. Vague. 11 THE WITNESS: I'm not sure. 12 BY MR. HAMILTON: 13 Q. If the U-shaped members were less flexible than 14 the material that made up the lumen, these gaps would 15 form, wouldn't they? 16 A. Haven't really considered it relative to the 17 lumen material. 18 Q. So what did you consider it relative to? 19 MR. STOWELL: Objection. Vague. 20 THE WITNESS: I just considered there 21 could be cases where if it were not designed 22 appropriately, perfectly for every indication, for 23 every type of tool to go through, for instance, 24 that adjustments to the flexibility of the actuated 25 members could -- could be beneficial.	52 1 of tools used for that procedure. 2 BY MR. HAMILTON: 3 Q. And one of skill in the art could do that with 4 the valve that's disclosed in Shafer such that gaps are 5 not formed; is that correct? 6 MR. STOWELL: Objection. Form. 7 THE WITNESS: I believe they could. 8 BY MR. HAMILTON: 9 Q. And that would be by matching the U-shaped 10 members to fit the size of the tool? Is that how they 11 would do that? 12 A. I think they would adjust whatever needed to be 13 adjusting to seal well against a tool or the tools being 14 used in the procedure and when no tool was present. 15 Q. And if you're designing a hemostasis valve for a 16 procedure, do you know what tools are going to be used? 17 A. Not necessarily all the time. 18 Q. I'll withdraw the question. 19 If you know which tools are going to be used, 20 can you design Shafer's actuating members such that gaps 21 are not formed? 22 A. I would think a person of ordinary skill in the 23 art could do so. 24 Q. So what's the difference between Shafer's 25 U-shaped members and Hartley's string in terms of

1 flexibility? 2 MR. STOWELL: Objection. Vague. 3 THE WITNESS: It's not clear in the 4 patent or the patents considered what material 5 properties were -- would be of a string or the -- 6 necessarily the U-shaped members. So they could be 7 very similar or they could be somewhat different. 8 MR. STOWELL: Joe, we have been going for 9 about an hour and a half, so when you reach a good 10 breaking time, let's take a break. 11 MR. HAMILTON: Okay. 12 BY MR. HAMILTON: 13 Q. So taking this image in -- in paragraph 81, if 14 Hartley's strings -- string was used in place of each of 15 Shafer's U-shaped members, so you've got two springs -- 16 strings -- 17 A. Sorry, I think I went to the wrong page. You 18 said -- 19 Q. Paragraph 81, same paragraph that we've been 20 talking about. 21 A. Yeah, I -- I switched pages. There we go. 22 Q. So if you replaced each of Shafer's U-shaped 23 members with a string like the string in Hartley, would 24 these gaps form? 25 MR. STOWELL: Objection. Outside the	1 talk about those two instances. One is a single string 2 that loops around, and one is where each U-shaped member 3 is replaced by a separate string. In both those 4 instances, would the -- these gaps form? 5 MR. STOWELL: Objection. Outside the 6 scope. 7 BY MR. HAMILTON: 8 Q. Or in neither of those instances? 9 A. Well, I really haven't considered two strings of 10 Hartley's. I really considered a single string, as 11 Hartley discloses in their -- in their patent 12 application. 13 Q. Can you answer the question? 14 A. I haven't really considered that option. 15 Q. Can you consider it? 16 MR. STOWELL: Objection. Argumentative. 17 Asked and answered. 18 THE WITNESS: It's not something I 19 considered when putting this together. 20 BY MR. HAMILTON: 21 Q. So as you sit here today, if each of Shafer's 22 U-shaped members was replaced by a string, do you know 23 if gaps would be formed or not? 24 A. I don't know. It would also depend on the 25 material properties of the string and the U-shaped
1 scope. 2 THE WITNESS: Well, as I say here, 3 "Hartley's flexible string may better conform to 4 the varying diameters than Shafer's U-shaped 5 members." 6 BY MR. HAMILTON: 7 Q. So if you replaced Shafer's -- each of the 8 Shafer's U-shaped members with a string, so a U-shaped 9 string, would these gaps form? 10 MR. STOWELL: Objection. Asked and 11 answered. 12 THE WITNESS: As I say below in paragraph 13 81, "Hartley's string encircles and, depending on 14 the materials, may conform to the size and shape of 15 a wider range of tools used with the valve." 16 BY MR. HAMILTON: 17 Q. So does that -- does that mean the gaps would 18 not form if you replaced Shafer's U-shaped members, each 19 of those, with a string from Hartley? 20 MR. STOWELL: Objection. Asked and 21 answered. 22 THE WITNESS: Or with a single string 23 that loops around, as disclosed later, on page 59. 24 BY MR. HAMILTON: 25 Q. You said "or with a single string." So let's	1 actuating members. 2 Q. So let's take -- so let's take the instance 3 where a single string is looped around the lumen. In 4 that instance, is it your testimony that gaps would not 5 be formed? 6 A. Yeah, as I state below the image on page 56, 7 "Hartley's string encircled and, depending on the 8 materials, may conform to the size and shape of a wider 9 range of tools used with the valve." 10 Q. So if you chose a material that didn't conform, 11 then Hartley's string wouldn't, when it encircles, 12 eliminate the gaps; is that correct? 13 A. Can you repeat the question? 14 Q. You're just making a point of saying "depending 15 on the materials." So there could be a string from 16 Hartley that you'll loop around the lumen in this figure 17 and the gaps are still formed; is that your testimony? 18 MR. STOWELL: Objection. Misstates the 19 testimony. 20 THE WITNESS: I think it does depend on 21 the characteristics of the string, the diameter of 22 the string, the stiffness. 23 BY MR. HAMILTON: 24 Q. So just to be clear, is it your testimony that a 25 person of skill in the art could take a string of

57 1 Hartley, loop it around the lumen as shown -- not as 2 shown, but loop it around the lumen -- for example, the 3 lumen in the figure in 81 -- and gaps would still be 4 formed? Is that correct? 5 A. No. I believe Hartley's string encircling the 6 lumen may conform to the size and shape of a wider range 7 of tools used with the valve. 8 Q. And does that depend on what material the string 9 is made of? 10 A. I'm not sure. 11 Q. You say right here "depending on the materials." 12 What did you mean by that? 13 A. There could be poor material choices for a very 14 large-diameter metallic cable that may not conform very 15 well to this diameter required. 16 Q. And would a person of skill in the art -- art 17 choose a poor material? Is that something a person of 18 skill in the art would do? 19 A. Probably not. 20 Q. Okay. So let's take the material that would -- 21 would eliminate the gaps within an encircled lumen, 22 okay? You got that material in your head? 23 A. Yes. 24 Q. If you took that material and formed two -- used 25 that material for two strings, one for each of Shafer's	59 1 Q. So as we sit here today, you don't know if gaps 2 would form in that scenario; is that correct? 3 A. That's correct. 4 Q. Is it possible in that scenario that the gaps 5 would be eliminated? 6 A. I'll speculate that it is possible. 7 Q. What do you mean by "speculate"? 8 A. I haven't really considered it or analyzed that 9 option. 10 Q. So you're just guessing? 11 A. You asked me to -- can you read back how you 12 phrased it last time? 13 Q. Is it possible in that scenario that the gaps 14 would be eliminated? 15 A. I think it is possible. 16 Q. And that's based on your experience as an expert 17 in this field; is that right? 18 A. Yes. 19 Q. So you're not speculating, you're not just 20 randomly guessing; is that right? 21 MR. STOWELL: Objection. Asked and 22 answered. Misstates testimony. 23 THE WITNESS: My prior answer is fine. 24 BY MR. HAMILTON: 25 Q. So let's take the two scenarios we just talked
58 1 U-shaped members, would gaps form as shown in the figure 2 in paragraph 81 of your declaration? 3 MR. STOWELL: Objection. Outside the 4 scope. 5 THE WITNESS: Yeah, I don't know. I 6 haven't really considered that option in my 7 declaration. 8 BY MR. HAMILTON: 9 Q. Are you able to consider that option as we sit 10 here today? 11 A. No. I would need to consider it separately. 12 Q. So you don't know as you sit here today whether 13 or not gaps would form if each of Shafer's U-shaped 14 members were replaced by a string from Hartley that 15 otherwise would eliminate the gaps if it was completely 16 looped around the lumen; is that correct? 17 A. I don't know for sure. 18 Q. And you say you don't know for sure. You mean 19 you don't know, or -- or do you think something would 20 happen? 21 MR. STOWELL: Objection. Asked and 22 answered. 23 THE WITNESS: I don't know. I haven't 24 considered that option. 25 BY MR. HAMILTON:	60 1 about: Same material for the string, one, it encircles 2 the lumen, the other one you have two U-shaped strings. 3 Okay. Do you have that in your head? 4 A. Yes. 5 Q. Your declaration does not have an opinion as to 6 whether or not gaps would form with respect to the two 7 U-shaped strings; is that correct? 8 MR. STOWELL: Objection. Form 9 THE WITNESS: I did not include that 10 option or consideration in this declaration. 11 BY MR. HAMILTON: 12 Q. And in the modification in your declaration, 13 it's not just replacing Shafer's U-shaped members with 14 strings, it's using a single string to encircle the 15 lumen; is that correct? 16 A. A single string to encircle the lumen is what I 17 discuss and show in the image on page 59. 18 Q. And that's the modification you're proposing one 19 of skill in the art would do when replacing Shafer's 20 U-shaped members with the string of Hartley; is that 21 right? 22 A. Yes. I state in Section 80 -- paragraph 80, "A 23 person of ordinary skill in the art would have been 24 motivated to replace Shafer's U-shaped actuating members 25 with Hartley's string/flexible member for several

61 1 reasons." 2 Q. And when you say "Hartley's string," you mean a 3 single string that encircles the lumen; is that right? 4 A. That's the option that I considered there, yes. 5 Q. And you didn't consider in your declaration the 6 option of replacing each actuator with a separate 7 string? 8 MR. STOWELL: Objection. Form. 9 BY MR. HAMILTON: 10 Q. Is that correct? 11 MR. STOWELL: Objection. Form. 12 THE WITNESS: I don't believe I included 13 that in the declaration. 14 MR. HAMILTON: Why don't we take a break? 15 THE VIDEOGRAPHER: Please stand by. 16 We are going off the record at 10:43. 17 (Recess.) 18 THE VIDEOGRAPHER: We are back on the 19 record at 10:55. 20 BY MR. HAMILTON: 21 Q. Do you understand you're still under oath? 22 A. Yes. 23 Q. Did you discuss your testimony during the break 24 with anybody? 25 A. No.	63 1 Q. Why did you look at Exhibit 1008? 2 A. Because many of the references for the different 3 components are shown in Figures 31 through 34. 4 Q. So you're relying on Figures 31 through 34 in 5 Exhibit 1008 to understand this embodiment in these 6 paragraphs that we're going -- about to discuss; is that 7 right? 8 MR. STOWELL: Objection. Vague. 9 THE WITNESS: It may be helpful. I don't 10 know. 11 BY MR. HAMILTON: 12 Q. What does the term "forcibly disengage" mean in 13 the -- in the sixth line down in the paragraph I 14 referenced before, paragraph 77? So six lines -- sixth 15 line down from the top of the second column on page 6. 16 A. I read that sentence of "such movement allows 17 each engaged actuating member 55 to forcibly disengage 18 opposing outer walls 27 of the seal module 100, allowing 19 the portion 108 of the containment structure 160 to 20 retract to an uncollapsed configuration." 21 So can you ask the question again? 22 Q. What does "forcibly disengage" mean in that 23 sentence? 24 A. It means moving -- forcibly compressing the 25 buttons to compress the spring, which allows the
62 1 Q. Did you look at any documents? 2 A. No. 3 Q. If you could take a look at Exhibit 1005. 4 That's Shafer. 5 A. (Complying.) 6 Q. If you could turn to paragraph 77. And I'm 7 going to ask you about a sentence in the portion of that 8 paragraph that's on the top of the second column on that 9 page. Let me know when you're there. 10 A. Yeah, I'm looking at it. I haven't read it yet. 11 Q. All right. So the sentence that begins after 12 the 20 -- 1, 2, 3, 4 -- 5 lines down, if you could just 13 take a moment to read that. 14 A. (Complying.) 15 Q. So I see you're looking at Exhibit 1008. Why is 16 that? 17 A. Because this paragraph starting with 66 -- 18 starting with paragraph 75 refers to Figures 30 through 19 34. 20 Q. And you need Exhibit 1008 to understand those 21 figures; is that right? 22 MR. STOWELL: Objection. Vague. 23 THE WITNESS: I've read the section you 24 asked me to read now. 25 BY MR. HAMILTON:	64 1 U-shaped actuating members 55 to move in opposite 2 directions so that the seal module can expand. 3 Q. When you say "move in opposite directions," how 4 do those actuating members move in opposite directions? 5 A. When one presses on the buttons to compress the 6 spring, they're moving toward the center, opposite 7 direction to each other. 8 Q. And is that because those actuating members have 9 some level of rigidity? 10 A. Let me back up. They're moving away from the 11 center. I said toward the center. Sorry. 12 Q. And the actuating members move -- let's just -- 13 let's just clarify. So when you say "away from the 14 center," the U-shaped portion of those members or the 15 curved portion moves away from the center; is that 16 right? 17 A. Yes. 18 Q. But the arms actually are heading towards the 19 center of each curved portion? 20 A. Yes. The buttons are being compressed toward 21 the center, which allows the U-shaped members to move 22 away from the center. 23 Q. And is that because the non-curved portion of 24 each U-shaped member is of a sufficient rigidity to push 25 the curved portion away from the center?

65 1 MR. STOWELL: Objection. Form. 2 THE WITNESS: It depends on the 3 flexibility of the U-shaped members. It's 4 certainly relieving the tension that those U-shaped 5 members are creating around the seal as you 6 compress the buttons. 7 BY MR. HAMILTON: 8 Q. And it's relieving the tension because the 9 U-shaped members forcibly disengage from the lumen; is 10 that right? 11 A. The force is being applied to the buttons in 12 order to relieve the tension on those actuating members, 13 is how I understand the design to work. 14 Q. So if you look at that sentence, it says -- it 15 says "the actuating members to forcibly disengage." So 16 it's not talking about the force on the buttons -- 17 that's -- that is the initiating force -- but it's 18 saying "the actuating members to forcibly disengage." 19 How do the actuating members forcibly disengage? 20 MR. STOWELL: Objection. Form. 21 THE WITNESS: My understanding is you're 22 applying a force to the buttons, and that allows 23 expansion of the resilient member because there's 24 less tension on the actuating members. 25 BY MR. HAMILTON:	67 1 before with respect to paragraph 81 in that figure. Do 2 you remember that from your declaration? 3 A. Paragraph 81, yes. 4 Q. And if you had a string that encircled the lumen 5 that had the -- a material that allowed the lumen to be 6 compressed so no gaps are formed, would that -- a string 7 made of that mate- -- material forcibly disengage as 8 that term is used in Shafer? 9 A. If it were a single loop as I show in -- on page 10 59, by forcibly compressing the buttons, it would 11 decrease the tension on that suture or string, allowing 12 the central seal member to open up. 13 Q. And that would be the actuating member forcibly 14 disengaging; is that right? 15 A. I think that term is appropriate for this design 16 also, the design I'm referring to on Shafer, plus 17 Hartley's string on page 59. 18 Q. And when you say the term is appropriate for 19 this design that you just referenced on page 59 -- and 20 that's page 59 of your declaration; is that right? 21 A. Of my declaration, yes. 22 Q. That term is appropriate because it means that 23 the tension on the string has been released; is that 24 right? 25 A. Yes. You're forcibly compressing the buttons,
66 1 Q. So if I'm understanding you, you -- you read 2 "forcibly disengage" to mean the tension is released on 3 the actuating members. That's what that means to you? 4 A. What I just said is what I meant. 5 Q. Does "forcibly disengage" mean release the 6 tension? 7 A. That's how I understand it for this design. 8 Q. Okay. So this sentence -- all this sentence 9 means to you is the tension is released on the actuating 10 members when the buttons are depressed; is that right? 11 MR. STOWELL: Objection. Misstates 12 testimony. 13 THE WITNESS: I think you were forcibly 14 releasing -- forcibly actuating the buttons to 15 release the tension on the actuators, allowing the 16 central member to expand. 17 BY MR. HAMILTON: 18 Q. So what happens to the actuators is release of 19 tension; is that right? 20 A. You're releasing the tension on the seal module 21 100. 22 Q. So your understanding of forcibly disengage 23 means -- that means the force applied to the buttons? 24 A. That's how I understand it. 25 Q. And let's go back to the example we talked about	68 1 which releases the tension on the string to allow the 2 seal member to expand. 3 Q. Okay. And when you say "seal member," what do 4 you mean? 5 A. Seal module 100 as shown in Figure 34. 6 Q. And that seal module as shown in Figure 34 7 includes third seal member 165; is that right? 8 And I'll just point you to the last sentence of 9 the paragraph we were just referring to in -- in -- on 10 page 26, paragraph 77 of Shafer, if that's helpful. 11 A. I see 165 in the -- in paragraph 77. I'm 12 looking for it on the figures. 13 Figure 34 that we were just discussing shows the 14 item 27, the outer walls of the seal module. I don't 15 see 165 on this Figure 34. 16 Q. Are you finished with your answer? 17 A. Yes. 18 Q. So are you saying that 165 is not found in the 19 embodiment that's shown in Figure 34? 20 A. Unless I missed it, I don't see it listed there. 21 Q. Okay. So you don't see 165 labeled on Figure 22 34. That's -- that's -- that's what you're looking at 23 right now; is that right? 24 A. Correct; I don't see 165 labeled here. 25 Q. But if you look at the paragraph 77 in the

69 1 document that you just said referred to the embodiments 2 from 30 to 34, it discusses third seal member 65? 3 A. Yes, at the end of that sentence. 4 Q. And despite that discussion at the end of the 5 sentence, it's your testimony that Figure 4 [sic] does 6 not include third seal member 165? 7 A. I don't see it labeled here. 8 Q. Does the embodiment shown in Figure 34 as it's 9 described in the specification as -- as it's described 10 in Exhibit 1005, Shafer, include seal member 165? 11 MR. STOWELL: Objection. Asked and 12 answered. 13 THE WITNESS: Can you repeat the 14 question? 15 BY MR. HAMILTON: 16 Q. Does the embodiment shown in Figure 4 -- Figure 17 34 -- excuse me -- include seal member 165? 18 A. I don't see it labeled here. 19 Q. Okay. So you don't see it labeled. Does the 20 embodiment include 165? 21 A. I'd have to look into the patent more deeply to 22 look at seal -- third seal member 165. 23 Q. Let's look at paragraph 77, the last sentence. 24 That paragraph is referring to the embodiment in 30 25 through 34, correct?	71 1 MR. STOWELL: Objection. Misstates 2 testimony. 3 THE WITNESS: I would have to look in 4 more detail for what these -- what this seal member 5 165 is referring to. 6 BY MR. HAMILTON: 7 Q. Do you have an understanding what third seal 8 member 165 is as you sit here today? 9 A. I would need to look in more detail on the 10 patent. 11 Q. Is that a yes or a no? 12 MR. STOWELL: Objection. Asked and 13 answered. 14 THE WITNESS: I would need to look at 15 more detail in the patent. 16 BY MR. HAMILTON: 17 Q. Okay. Let's look at paragraph 75. 18 A. Of the declaration? 19 Q. No, of 1005, Shafer, the document you have in 20 front of you. 21 A. Which paragraph? 22 Q. 75. 23 A. (Complying.) 24 Okay. 25 Q. Do you see that statement "the seal module 100
70 1 A. Yes, I believe so. 2 Q. And that paragraph mentions third seal member 3 165, correct? 4 A. It does. 5 Q. So does that mean that the embodiment of Figures 6 30 through 34, despite the fact that it's not labeled in 7 the figures itself, includes third seal member 165? 8 MR. STOWELL: Objection. Calls for a 9 legal conclusion. 10 THE WITNESS: Yeah, I don't know. I'd 11 have to look in more detail of what 165 -- how 165 12 is described in other areas of the patent. 13 BY MR. HAMILTON: 14 Q. Well, let's look how it's described right here. 15 That doesn't tell you whether or not 165 is part of the 16 embodiments of 30 through 34? 17 MR. STOWELL: Objection. Asked and 18 answered. 19 THE WITNESS: I'm not sure, since they're 20 not labeled on these figures. 21 BY MR. HAMILTON: 22 Q. So it's your testimony today that because it's 23 not labeled in the figure, you don't know if seal member 24 165 is included in the embodiments 30 through -- of 25 Figures 30 through 34?	72 1 is formed of one or more seal members"? 2 A. Yes. 3 Q. Does that mean the seal module includes at least 4 one or more seal members? 5 A. Yes, is formed from one or more seal members. 6 Q. And that's referring to seal module 100, 7 correct? 8 A. Yes. 9 Q. And then if you look at Figure 34, do you see 10 100 listed there? 11 A. Yes. 12 Q. Is that identified? 13 A. Yes. 14 Q. Okay. So Figure 34 includes a seal module; is 15 that right? 16 A. Yes. 17 Q. And that seal module includes one or more seal 18 members; is that right? 19 A. Yes. 20 Q. Okay. Now let's go to paragraph 77, that last 21 sentence. 22 A. (Complying.) 23 Q. That refers to seal module and third seal member 24 165? 25 A. Yes.

73 1 Q. So that paragraph -- excuse me. That sentence 2 indicates that seal module 100, which is labeled in 3 Figure 34, includes seal member 165; is that right? 4 MR. STOWELL: Objection. Form Asked 5 and answered. 6 THE WITNESS: Paragraph 75 doesn't list 7 165 as being one of the -- as being the third seal 8 member, so I would have to look in more detail 9 elsewhere to confirm 165 as part of seal module 10 100. 11 BY MR. HAMILTON: 12 Q. Whether -- whether 165 is -- is a seal member, 13 is that -- is that your issue with it? 14 A. It's just not clear from the drawings where 165 15 would be located. 16 Q. And what about from that sentence at the end of 17 paragraph 77; is it clear from that sentence where 165 18 is located? 19 A. Paragraph 75? 20 Q. Paragraph 77, the sentence we were just 21 referring to. 22 A. It doesn't discuss a first seal member or a 23 second seal member, so I'm not sure where the third seal 24 member is without looking in more detail at the patent 25 at this point.	75 1 A. I'm up to 69. 2 Q. 69? 3 A. 59, sorry. 4 Q. You're on 59? 5 A. Starting with 59. I had to read the background 6 before. 7 Q. Okay. And let me know when you're finished. 8 A. Uh-huh. Okay. 9 Q. Is paragraph 69 describing the third seal member 10 165? 11 A. And 166 is also in that paragraph. 12 Q. And what is 166? 13 A. "The third central seal member 165 includes 14 material 166 that is highly elastic, deformable, 15 compliant, yet virtually noncompressible material 166 16 include modified vinyl, silicone, polyurethane or a 17 combination thereof." 18 Q. So 166 is the material that makes up the -- the 19 seal member 165; is that right? 20 A. That's how it's described here. 21 Q. And what does highly elastic, deformable, 22 compliant and yet virtually noncompressible mean? 23 A. It means very elastic, very deformable, 24 compliant. Noncompressible would mean that it's not 25 permanently compressed.
74 1 Q. And I think you're right, it doesn't discuss a 2 first or second. But it does discuss a third seal 3 member, 165, right? 4 A. Yes. 5 Q. And what does that third seal member do in that 6 sentence? What does it say about it? 7 A. It's able to retract to an unsealed 8 configuration. 9 Q. What does that mean to you? 10 A. That means that once the tension is released on 11 the actuators, on the U-shaped actuators, that the seal 12 member is able to retract to an unsealed position. 13 Q. Does that indicate where the third seal member 14 is in figure 34? 15 A. I can presume it's related -- it's in the area 16 where the U-shaped actuators are located. 17 Q. Let's take a look at paragraph 59 of that same 18 document, Exhibit 1005. 19 A. (Complying.) 20 Q. And you can just take a moment to read that 21 paragraph. 22 A. (Complying.) 23 59? 24 Q. 59, yes. 25 May I ask you what paragraph you're reading now?	76 1 Q. What's the purpose of seal member 165? 2 MR. STOWELL: Objection. Vague. 3 THE WITNESS: In paragraph 60 it says, 4 "The highly compliant third central seal member 165 5 seals around a variety of profile shapes 192 and 6 diameters 194 of the lumen 193 when one side of 7 compressive force 67 is exerted upon the central 8 region." 9 BY MR. HAMILTON: 10 Q. So does that mean the seal member allows the 11 device of Shafer to seal around vari- -- various shapes 12 and diameters of tools? 13 A. It says it's to seal around a variety of profile 14 shapes and diameters when a force is exerted on it. 15 Q. So let's keep that -- keep that page in front of 16 you, on that paragraph, and let's go back to your 17 declaration, paragraph 81. 18 A. (Complying.) 19 Q. Paragraph 81, page 56. 20 So if what's depicted in the figure in -- in 21 paragraph 81 included seal member 165, these gaps would 22 not be formed; is that correct? 23 MR. STOWELL: Objection. Form. 24 THE WITNESS: I don't know. 25 BY MR. HAMILTON:

77 1 Q. Isn't that the point of seal member 165, to fill 2 in the gaps? 3 A. That's the goal of this design, is to prevent 4 gaps, yes. 5 Q. Okay. And so if that seal member 165 was 6 included as either part of the lumen or inside the lumen 7 around the tool, these gaps would not be formed; is that 8 correct? 9 MR. STOWELL: Objection. Form. 10 THE WITNESS: I don't know. 11 BY MR. HAMILTON: 12 Q. But that is the point of 165, to eliminate those 13 gaps? 14 A. The point of the design as a whole is to 15 eliminate those gaps. 16 Q. And the way the design does that is through seal 17 member 165; is that right? 18 MR. STOWELL: Objection. Vague. 19 THE WITNESS: I actually think this 20 paragraph 59 and 165, when we talk about extremely 21 soft, highly elastic materials, is referring to a 22 different design embodiment, though shown, I think, 23 in Figures 12 through 15. 24 BY MR. HAMILTON: 25 Q. Okay. So these paragraphs here are referring	79 1 A. Let me look at the Shafer patent a bit more. 2 Q. So you're not looking at the Shafer patent. I 3 see you're looking at your declaration. 4 MR. STOWELL: Objection. Argumentive. 5 THE WITNESS: To find a reference that 6 would refer me to the Shafer patent. 7 BY MR. HAMILTON: 8 Q. Okay. 9 If you need a little time, why don't we go off 10 the record and -- 11 MR. STOWELL: No, no. Let's stay on the 12 record. There is a question pending and the 13 witness has said that he needs to review the 14 materials. 15 MR. HAMILTON: Yeah, I'm -- I'm not going 16 to waste my time as the witness reads through his 17 declaration. 18 BY MR. HAMILTON: 19 Q. Can you answer the question? 20 MR. STOWELL: For the record, the witness 21 has said he needs to review the materials to answer 22 the question, and counsel is not letting him answer 23 the question or review the materials. 24 BY MR. HAMILTON: 25 Q. Do you know what the question is?
78 1 to -- not referring to embodiments 30 through 34 -- or 2 Figures 30 through 34; is that right? 3 A. On paragraph 54 they start with references to 4 Figure 5 through 22. 5 Q. Okay. 6 A. Which are different embodiments from the 30 7 through 34 which are represented by the image on page 56 8 of my declaration. 9 Q. Okay. So let's assume 165 is not included in 10 the embodiment 30 through 34. If you included 165 in 11 your image shown in paragraph 81 of your declaration, 12 would that eliminate the gaps? 13 MR. STOWELL: Objection. Outside the 14 scope. Form. 15 THE WITNESS: I don't know. It wasn't 16 the description of the material used for the 17 sealing lumen for the later embodiments. 18 BY MR. HAMILTON: 19 Q. I'm sorry, what did you mean by that? 20 A. Figures 30 through 34 describe a different seal 21 module. 22 Q. Is that right? So -- so Figures 30 through 34 23 refer to the 165, but you think it's a different seal -- 24 seal member 165 a -- different from seal member 165 in 25 paragraph 59 and 60? Is that your testimony?	80 1 A. I'm looking for the seal module description 2 that's used for the later embodiments 30 through 34. 3 Q. The seal module description used for the later 4 embodiments 30 through 34 in Shafer; is that right? 5 A. Yes. 6 Q. And you're looking at your declaration, you're 7 not looking at Shafer; is that right? 8 A. I'm looking at my declaration to see the 9 reference of where I can find it more quickly in the 10 Shafer patent. 11 Q. Wouldn't it be simpler just to look at Shafer 12 where it mentions seal member 165? 13 A. I thought this would be faster. 14 Q. Let me see if I can help you out. Why don't you 15 look at paragraph 81 of Shafer. 16 A. (Complying.) Okay. 17 Q. Is that the same description of the materials 18 that form the seal member 165 found in paragraph 59? 19 Ask when I say in that, I am referring to 20 paragraph 81. Isn't that referring to the same seal 21 member 165? 22 A. It says, "In one option, the third seal member 23 includes materials 166 that's highly elastic, 24 deformable, compliant." They also go on to say, "The 25 basic materials are in one option modified by

81 1 compounding them with waxes and/or oils or un-" -- "or 2 un-cross-linked modifiers," and then they give a range 3 of Shore hardness examples from 5 to 15, another option 4 of 15 to 20 Shore hardness on the 00 scale. 5 Q. Okay. Now compare that to paragraph 59. Isn't 6 that the exact same description of seal member 165? 7 A. Paragraph 59? The difference is in paragraph 8 59, after it talks about Shore hardness in the range 9 between 15 to 20 on the Shore -- 15 to 20 Shore on the 10 00 scale, "this provides material that is extremely soft 11 and compliant and intrinsically sticky." 12 Q. So let me stop you there. So that's describing 13 the material that's just described right above it, isn't 14 it? 15 A. In paragraph 59. 16 Q. Yep. 17 So the material that's described in paragraph 18 59, its property is -- excuse me. 19 It -- the paragraph 59 says, "This provides a 20 material that is extremely soft, compliant and 21 intrinsically sticky." That's referring to the material 22 that is just set forth right above that sentence in 23 paragraph 59, correct? 24 A. Yes. 25 Q. And that material is the same material and the	83 1 A. Yes. 2 Q. And that same material is described in paragraph 3 81, isn't it? 4 A. It is described in paragraph 81, but they don't 5 talk about the self-closing nature and the gelatinous 6 attributes of the material. 7 Q. Okay. So we've got the same material that's 8 described in paragraph 59 as in paragraph 81. You just 9 don't know the properties of -- of the material in 81 10 because it's not laid out in 81; is that right? 11 A. They don't give those descriptors of being 12 sticky and gelatinous. 13 Q. Okay. So if one skilled in the art took that 14 material 165 in -- from paragraph 59 and put it in the 15 figure of 81 of your declaration, these gaps would not 16 be formed; is that correct? 17 MR. STOWELL: Objection. Outside the 18 scope. 19 THE WITNESS: I'm not sure if they would 20 be formed or not. What I do know is that it 21 probably wouldn't reopen, which the -- you know, as 22 we were reading before in paragraph 77, when the 23 actuating members are forcibly disengaged -- sorry 24 -- when they disengage opposing outer walls of the 25 seal module 100, allowing -- allowing portion 108
82 1 same description as paragraph 81 for the seal member 165 2 in embodiments 30 through 34 -- excuse me -- Figures 30 3 through 34; is that correct? 4 A. It's the same material and Shore hardness, but 5 they doesn't mention the sticky -- intrinsically sticky 6 attribute. 7 Q. So do you believe it wouldn't be sticky, have 8 that intrinsically sticky attribute? 9 A. I'm not that familiar with the soft materials 10 and whether they would be sticky or not. 11 Q. Okay. So there's some material described in 12 paragraph 59 and then it talks about the properties of 13 that material after, at the bottom of paragraph 59, 14 correct? 15 A. Right. These are given as examples, and it says 16 "for illus-" -- "illustrative purposes only, the nature 17 of the material of the third central seal member 165 can 18 be compared to a gelatinous substance. Material 166 is 19 of a self-closing nature in that it sticks occlusively 20 to itself, formally a nearly" -- "nearly fluid/gas tight 21 seal under very light compression." 22 Q. So that's referring to the material that's 23 described 166 at the beginning of that paragraph, right? 24 A. Yes. 25 Q. Those are the properties of that material?	84 1 of the containment structure 160 to retract to an 2 uncollapsed configuration where gases and fluids 3 can pass through. 4 So if the material was chosen to be 5 extremely soft and sticky, then I don't believe it 6 would retract and open once the tension is 7 released, once the buttons are forcibly disengaged. 8 BY MR. HAMILTON: 9 Q. So let's focus on before the buttons are 10 disengaged. Before the buttons are disengaged, that 11 material would fill these gaps, so gaps would not be 12 formed, correct? 13 MR. STOWELL: Objection. Form. Outside 14 the scope. 15 THE WITNESS: I think it's possible. 16 BY MR. HAMILTON: 17 Q. You don't know? 18 A. It depends on the material properties of that 19 seal member. It depends on the U-shaped actuator 20 members that are compressing it. It depends on the tool 21 that's going inside. 22 Q. The purpose of that material is to seal around a 23 variety of profile shapes and diameters as shown in 24 paragraph 60, but you don't know if it would actually do 25 that. Is that -- is that your testimony?

85 1 A. It certainly would be designed to do that. I 2 also think it would be -- a person of skill in the art 3 wouldn't use a sticky material for the designs shown in 4 Figure 30 through 34 because it wouldn't reopen once the 5 tension is released on the actuators or suture line. 6 Q. What if the material was highly elastic, 7 deformable, compliant, and yet virtually 8 noncompressible; would it open in that instance? 9 A. It's hard to say what those meaning -- what 10 those definitions are. 11 Q. You don't understand what those words mean? 12 A. Those all have a range of mechanical parameters 13 that could be widely varying. 14 Q. And a person of skill in the art could pick a 15 material that had those parameters that would open, 16 correct? 17 A. I'm not sure, given the hardness ranges, if that 18 would be true or not. 19 Q. So 165 is referred to as a third seal member. 20 What are the other two seal members? If it's helpful, 21 I'll point you to paragraph 51. 22 A. Well, in paragraph 64 the seal model 100 23 includes, in one option, for seal member 170 having a 24 first material, the second seal member 180 having a 25 second material, and a third seal member 165 having a	87 1 A. Figure 13 shows the pressure 1 -- pressure 270 2 moving seal member 170 and compressing seal member 165, 3 collapsing it to seal. 4 Q. Would you -- would you describe that -- would it 5 be fair to say that that would be a passive hemostasis 6 valve? 7 A. Yeah. This embodiment does not include any 8 exterior members that are compressing the seal module, 9 so it -- I think it could be considered a passive valve. 10 Q. Would you -- would you -- what -- what would 11 that term mean to you, passive -- a passive hemostasis 12 valve? 13 A. That it's able to seal on its own without 14 additional manipulation or buttons being pushed or a 15 rotator being rotated on a rotating hemostasis valve. 16 Q. And then let's contrast that to an active 17 hemostasis valve. What would an active hemostasis valve 18 be? 19 A. Something like a rotating hemostatic valve, 20 which is commonly used in medical procedures. 21 Q. So something that requires an active -- an 22 action from -- from a user, like a medical practitioner, 23 push the buttons, rotate the dial? 24 A. Or pinch the valve, yes. 25 Q. Let's go back to paragraph 59 of Exhibit 1005.
86 1 third material. So as shown on Figures 12 through 15, 2 that delineates the first, second and third seal members 3 for this embodiment. 4 Q. So the first seal member is 170? 5 A. 1-7-0. 6 Q. So the second seal member is 180? 7 A. Yes. 8 Q. And the third seal member is 165, correct? 9 A. Yes. 10 Q. Do you understand what seal member 170 does, how 11 it operates? 12 A. Relating to Figures 12 through 15? 13 Q. Sure. We can take those figures. 14 A. Yeah, so in paragraph 65, the back pressure from 15 retrograde flow 270 forces the first seal member 170 to 16 move distally, to the right in the case of these 17 figures, toward the second seal member 180 under the 18 influence of pressure from the gas or fluid. The third 19 seal member is compressed. However, since the seal -- 20 since the material 166 of the third central seal member 21 165 is essentially noncompressible, the lumen 193 of the 22 third seal member 165 collapses upon itself 23 circumferentially. 24 Q. Okay. So that -- that -- let's look at Figure 25 13. Is that shown in Figure 13?	88 1 A. (Complying.) 2 Q. Scratch that. Paragraph 63. This is the -- 3 this is the embodiments we were just talking about. 4 First sentence says "the use of a seal module 100 that 5 requires no compressive load for use in sealing the 6 stasis valve." 7 Is that a description of a passive valve, as we 8 just discussed? 9 A. Yes, I would consider this a description of a 10 passive valve. 11 Q. Paragraph 65, last sentence -- I'm sorry. 12 Do you see the sentence that begins "In one 13 option, at least one of the first and second materials 14 have a higher durometer than the third material"? 15 Paragraph 65, last sentence that's on the next page. 16 A. Yes. 17 Q. What does that mean, the higher durometer? 18 A. That it's a harder plastic and less able to 19 deform under, in this case, blood pressure, I guess. 20 Q. So does that mean that the first or second 21 material won't deform, while the third material will? 22 A. That's my understanding of this design, where 23 you can see in Figure 13, 170 has moved to the right, 24 given the pressure 270 exerted on it, and causes only 25 165, the third seal member, to collapse on itself. The

89 1 other two, 170 and 180, have not collapsed inwardly on 2 themselves. 3 Q. Do you recall earlier this morning we were 4 discussing design considerations when designing a 5 hemostasis valve? 6 A. Yes. 7 Q. Would ease of manufacture ability be a design 8 consideration when designing a hemostasis valve? 9 A. I think the ability to manufacture is always a 10 good consideration to use when designing anything, yes. 11 Q. All right. What about durability; would that be 12 a design consideration in designing a hemostasis valve? 13 A. Certainly the valve -- a valve would have to be 14 durable enough to be used during the procedure, but I 15 don't typically think of durability as being an issue 16 with hemostasis valves. 17 Q. And -- and is that because they're used one 18 time? Is that -- is that why you don't really consider 19 durability? 20 A. The ones I've worked on have been single-use 21 devices, used for a single procedure. 22 Q. Okay. So let's define durability as durable 23 enough for that single procedure. Would that be a 24 design consideration? 25 A. Yes. It has to work during the entire	91 1 Q. So multiple filaments -- each of the more than 2 one filament is a single continuous piece; is that 3 right? 4 MR. STOWELL: Objection. Form. 5 THE WITNESS: The patent described it as 6 the at least one filament. So two or more 7 filaments could be acting together to compress the 8 central member. 9 BY MR. HAMILTON: 10 Q. And when you say "two or more filaments," you 11 mean two or more single continuous pieces, correct? 12 A. As shown in Figures 7 and 8, there are two 13 separate filaments. 14 Q. So going back to this phrase, Column 13, 15 starting at line 9, "in embodiments in which the 16 filament 150 comprises multiple filaments," the question 17 was, multiple filaments in that sentence means 18 individual continuous filaments -- 19 MR. STOWELL: Objection. 20 BY MR. HAMILTON: 21 Q. -- correct? 22 MR. STOWELL: Objection. Calls for a 23 legal conclusion. 24 THE WITNESS: It doesn't say 25 "continuous," but it's shown in Figures 6 and 7 as
90 1 procedure. 2 Q. Okay. Let's go -- I'm going to change gears a 3 little bit. 4 Did I give you Exhibit 1001? Do you have that? 5 That's the -- the patent at issue. 6 A. Yes. 7 Q. Okay. Let's take a look at that. I want to 8 point you to column 13, starting at line 9. 9 A. (Complying.) 10 Q. If you could read that sentence, line 9 to 12. 11 A. (Complying.) 12 Q. Let me know when you're ready for the question. 13 A. Okay. 14 Q. What does that mean, "in embodiments in which 15 the filament comprises multiple filaments"? 16 What does that sentence mean to you -- or that 17 phrase? 18 MR. STOWELL: Objection. Vague. 19 THE WITNESS: I believe what you're 20 referring to, Figure 7, 8 and 9, which have 21 multiple filaments. 22 BY MR. HAMILTON: 23 Q. When you say -- what do you mean by multiple 24 filaments? 25 A. More than one.	92 1 two individual filaments. 2 BY MR. HAMILTON: 3 Q. And this sentence is -- is getting at when the 4 filament in total, so made up of multiple filaments, 5 in -- in which the filament 150 comprises multiple 6 filaments. So you have a filament that can be made up 7 of many individual filaments, correct? That's what that 8 means? 9 A. Yes. It can be -- it can comprise multiple 10 filaments. 11 Q. And let's -- let's try to make it more clear, 12 because we're using the word "filament" a lot. So I'm 13 just going to substitute -- one -- one example of a 14 filament, I think, is a string in the patent. 15 A. Cord -- 16 Q. Let's use cord. 17 A. -- certainly -- 18 Q. Let's use cord. 19 So in embodiments in which the cord comprises 20 multiple cords, what's that's referring to is the 21 filament in total, the cord in total, can have multiple 22 individual continuous cords; is that correct? 23 A. Yeah, I believe that's how I read it. 24 Q. Okay. And then the next phrase, "each of those 25 multiple continuous cords can have a first end and a

93 1 second end," what does that mean? 2 A. Well, as it says, each can have a first end and 3 a second end. It goes on to say that the first and 4 second filaments 150-A and 150-B can be coupled to the 5 actuator 142. 6 Q. So let's focus on that. "Each of the multiple 7 filaments," that's each of -- each of the individual 8 cords, single continuous individual cords, correct? 9 MR. STOWELL: Objection. Calls for a 10 legal conclusion. 11 THE WITNESS: Well, what I can say is the 12 figure that's referring to the first and second 13 ends, 700 and 702, which are the left end of Figure 14 7, the left two ends and the right two ends are -- 15 are considered the second end of the combined 16 filament. 17 BY MR. HAMILTON: 18 Q. Okay. So you just referred to Figures 8 and 9; 19 is that right? 20 A. 7, I believe. Figure 7. 21 Q. So Figure 7 -- what's the first end and second 22 end of Figure 7? 23 A. First end is 700 and the second end of 702 of 24 one or more of the multiple filaments of the multiple 25 filaments, and it goes on to say those ends can be	95 1 BY MR. HAMILTON: 2 Q. So collectively they're the same; is that -- is 3 that -- is that what you mean? 4 A. They are both labeled the same as a first end 5 versus a second end. 6 Q. They are. 7 But this statement says each of the multiple 8 filaments has a first end and second end. That doesn't 9 mean collectively they have a first end and second end; 10 it means each of them does, doesn't it? 11 MR. STOWELL: Objection. Form. Asked 12 and answered. 13 THE WITNESS: Yeah, I don't know. It 14 appears that each one has a first end and a second 15 end. 16 BY MR. HAMILTON: 17 Q. What -- what -- when you say "each one," what 18 are -- what were you looking at there? 19 A. Figure 7 is what we're referring to. 20 Q. So -- so in Figure 7, each one of the individual 21 continuous filaments has a first end and second end, 22 correct? 23 A. They're both labeled the same, as 700. So I 24 believe they're combining them together as part of the 25 multiple filaments.
94 1 coupled to the housing or other portion of the valve. 2 Q. Okay. So look at Figure 7. 3 A. Uh-huh. 4 Q. Each individual single continuous piece has a 5 first end and a second end in that figure, correct? 6 A. They're both labeled 700 as a first end, so I 7 think they're combining them as together they form the 8 filament. When you have more than one filament, it's -- 9 the entire grouping is called filament 150. 10 Q. So what I'm trying to figure out is, this 11 sentence on line 11 -- this phrase starting at line 10, 12 it says "each of the multiple filaments," not together. 13 And each of the multiple filaments can have a first end 14 and second end. Do you see that? 15 A. I see that. 16 Q. And what you're telling me is the figure shows 17 something different from that; is that right? 18 MR. STOWELL: Objection. Misstates 19 testimony. 20 THE WITNESS: I'm saying that the way the 21 patent is written, when there are multiple 22 filaments, they consider the first end 700 and the 23 second end 702 to be the same. They're both 24 labeled 700 on the left side. They're both labeled 25 702 on the right side.	96 1 Q. So in Figure 7, each continuous individual 2 filament has a first end and second end, correct? 3 MR. STOWELL: Objection. Asked and 4 answered. 5 THE WITNESS: It has an end labeled 700, 6 each of the individual strands. Together they form 7 the filament 150 when there's multiple filaments, 8 is how I would interpret it. 9 BY MR. HAMILTON: 10 Q. So in Figure 7, each individual filament has a 11 first end and second end, correct? 12 MR. STOWELL: Objection. Asked and 13 answered. 14 THE WITNESS: I think I've answered it. 15 BY MR. HAMILTON: 16 Q. And then collectively together, the first end 17 and second end of each of those filaments is on the same 18 side; is that right? 19 A. The first end is 700 on the left side. The 7 -- 20 the -- the second end is 702 on the right side. 21 Q. And there's two second ends and two first ends 22 in that figure, correct? 23 A. Yes. 24 Q. Okay. Now turn to Figure 8 and 9. 25 A. (Complying.)

97 1 Q. Figure 8 and 9 is different, isn't it? 2 MR. STOWELL: Objection. Vague. 3 BY MR. HAMILTON: 4 Q. In Figure 8 and 9, each continuous piece has two 5 first ends or two second ends; is that right? Two of 6 the same ends; is that correct? 7 A. Well, the first end is labeled 700, of the 8 composite or -- you know, the composite of multiple 9 filaments, they're labeling the left side as 700 versus 10 the right side of 702. 11 Q. So the composite of multiple filaments -- 12 scratch that. 13 So now let's focus on one of the individual 14 single continuous filaments shown in Figures 8 and 9. 15 You can pick either one. That single continuous 16 filament either has two -- it has -- has two first ends 17 or two second ends? 18 That's an awkwardly worded question. 19 There's two filaments there, so let's just -- 20 let's just pick one. Let's say 150-A. Do you see 21 150-A? 22 A. Yes. 23 Q. So 150-A is a single continuous filament, 24 correct? 25 MR. STOWELL: Objection. Vague.	99 1 A. It has two ends. And from the standpoint of 2 this patent, they're considered together to comprise a 3 single filament, the left side of which is the first end 4 of the, I'd say, composite filament. 5 Q. I kind of -- I think I see your confusion. It 6 doesn't make any sense to say a single continuous member 7 has two first ends, does it, because they have a first 8 end and a second end; isn't that right? 9 MR. STOWELL: Objection. Misstates the 10 testimony. 11 THE WITNESS: I think the patent language 12 is clear that when they're combined together, 13 they're considering it a first end of the multiple 14 filaments. 15 BY MR. HAMILTON: 16 Q. And when they're not combined together, how does 17 the patent consider the ends? 18 MR. STOWELL: Objection. Outside the 19 scope. 20 THE WITNESS: When it's a single 21 filament? 22 BY MR. HAMILTON: 23 Q. No. When you have two filaments but you're 24 referring to one of the single -- excuse me. Let's 25 stick with our language, members.
98 1 THE WITNESS: It is one single wire or 2 filament material, yes. 3 BY MR. HAMILTON: 4 Q. Okay. So I -- let's just call it a single -- 5 single member. A single continuous member. Is that 6 fair? 7 A. Yes. 8 Q. And then 150-B is a single continuous member; is 9 that right? 10 A. Yes. 11 Q. Collectively, those two single continuous 12 members make up the filament in Figure 8, correct? 13 A. Yes. In some embodiments, a filament can 14 comprise multiple filaments, as shown in Figures 7 15 through 9. 16 Q. Okay. 17 A. So collectively they're forming the filament. 18 Q. And each of those single continuous members 19 shown in Figure 8 -- let's -- let's just talk about -- 20 let's just focus on one. Member 150-A, that single 21 continuous member, has two first ends in Figure 8, 22 doesn't it? 23 A. It has two ends. They're labeled as 700, the 24 first end. 25 Q. So does it have two first ends?	100 1 When you have two members, like 150-A and 150-B 2 how does the patent refer to the ends of -- of each of 3 those members? 4 A. Collectively as the first end. 5 Q. So let's take one of them. How does it refer to 6 the ends of one of those members? 7 MR. STOWELL: Objection. Outside the 8 scope. 9 THE WITNESS: It refers to 700 and 700 10 for each of the two ends of a single member 150-A. 11 BY MR. HAMILTON: 12 Q. As a first end or -- or as a first and second 13 end? 14 A. As a first end, 700 is labeled on each end of 15 150-A member. 16 Q. So each end of 150-A, that single continuous 17 member, is labeled in Figure 8 as a first end; is that 18 right? 19 A. Yes. 20 Q. And each end of the single continuous member 21 150-B in that same figure is -- is labeled as a second 22 end; is that right? 23 A. Yes. 24 Q. Okay. Now let's look back at the language 25 describing that figure that says each -- this is column

101 1 13, line 10 -- "each of the multiple filaments"-- so 2 we'll say members -- "can have a first end and a second 3 end." 4 This language says that each of the individual 5 members has a first end and second end, not a single 6 member having two first ends. This is different from 7 the figure, isn't it? 8 MR. STOWELL: Objection. Form. 9 THE WITNESS: I think it's just written 10 as when you have multiple filaments, which are 11 going to get connected to a button on one end, that 12 they're considering that the first end. 13 BY MR. HAMILTON: 14 Q. So what does each of the multiple filaments 15 mean? Isn't that referring to a single member, either 16 150-A or 150-B? 17 A. I'm not sure. 18 Q. You don't know? 19 A. I'm not sure. 20 Q. You don't know what that's referring to? 21 A. It's referring to everything we're talking 22 about. 23 Q. Each of the multiple filaments, does that refer 24 to 150-A by itself or 150-B by itself? 25 MR. STOWELL: Objection. Asked and	103 1 Q. What's a loop? 2 MR. STOWELL: Objection. Form. 3 THE WITNESS: As defined by which patent? 4 BY MR. HAMILTON: 5 Q. In the field of the invention of the '011 6 Patent, what does the term "loop" mean? 7 A. Let me see how they define it. 8 Q. I want to withdraw the question. 9 Earlier you discussed the field of the invention 10 as hemostasis valve for intravascular catheters. Do you 11 recall that? 12 Let me -- let me just make sure I get it right. 13 I really -- I don't want -- I don't want to change the 14 field as set forth in your declaration. And that was, I 15 believe, paragraph 26. 16 "Hemostasis valves for use during intravascular 17 procedures." 18 Do you see that? 19 A. Yes. In paragraph 26 of the declaration, my 20 declaration. 21 Q. In that field, what does the term "loop" mean -- 22 withdraw that question. 23 Does the term "loop" have a -- 24 THE VIDEOGRAPHER: Be careful with your 25 microphone.
102 1 answered. Form. 2 THE WITNESS: Yes, I think so. 3 BY MR. HAMILTON: 4 Q. And then that language says each can have a 5 first end and a second end; is that right? 6 A. That's what it says. 7 Q. And that is not what's shown in Figures 8 and 9, 8 correct? 9 MR. STOWELL: Objection. Asked and 10 answered. 11 THE WITNESS: I believe the figure is 12 really showing when it's a composite, when it's 13 comprised of multiple filaments, and they wanted to 14 make clear to label the first end of the composite 15 such that that end would be attached to one 16 actuating member and the other end attached to the 17 other actuating member. 18 BY MR. HAMILTON: 19 Q. So the figure is different from what's described 20 in this sentence on column 13 starting at line 9, ending 21 at line 11 -- line 12, correct? 22 MR. STOWELL: Objection. 23 THE WITNESS: I'm not sure it's 24 different. 25 BY MR. HAMILTON:	104 1 BY MR. HAMILTON: 2 Q. -- a well-understood meaning in that field? 3 A. That's not a term I would have been familiar 4 with before reviewing these patents and these designs. 5 Q. So from the perspective of a person of ordinary 6 skill in the art, that person would not be familiar with 7 a particular definition for the term "loop" in this 8 field; is that -- is that your testimony? 9 A. I'm saying that I had not seen a hemo- -- 10 hemostatic valve that involved a loop mechanism prior to 11 working on this project and reviewing these patents. 12 Q. And you're here to testify today about the 13 understanding from the perspective of a person of 14 ordinary skill in the art; is that correct? 15 A. Yes. 16 Q. What is that person's understanding of the term 17 "loop" in the field hemostasis valves for use during 18 intravascular procedures? 19 MR. STOWELL: Objection. Asked and 20 answered. Form. 21 THE WITNESS: I would need to look at how 22 they define loop in this patent to fully answer the 23 question. 24 BY MR. HAMILTON: 25 Q. So as you sit here today, you're not aware of a

105 1 specific meaning for the term "loop" in the field of 2 hemostasis valves for use during intravascular 3 procedures; is that correct? 4 A. I'm saying I wasn't familiar with that term 5 because I wasn't familiar with loops being used for 6 hemostatic valves before this time. 7 Q. And you were familiar with the field of 8 hemostasis valves for use during intravascular 9 procedures before this matter, weren't you? 10 A. Yes. 11 Q. So now let's focus on as the term "loop" as used 12 in the '011 Patent. 13 What does the term "loop" mean in the '011 14 Patent? 15 A. So the first reference I see -- it may not be 16 the first reference in here, but the first reference to 17 loop that I can find here is column 13, line 29, "The 18 filament 150 can be arranged in a variety of 19 configurations. In some embodiments, the filament 150 20 can be configured to form a single loop 604 that can 21 extend around the elongate member 132 and/or through 22 which the elongate member 132 can be received as shown 23 in Figure 6." 24 Q. So you just read a sentence from the -- the 25 specification. Do you remember the question?	107 1 shape would be ovalized instead of round. So a loop on 2 its own doesn't necessarily have a given shape; it also 3 depends on what it's looping around. 4 Q. And if I understand what you're saying, the loop 5 has to extend around the entire shape, is that right, to 6 be a loop? 7 MR. STOWELL: Objection. Misstates 8 testimony. 9 THE WITNESS: The example they give is 10 Figure 6, which loops around in a circle. 11 BY MR. HAMILTON: 12 Q. So in the example, the loop extends around the 13 entire shape; is that right? 14 A. Yes. 15 Q. So does the term "loop" mean that whatever is 16 forming the loop extends around the entire shape? 17 A. Not necessarily. 18 Q. So a loop doesn't have to extend around a shape? 19 A loop -- a loop, in your opinion, could be a U-shaped 20 member? 21 A. Possibly. 22 Q. Do you see column 13, line 44? 23 Do you see the term "bite"? 24 A. Yes. 25 Q. You see a definition for that term?
106 1 A. Yeah, what's the definition of a loop. 2 Q. So what's a loop? 3 MR. STOWELL: Objection. Asked and 4 answered. 5 THE WITNESS: It's a filament that can 6 extend around an elongate member as shown in Figure 7 6, is one example shown. 8 BY MR. HAMILTON: 9 Q. A loop is a filament? Is that your testimony? 10 A. It says "the filament 150 can be configured to 11 form a single loop." 12 Q. Okay. So form a loop -- 13 A. So for -- 14 Q. What shape it is a loop -- I'll withdraw the 15 question. 16 Does loop denote a shape? 17 A. Not necessarily a given shape. 18 Q. That sentence says "form a loop." In that 19 sentence, does loop denote a shape? 20 A. I think what it's -- what it's wrapping around 21 delineates a shape. 22 Q. What it's wrapping around -- what do you mean 23 "it"? What is "it" in that sentence? 24 A. If, theoretically, the elongate member were 25 oval, the loop would loop around an oval shape, so the	108 1 A. Yes. 2 Q. What's the definition of a bite? 3 A. The bite refers to a U-shaped section between 4 the two ends of the filament 150 as depicted in Figures 5 8 and 9. 6 Q. Is that U-shaped section ever described as a 7 loop in the '011 Patent? 8 A. I don't believe so. 9 Q. So the examples in the '01- -- '011 Patent use 10 the term "loop" -- all the examples for a loop in the 11 '011 Patent, the material forming the loop extends 12 entirely around some object; is that correct? 13 A. I'm not sure if all of the embodiments, but 14 certainly Figure 6 does. 15 Q. And Figure 7? 16 A. Yes, I would consider that a loop. 17 Q. Figures 8 and 9? 18 A. As defined by the patent, they would be a bite. 19 Q. Are they loops? 20 A. I would say together they act as -- could act as 21 a loop, but individually they're defined as a bite. 22 Q. When you say "could act as a loop," are the -- 23 is the form shown in Figures 8 and 9 a loop? 24 A. The form of each member would be considered a 25 bite, based on the description in the patent. Acting

109 1 together, they could act similar to a loop. 2 Q. Are they a loop? 3 A. They're defined as a bite. 4 Q. Okay. Let's take a look at column 9. 5 MR. STOWELL: We've been going for 6 another over -- over an hour and a half, so when 7 you get a chance, let's take a break. 8 MR. HAMILTON: This -- I'm going to 9 change -- change gears, so why don't we -- why 10 don't -- do you want to take a lunch break? 11 MR. STOWELL: Yeah, that's fine. 12 THE VIDEOGRAPHER: Please stand by. 13 We are going off the record at 12:29. 14 (Recess.) 15 THE VIDEOGRAPHER: We are back on the 16 record at 1312. 17 BY MR. HAMILTON: 18 Q. Mr. Thornton, you -- you understand you're still 19 under oath? 20 A. Yes. 21 Q. Did you discuss your testimony with anybody 22 during the break? 23 A. No. 24 Q. Did you read any documents during the break? 25 A. No.	111 1 know that the Ellers' wire member may provide more 2 flexibility than Shafer's U-shaped actuating members? 3 What is it about U -- Shafer's members and Shafer that 4 tells you that those members are less flexible than 5 Ellers' wire member? 6 MR. STOWELL: Objection. Form. 7 THE WITNESS: It may conform better. It 8 just depends on the materials chosen for the 9 sealing member or the U-shaped actuating members, 10 depending on the flexibility of the wire as it 11 compared to the flexibility of the U-shaped 12 actuating members. 13 BY MR. HAMILTON: 14 Q. So is Ellers' wire member more flexible than 15 Shafer's metallic plastic U-shaped actuating members? 16 A. It's not very clear in the patents because they 17 don't talk about material properties of flexibility. 18 Q. So what did you mean by that when you said that? 19 A. I meant that it could be an option that it may 20 provide more flexibility, if -- if needed, to optimize 21 the design. 22 Q. So you -- you -- it's possible that one would 23 not need to optimize the design of Shafer; is that -- is 24 that correct? 25 A. I think it's possible.
110 1 Q. If you could turn to Exhibit 1003 -- that's your 2 declaration -- page 69, paragraph 94. 3 A. (Complying.) 4 Q. Let me know when you're there and I can ask you 5 a question about it. 6 A. Okay. 7 Q. So in the first line, paragraph 94, starting at 8 the end of the first line "A" -- "A person of ordinary 9 skill in the art would have recognized that Ellers' wire 10 member may provide more flexibility than Shafer's 11 metallic plastic U-shaped actuating members when 12 constricting the valve lumen." 13 Do you see that? 14 A. Yes. 15 Q. How would a person of ordinary skill in the art 16 have recognized that Ellers' wire member may provide 17 more flexibility than Shafer's metallic plastic U-shaped 18 actuating member? 19 A. I think they would have been motivated in the 20 case -- if -- if it weren't sealing well, if the 21 U-shaped actuating members -- the materials that they 22 happened to chose weren't sealing around a wide enough 23 range of tools, a wire member may provide more 24 flexibility to seal better. 25 Q. So the question is, how does one skilled in art	112 1 Q. And that's because Shafer can conform -- can 2 form a complete seal? 3 MR. STOWELL: Objection. Form. 4 THE WITNESS: That is the design intent 5 of the Shafer design, to form a complete seal with 6 nothing inside and with tools inside. 7 BY MR. HAMILTON: 8 Q. So what is it about Shafer's metallic plastic 9 U-shaped actuating members as disclosed in Shafer leads 10 you to believe that they are less flexible than Ellers' 11 wire member? 12 MR. STOWELL: Objection. Misstates 13 testimony. 14 THE WITNESS: Right, it's not clear if 15 they are more flexible or less flexible, but if 16 the, I'll say, metallic U-shaped actuating members 17 were not performing as desired, then the engineers 18 would optimize it with making changes to the design 19 of the actuating members or other components, or 20 could consider using a different material, like 21 Ellers' wire member, to optimize the design. 22 BY MR. HAMILTON: 23 Q. So someone designing the valve, if they had an 24 issue with Shafer's valve, there would be a lot of 25 options to -- to optimize that valve and deal with

113 1 sealing issues like the gaps we previously discussed in 2 paragraph 81 of your declaration; is that right? 3 A. I think there would be multiple parameters that 4 could be adjusted to optimize any of these designs, but 5 the Shafer design, yes. 6 Q. And are some of those options disclosed in 7 Shafer? 8 A. I'd have to look at Shafer in more detail. 9 Q. Let's -- let's talk about the one we've already 10 discussed, sealing member 165. Including seal member 11 165 in the embodiment that you're discussing here in 12 Shafer would deal with the sealing issue, wouldn't it? 13 MR. STOWELL: Objection. Form. 14 THE WITNESS: It's unclear because the -- 15 you have a range of material properties. They 16 don't give dimensions of the sealing member. It's 17 not clear that it would -- 18 BY MR. HAMILTON: 19 Q. Do you believe -- 20 A. -- work. 21 Q. -- Shafer discloses at least one sealing member 22 165 that would eliminate the gaps formed in the Shafer 23 device as disclosed in paragraph 81 of your declaration? 24 MR. STOWELL: Objection. Asked and 25 answered.	115 1 mechanism might be useful; is that right? 2 A. It may be able to accommodate a wider range of 3 tools and devices, like I said in that paragraph. 4 Q. What does that mean, could conform to the size 5 and shape of a wider range of tools? 6 A. If the Shafer U-shaped actuating members weren't 7 conforming well to a certain size or shape, then it's 8 possible that a wire member that was more compliant 9 might conform better to those sizes and shapes. 10 Q. So, essentially, Ellers' wire is more flexible 11 than Shafer's actuating members, such that it could 12 conform to the size and shape of a wider range of tools; 13 is that right? Is that your testimony? 14 MR. STOWELL: Objection. Misstates 15 testimony. 16 THE WITNESS: The material properties of 17 the U-shaped actuating members are not clearly 18 defined in the Shafer application. They could be 19 quite flexible. They could be more -- somewhat 20 more rigid, somewhat stiffer, somewhat more 21 flexible. It's not clear. They don't provide 22 material properties for the U-shaped actuating 23 members. 24 BY MR. HAMILTON: 25 Q. So let's take the instance that Shafer's
114 1 THE WITNESS: Yeah, I don't know if it 2 would or not. 3 Excuse me. 4 BY MR. HAMILTON: 5 Q. Okay. If you could just move down a little 6 farther in that same paragraph, 94. 7 A. (Complying.) 8 Q. The line beginning "compliant constricting 9 mechanism," do you see that? 10 A. Yes. 11 Q. So that sentence reads, "However, a more 12 compliant constricting mechanism" -- what does more 13 compliant constricting mechanism mean? 14 A. The filament. 15 Q. More compliant constricting mechanism means 16 filament? 17 A. It could mean the filament plus the 18 spring-actuated buttons in this case. 19 Q. And -- and how is a more compliant constricting 20 mechanism helpful in creating a complete seal? 21 A. It could be helpful as an option if the Shafer 22 U-shaped actuating -- actuating members weren't 23 performing as desired. 24 Q. So if Shafer didn't complete a -- didn't form a 25 complete seal, then Ellers' more compliant constricting	116 1 U-shaped actuating members are quite flexible such that 2 a complete seal is formed in the embodiment of Shafer 3 Figures 30 through 34. Okay? Are you with me? If that 4 was the case, there would be no reason to include 5 Ellers' wire member, would there? 6 MR. STOWELL: Objection. Form. 7 THE WITNESS: Well, as I said before, 8 flexibility of the components is one aspect of 9 those. U-shaped components is one aspect. The 10 sealing member, the spring force, the dimensions 11 used for those members all have -- all play in 12 together. So it's certainly possible that Shafer's 13 U-shaped members would form a seal really well 14 around multiple tools. And if it did not, then 15 there could be other options, like Ellers' -- 16 Hartley's string or Ellers' wire member. 17 BY MR. HAMILTON: 18 Q. So if Shafer's U-shaped members formed a 19 complete seal around multiple tools, there would be no 20 reason to include Ellers' wire member or Hartley's 21 string in Shafer; isn't that correct? 22 MR. STOWELL: Objection. Misstates 23 testimony. 24 THE WITNESS: If it worked perfectly for 25 all the range of tools, then there probably

117 1 wouldn't be a need to make adjustments and move to 2 a string-type member. 3 BY MR. HAMILTON: 4 Q. All right. Let's take a look at Exhibit 1001. 5 And you can put that away. I'm finished with that for 6 now. 7 A. (Complying.) 8 Q. That's the -- that's the patent at issue here, 9 the '011 Patent? 10 A. Yes. 11 Q. And if you could go to column 9, first paragraph 12 in column 9, starting at line 10. 13 A. (Complying.) 14 Q. Let me know when you're ready for some 15 questions. 16 A. Yes. 17 Q. Does the term "filament" have a well-understood 18 meaning to a person of skill in the art in the field of 19 hemostasis valves for use during intravascular 20 procedures? 21 MR. STOWELL: Objection. Outside the 22 scope. 23 THE WITNESS: I would say the term 24 "filament" meaning is explained in the patent. For 25 instance, toward the end it says, "In some	119 1 themselves. 2 Q. So you -- you've used the term "filament" in 3 your career in the medical field; is that right? 4 A. Yes. 5 Q. And you've used that to describe different 6 components of -- of devices in the medical field; is 7 that right? 8 A. The example I'm thinking about was for pull 9 lines, pull wires that were used for steerable 10 catheters. 11 Q. What's a pull line? 12 A. So if you want to curve the distal end of a 13 catheter, there would be a lumen in which a filament or 14 cable or flat wire might be used to attach to the distal 15 end. It's then attached to a handle end so that when 16 the doctor actuates and pulls on that filament, then the 17 tip will curve. 18 Q. So in that -- for that filament you just 19 described, that filament runs through a catheter; is 20 that right? 21 A. Yes. It's through a lumen of the catheter. 22 Q. A lumen of the catheter. Sorry. 23 And the catheter is in the vasculature of a 24 patient when it's used; is that right? 25 A. The example I'm thinking about, it is in the
118 1 embodiments the filament can be" -- "can comprise 2 one or several threads, lines, cords, ropes, 3 ribbon, flat wire, sheet or tape." 4 BY MR. HAMILTON: 5 Q. Okay. So let's talk about, not the patent, but 6 the field of hemostasis valves for use during 7 intravascular procedures. You with me? 8 A. Yes. 9 Q. Does the term "filament" have a well-understood 10 meaning to a person of skill in the art in that field? 11 MR. STOWELL: Objection. Outside the 12 scope. 13 THE WITNESS: I'm not familiar with 14 filaments being used in hemostasis -- hemostasis 15 valves before getting involved with this project. 16 I would say for this -- purposes of this patent, it 17 really is the section I read earlier at the end of 18 this column 9, rows -- the last few rows to row 20. 19 BY MR. HAMILTON: 20 Q. Does the term "filament" have a well-understood 21 meaning to a person of ordinary skill in the art in 22 medical devices in general? 23 A. I certainly use the term "filament" in my 24 experience with pull wires, pull lines for steerable 25 catheters. That was a term that was used for the lines	120 1 patient when it's used. 2 Q. And does it have lots of curves and bends, the 3 catheter -- the lumen of the catheter, in that example? 4 A. The steerable catheters I worked on were going 5 in the venous side, all the way into the heart, which is 6 a fairly straight access, so not a lot of curves in the 7 vasculature to get there. 8 Q. Are there any curves? 9 A. Yes. 10 Q. Would the filament you just described have to be 11 flexible enough to navigate through the lumen of the 12 catheter through those curves? 13 A. It's much more of an issue of the catheter 14 itself in navigating, not the filament itself. It's -- 15 doesn't add a lot of stiffness to the catheters that 16 I've worked on. 17 Q. So the filament in that example is very 18 flexible; is that -- is that a fair characterization? 19 MR. STOWELL: Objection. Vague. 20 THE WITNESS: We use different filaments 21 of different sizes. Some were more flexible than 22 others. 23 BY MR. HAMILTON: 24 Q. Were they -- did they all have some degree of 25 flexibility?

121 1 MR. STOWELL: Objection. Vague. 2 THE WITNESS: I think every material has 3 some degree of flexibility. 4 BY MR. HAMILTON: 5 Q. Were those filaments machine parts? Were they 6 made by machine -- machining? 7 A. The filaments I'm thinking about were typically 8 braided wire or braided Vectran -- maybe that's the 9 trade name for a polymer that's braided into a strong -- 10 actually strong filament. 11 Q. What do you mean by "actually strong"? 12 A. It had to withstand a fair amount of tension in 13 order to curve the distal end of the catheter. 14 Q. Have you ever use the term "filament" in a 15 publication? 16 A. I don't believe so. 17 Q. What about a patent? Do you have any patents 18 that use the term "filament"? 19 A. I don't recall the term that was used in the 20 steerable guide patents that I've -- that I'm familiar 21 with. 22 Q. So as you sit here today, you don't recall using 23 the term "filament" in any of your patents? 24 A. I don't recall if we used the term "filament" or 25 "pull wire" or some other nomenclature.	123 1 relates to this patent is what's important. 2 BY MR. HAMILTON: 3 Q. And outside of this patent, you don't have an 4 understanding of what the term "filament" means; is that 5 correct? 6 MR. STOWELL: Objection. Outside the 7 scope. Asked and answered. 8 THE WITNESS: Well, I just described 9 filaments, pull wires that I've used in the past, 10 so I have some understanding of using that term in 11 my past projects. 12 BY MR. HAMILTON: 13 Q. Okay. Let's look at column 9 of Exhibit 1001, 14 line 10 -- starting at line 10. 15 A. (Complying.) 16 Q. That line explains that the filament of the '011 17 Patent can be made from a variety of materials. Do you 18 see that? 19 A. Yes. 20 Q. Now I'm going to ask you about each of those 21 materials. 22 So the first one is a polymer. Is it possible 23 to make a filament out of a polymer that's sufficiently 24 flexible to loop around, say, a lumen? 25 MR. STOWELL: Objection. Outside the
122 1 Q. Would it surprise you to learn that you used the 2 term "filament" in your patents to describe something 3 that is flexible, like a string or a thread? 4 A. I don't understand the question. 5 Q. Would it surprise you to learn that in one of 6 your patents, you equated the term "filament" with a 7 thread-like material? 8 A. Not necessarily. 9 Q. Because that's a common understood meaning of 10 the term "filament," isn't it? 11 MR. STOWELL: Objection. Form. 12 THE WITNESS: I'm not sure what the 13 common understanding is for filament. 14 BY MR. HAMILTON: 15 Q. You don't know what the common meaning of 16 filament is; is that right? Is that your testimony? 17 A. I think the meaning of filament is -- as it 18 relates to that patent is what's important and related 19 to the -- my disclosure. 20 Q. And unrelated to the patent, you don't 21 understand what the term "filament" means; is that 22 right? 23 MR. STOWELL: Objection. Outside the 24 scope. 25 THE WITNESS: I think filament as it	124 1 scope. 2 THE WITNESS: It depends on the lumen 3 size, but I have seen and used polymer -- braided 4 polymer filaments in the example I just provided to 5 you. 6 BY MR. HAMILTON: 7 Q. So the fact that the filament's made from a 8 polymer doesn't tell you how rigid or flexible a 9 filament is; isn't that correct? 10 A. One would need to know other aspects of the 11 filament or -- and material properties of the polymer to 12 determine flexibility. 13 Q. What other aspects? 14 A. Dimension, diameter of the individual strands, 15 overall diameter, material properties. 16 Q. Okay. So let's talk about the next one, a 17 synthetic. Do you see that? Do you understand what 18 that is? 19 A. Not completely clear what they're referring to 20 as a synthetic. It seems similar to a polymer to me. 21 Q. So then if synthetic, in your understanding, is 22 similar to a polymer, the fact that a filament is made 23 out of a synthetic doesn't tell you how flexible or 24 rigid the filament is, as well, correct? 25 A. Not without knowing the other aspects of the

125 1 filament. 2 Q. And then let's look at the last material, metal. 3 The fact that a filament is made out of metal or not -- 4 excuse me -- made out of metal doesn't tell a person of 5 skill in the art how flexible or rigid that filament is; 6 is that correct? 7 A. One would need to know the dimensions and the 8 material properties to determine flexibility. 9 Q. So the fact that the filament is made -- can be 10 made from these three materials doesn't tell you whether 11 the filament is flexible or rigid, correct, or how 12 flexible or how rigid it is, correct? 13 MR. STOWELL: Objection. Form. 14 THE WITNESS: The relative flexibility or 15 the relative stiffness or rigidity is not clear 16 from those three materials without knowing much 17 more information. 18 BY MR. HAMILTON: 19 Q. All right. I'm going to ask the same question, 20 and maybe we can make it a little simpler for the next 21 sentence. There's some more materials listed: Nylon, 22 stainless steel, Nitinol, silicone or the like. 23 Do you see that? 24 A. Yes. 25 Q. The fact that the filament is made from any one	127 1 scope. 2 THE WITNESS: Rel- -- relative to what, 3 is the -- 4 BY MR. HAMILTON: 5 Q. You just described the strands you're aware of 6 as strands in a metal cable and they're woven into the 7 cable; is that right? Or braided? 8 A. Braided, typically, yes. 9 Q. And wouldn't that mean that they're flexible in 10 that instance? 11 A. It depends on the size. 12 Q. Could you braid something that's not flexible? 13 A. I think the Golden Gate Bridge uses a pretty 14 large braided metal cable to support the bridge, so that 15 gets pretty inflexible, I think. 16 Q. So it depends on the -- the overall dimensions, 17 right? That's the important part; isn't that right? 18 MR. STOWELL: Objection. Form. 19 THE WITNESS: I think it depends on the 20 material, the dimensions, the number of strands 21 that are woven together, all have an impact on 22 whether it's relatively more flexible or relatively 23 less flexible. 24 BY MR. HAMILTON: 25 Q. In the example you gave of the Golden Gate
126 1 of those materials doesn't tell a person of skill in the 2 art how flexible or how rigid the filament is; isn't 3 that correct? 4 A. By just knowing the material, probably not. 5 Q. What does the word "strand" mean to you? 6 A. Well, I'm familiar with it as a -- metal cables, 7 typically they're composed of multiple strands. I think 8 the term is the individual strands that form a filament. 9 Q. Do you see the next line, starting at 13, "In 10 some embodiments the filament can comprise a single 11 strand, such as, for example, a monofilament"? 12 A. Yes. 13 Q. The fact -- the fact that the filament is a 14 single strand, does that tell you whether it's flexible 15 or rigid? 16 A. Not necessarily. 17 Q. Is a strand a long, thin piece? 18 MR. STOWELL: Objection. Form. 19 THE WITNESS: I think that would be a 20 common usage of the term. 21 BY MR. HAMILTON: 22 Q. And would one of skill in the art typically 23 think that strands are flexible, they're on the flexible 24 side of the spectrum? 25 MR. STOWELL: Objection. Outside the	128 1 Bridge, the point of having those metal cables is to add 2 flexibility to the bridge; isn't that right? 3 Depends on the application, doesn't it? 4 MR. STOWELL: Objection. Form. 5 THE WITNESS: It depends on the 6 application. 7 BY MR. HAMILTON: 8 Q. If you look at the next line, starting at 15: 9 "The filament can comprise a plurality of strands that 10 can be, for example, twisted, woven, grouped, and/or 11 fused to form the filament." 12 Do you see that? 13 A. Yes. 14 Q. Does the fact that the filament can comprise a 15 plurality of strands that can be twisted, woven, 16 grouped, and/or fused to form a filament tell one of 17 skill in the art whether or not the filament is rigid or 18 flexible? 19 A. It's not clear what rigid or flexible means, but 20 relatively more flexible or relatively more rigid, you 21 would need to know more information than just whether it 22 was twisted, woven, grouped or fused. 23 Q. So let's use flexibility to mean flexible enough 24 to be looped around a lumen; in this application, a 25 hemostasis valve. The fact that the filament can

129 1 comprise a plurality of strands that can be, for 2 example, twisted, woven, grouped, and/or fused to form a 3 filament doesn't tell you whether or not the filament is 4 flexible enough to be wrapped around a lumen or too 5 rigid to be wrapped around a lumen; is that correct? 6 MR. STOWELL: Objection. Form. Outside 7 the scope. 8 THE WITNESS: I mean, it depends on the 9 material and the processing and the diameter you're 10 trying to wrap around. It also depends on the 11 force you're exerting by the spring mechanism on 12 the buttons. 13 BY MR. HAMILTON: 14 Q. And then let's look at the last sentence: "In 15 some embodiments, the filament can comprise one or 16 several threads, lines, cords, rope, button" -- excuse 17 me -- "rope, ribbon, flat wire, sheet or tape." 18 Do you see that? 19 Can ever -- 20 A. Yes. 21 Q. Yes. Okay. Sorry. 22 Can every one of those forms be constructed in a 23 way such that the filament is flexible enough to be 24 wrapped around a lumen -- looped around a lumen? Excuse 25 me.	131 1 Q. So one skilled in the art could select the 2 proper material from any of this list of materials and 3 the proper form from any of these forms identified here 4 in this section on column 9 that we're just discussing 5 and create a filament that is sufficiently flexible to 6 be wrapped around a lumen of any size for a hemostasis 7 valve; isn't that correct? 8 MR. STOWELL: Objection. Form. 9 THE WITNESS: Not lumen of any size. It 10 depends on the size you're trying to wrap around. 11 BY MR. HAMILTON: 12 Q. So I said a size of the hemo- -- to be used in a 13 hemostasis valve. Does that tell you a range of sizes? 14 A. If it's a size in a hemostasis valve as being 15 discussed here, yes. 16 Q. And for those sizes, one skilled in the art 17 could construct a filament out of any of those 18 materials, in any of those forms -- threads, lines, 19 cords, rope, ribbon, flat wire, sheet or tape -- that 20 would be sufficiently flexible to loop around a lumen in 21 a hemostasis valve; isn't that correct? 22 A. As long as other elements, like the tube itself 23 and the springs to actuate the filament, were part of 24 the design process, then, I think, yes. 25 Q. So the fact that the filament is made from any
130 1 A. It depends on the materials, the size, the 2 construction of the filament. 3 Q. So depending on those things, every one of those 4 forms of a filament could be sufficiently flexible to be 5 wrapped around a lumen; isn't that right? 6 MR. STOWELL: Objection. Form. 7 THE VIDEOGRAPHER: Counsel, please watch 8 the microphone. 9 THE WITNESS: It could be sufficiently 10 flexible to wrap around the sizes discussed -- the 11 sizes assumed for the hemostasis valve in this 12 patent, depending on the size of the valve itself 13 and the, yeah, size of the rope or ribbon, for 14 instance. 15 BY MR. HAMILTON: 16 Q. And so for any size of any of those things, one 17 of skill in the art could select the proper materials 18 and the proper form of any of those forms to make it 19 sufficiently flexible to be wrapped around a lumen; 20 isn't that right? 21 MR. STOWELL: Objection. Outside the 22 scope. 23 THE WITNESS: Can you ask the question 24 again? 25 BY MR. HAMILTON:	132 1 of the materials identified in this section we just 2 discussed in column 9 or any of the forms set forth in 3 this section in column 9 doesn't tell one of skill in 4 the art how flexible or rigid the filament is, does it? 5 MR. STOWELL: Objection. Misstates 6 testimony. 7 THE WITNESS: I think that's what I said 8 earlier, that you would need to know more details 9 about the material and the dimensions and the 10 construction of those materials to be able to 11 quantify or compare relative flexibility of one 12 element versus another. 13 BY MR. HAMILTON: 14 Q. Will you turn to column 11. 15 A. (Complying.) 16 Q. Line 42. If you want to read that paragraph, 17 I'm going to ask you a question about the word "circum-" 18 -- "circumferentially" on line 42. 19 A. Line 42? 20 Q. Yes. 21 A. Column 12? 22 Q. Column 11. 23 A. Column 11. Sorry. 24 Okay. 25 Q. What does the word "circumferentially" mean in

133 1 that sentence? 2 MR. STOWELL: Objection. Outside the 3 scope. 4 THE WITNESS: Well, they're applying an 5 adhesive to the elongate member to attach it 6 completely around to the reinforcement structure 7 320. 8 BY MR. HAMILTON: 9 Q. So the adhesive is applied circumferentially; is 10 that right? 11 A. That's what I'm reading here. "The adhesive can 12 be applied circumferentially to the reinforcement 13 structure and/or elongate member in an adhesive ring 14 that can have a length of" such and such. 15 Q. So does that mean the term "circumferentially" 16 means completely around? 17 A. That's what it means in this description for 18 applying an adhesive to attach two components together. 19 Q. That's what the word "circumferentially" means 20 in that description; is that right? 21 A. That's what I said. 22 Q. If you could turn to column 2. 23 A. (Complying.) 24 Q. The first line in column 2, "constrict, collapse 25 and/or seal." And what I am going to ask you is, what	135 1 the scope. 2 THE WITNESS: I think here they're using 3 it as a verb, to constrict and/or seal the tubular 4 member. 5 BY MR. HAMILTON: 6 Q. So does constrict mean fully seal? 7 MR. STOWELL: Objection. Asked and 8 answered. 9 THE WITNESS: I think you can constrict 10 something, you can compress something without fully 11 sealing. But the purpose of this filament is to 12 seal the tubular member. 13 BY MR. HAMILTON: 14 Q. Does constrict mean to apply -- to apply a force 15 around the outside of something to constrict it? Is 16 that a fair definition of constrict? 17 MR. STOWELL: Objection. Outside the 18 scope. 19 THE WITNESS: I think the way it's 20 written here for this purpose, it's discussing 21 constricting the outside of the tubular member. 22 BY MR. HAMILTON: 23 Q. And when you're constricting the outside of the 24 tubular member, what direction is the force applied? 25 MR. STOWELL: Objection. Outside the
134 1 do those words mean? 2 A. Okay. 3 Q. What does constrict mean in that statement? 4 MR. STOWELL: Objection. Outside the 5 scope. 6 THE WITNESS: Well, as it says, "the 7 filament interacts and the tu-" -- "tubular member 8 to constrict the tubular member via manipulation of 9 the tensioning mechanism." So it's compressing, 10 constricting the sealing member or tubular member. 11 BY MR. HAMILTON: 12 Q. So you said compress, constricting. Is there a 13 difference between compressing and constricting? 14 A. I don't know. 15 Q. Can one compress something without constricting 16 it? 17 MR. STOWELL: Objection. Outside the 18 scope. 19 THE WITNESS: I think in this design you 20 could partially compress it and it doesn't fully 21 constrict in order to fully seal the tubular 22 member. 23 BY MR. HAMILTON: 24 Q. So does constrict mean fully seal? 25 MR. STOWELL: Out- -- objection. Outside	136 1 scope. 2 THE WITNESS: I haven't really thought 3 about it. 4 BY MR. HAMILTON: 5 Q. Can you think about it now? 6 A. Yes. 7 Q. Will you? 8 MR. STOWELL: Objection. Outside the 9 scope. 10 THE WITNESS: The force is being applied 11 from the outside in order to collapse or constrict 12 the tubular member. 13 BY MR. HAMILTON: 14 Q. So would it be fair to say that to constrict a 15 tubular member, you would apply a force in the direction 16 of the diameter of the tubular member, from the outside, 17 towards the center? 18 MR. STOWELL: Objection. Outside the 19 scope. Form. 20 THE WITNESS: Well, not necessarily. It 21 depends on how it's constricting. 22 BY MR. HAMILTON: 23 Q. What -- what ways can it constrict? 24 A. If the constriction were occurring by Figure 6, 25 then it would be constricting around the circumference,

137 1 towards the center. 2 Q. So in the example you just gave, Figure 6, that 3 would be the -- the filament is applying a force that is 4 constricting in the direction of the diameter of the 5 lumen, correct, towards -- from the outside, towards the 6 center? 7 MR. STOWELL: Objection. Vague. Outside 8 the scope. 9 THE WITNESS: Well, it's constricting 10 from the outside towards the middle, yeah. 11 BY MR. HAMILTON: 12 Q. So the direction of the force applied is along 13 the diameter of the lumen or whatever is encircled; 14 isn't that correct? 15 MR. STOWELL: Objection. Form. 16 THE WITNESS: Well, in Figure 6 the force 17 is being applied to the first end and second end of 18 the filament. 19 BY MR. HAMILTON: 20 Q. And applying a force to the first end and second 21 end of the filament causes the filament to shrink in 22 diameter, doesn't it? 23 MR. STOWELL: Objection. Form. 24 THE WITNESS: It's changing diameter to 25 collapse the tu -- the tubular member in order to	139 1 words are used and if they're used in the same way. 2 Q. In your experience in the medical field, do you 3 have an understanding what those two words mean, if 4 they're different or the same? 5 A. I think in the medical field I could think of 6 examples where you could compress someone's artery, 7 let's say, but not constrict. So I can take my pulse; 8 I'm not necessarily constricting the vein, but I'm 9 compressing it. 10 Q. So the -- when you say you're compressing it, 11 the vein is -- the cross-section of the vein is getting 12 smaller or not? 13 MR. STOWELL: Objection. Form. 14 THE WITNESS: It's flattening. 15 BY MR. HAMILTON: 16 Q. Changing shape? 17 A. Changing shape. 18 Q. So the total area for the cross-section stays 19 the same in that example you just gave? 20 A. I think when you have a circular tube with fluid 21 through it and you compress it to a, let's say, 22 elliptical shape, then the cross-sectional area does 23 change. 24 Q. The total area or just the shape of the 25 cross-sectional area?
138 1 create a seal. 2 BY MR. HAMILTON: 3 Q. It's not getting a larger diameter, is it? It's 4 getting a smaller diameter and is shrinking in diameter, 5 correct? 6 A. Shrinking in its circumference. I'm not sure it 7 would be a diameter -- a true circle, but... 8 Q. So shrinking in its circumference? 9 A. Yes. 10 Q. So in Figure 6 the force that's being applied by 11 the filament to whatever's -- the filament is looped 12 around -- so we'll say a lumen -- that force is along 13 the diameter of the lumen; isn't that correct? 14 MR. STOWELL: Objection. Asked and 15 answered. Form. 16 THE WITNESS: I think I've said it's 17 constricting the diameter and the forces are 18 applied towards the center. 19 BY MR. HAMILTON: 20 Q. Do the terms "compress" and "constrict" -- 21 withdraw that. 22 Is there a difference between the terms 23 "compress" and "constrict" as used in the '011 Patent? 24 A. I haven't evaluated that in my disclosure. I 25 haven't looked in detail for where the -- those two	140 1 A. The cross-sectional area of the tube decreases 2 as it's compressed. 3 Q. So the -- the amount of blood that could flow 4 through that tube, would that also decrease, then? 5 A. If I constrict my blood vessel, then it stops 6 the flow. 7 Q. You -- we were just talking about compress, and 8 you said you could compress without constricting. I'm 9 just trying to figure out the difference between those 10 two terms. 11 So would constrict require reducing what -- the 12 amount of something that could flow through a vessel, 13 for example, versus compress would be just changing the 14 shape? Is that -- is that the difference? 15 MR. STOWELL: Objection. Form. Outside 16 the scope. 17 THE WITNESS: In the example I gave, 18 taking my pulse, I think that's true. For fluid 19 flow through pipes, there can be constrictions that 20 change the flow rates but don't completely stop the 21 flow through a pipe, let's say. 22 BY MR. HAMILTON: 23 Q. So a constriction doesn't have to completely 24 stop the flow, it just has to alter the potential flow 25 rate; is that right?

141 1 A. In a general sense, I think that's true. 2 Q. And maybe a -- maybe a -- if we're not talking 3 in the context of flow rate, there's -- I don't know all 4 the specifics, but there are differences depending on 5 laminar flow, et cetera. But let's just say area that 6 flow -- that flow could go through. It constricts the 7 area of the tube, for example -- or a constriction of 8 the area of the tube would lessen the total area of the 9 tube; is that right? 10 MR. STOWELL: Objection. Form. Outside 11 the scope. 12 THE WITNESS: Changes the -- it would 13 change the cross-sectional area at that point. 14 BY MR. HAMILTON: 15 Q. If you could turn to column 22. 16 A. (Complying.) 17 Q. Let's look at line 24. 18 A. (Complying.) 19 Okay. 20 Q. So is it your position that the term "filament" 21 as recited on line 24 -- so this is within Claim 1 of 22 the '011 Patent -- can include one or more individual 23 single continuous filaments? 24 A. Claim says "at least one filament," so I believe 25 it could include more than one filament.	143 1 continuous member or does that include multiple single 2 continuous members? 3 MR. STOWELL: Objection. Form. 4 THE WITNESS: I think, as it says, it 5 includes at least one filament. 6 BY MR. HAMILTON: 7 Q. And can that at least one filament be satisfied 8 by multiple single continuous members? 9 MR. STOWELL: Objection. Calls for a 10 legal conclusion. Outside the scope. 11 THE WITNESS: Yeah, I'm not a lawyer. 12 These are the claim terms, so that's -- 13 BY MR. HAMILTON: 14 Q. I -- I don't want to confuse you. Let me see if 15 I can make it easier. 16 So let's look at Figure 8, for example. If you 17 -- if you want to go to Figure 8 and then just keep the 18 claim there, because I want to compare the two. 19 A. I've got Figure 8 on my -- in my disclosure here 20 too. 21 Q. And that -- when you say you're looking at 22 Figure 8 in your disclosure, what page are you looking 23 at? 24 A. Page 48. 25 Q. And there's a -- what you believe is a
142 1 Q. So what does at least one filament mean to you? 2 A. One or more filaments. 3 Q. And that at least one filament -- let me -- let 4 me -- let me -- let me withdraw that question. 5 So the claim recites "a constricting mechanism 6 including at least one filament." You see that? 7 A. Yes. 8 Q. And at least one filament, to you, means one or 9 more filaments; is that right? 10 A. Yes. 11 Q. And then the next line says "and an actuator 12 coupled to the filament." 13 What does "the filament" referring to? 14 A. The at least one filament. 15 Q. So when the claim recites the filament, that 16 refers to one of the one or more single continuous 17 filaments; is that right? 18 MR. STOWELL: Objection. Misstates 19 testimony. Calls for a legal conclusion. 20 THE WITNESS: Not necessarily. 21 BY MR. HAMILTON: 22 Q. It's referring to the at least one filament? 23 A. I believe when they use the term "filament," 24 they are referring to the at least one filament. 25 Q. And does at least one filament mean a single	144 1 reproduction of the Figure 8 from the '011 Patent; is 2 that right? 3 A. Yes, with additional labels of first end of 4 filament 700 on the left side, the second end of 5 filament 702 on the right side. 6 Q. So is the -- is the two single individual 7 members shown in Figure 8 -- we already discussed this 8 earlier today -- 150-B and 150-A -- together, do 9 those -- are those at least one filament or are each of 10 those at least one filament? 11 MR. STOWELL: Objection. Form. 12 THE WITNESS: I believe together they 13 form the filament. 14 BY MR. HAMILTON: 15 Q. Okay. And then is 150-A by itself at least one 16 filament? 17 A. It is part of the plurality of filaments that 18 are in this embodiment. 19 Q. Okay. So let's say that that language was 20 interpreted to mean -- the at least one filament was 21 interpreted to mean one single continuous member, so 22 either one of 150-A or 150-B, okay. Are you with me? 23 A. It's a hypothetical. 24 Q. It is. It is a hypothetical. Do you understand 25 the hypothetical?

145 1 A. I don't think it relates to what we're talking 2 about here. 3 Q. Okay. But do you understand it? 4 A. Rephrase it, please. 5 Q. So the "at least one filament" as recited in 6 Claim 1, let's say the board in this case construes that 7 to mean one continuous member. Okay? 8 A. Hypothetically. 9 Q. Hypothetically, yes. 10 And then do you see "an actuator coupled to the 11 filament" in the next line? 12 A. Yes. 13 Q. In that instance, that one continuous member 14 would have to be coupled to an actuator, right? 15 MR. STOWELL: Objection. Outside the 16 scope. 17 THE WITNESS: I haven't considered this 18 hypothetical in my disclosure, so I really can't 19 answer that. 20 BY MR. HAMILTON: 21 Q. What is "the filament" referring to? 22 MR. STOWELL: Objection. Asked and 23 answered. 24 THE WITNESS: It's referring to the at 25 least one filament in the line above.	147 1 Figure 33? 2 Q. Yes. 3 Are you ready for the question? 4 A. Yes. 5 Q. So you see the actuating members 55 in Figure 6 33? 7 A. Yes. 8 Q. There's two actuating members, aren't there? 9 A. Yes. 10 Q. And each one of those actuating members is a 11 single continuous piece, correct? A single continuous 12 member; is that right? 13 MR. STOWELL: Objection. Form. 14 THE WITNESS: They are separate, you 15 know, components that together comprise the 16 filament in this case. 17 BY MR. HAMILTON: 18 Q. And each one of them is U-shaped, correct? 19 A. That's how they're described in the patent and 20 shown here. 21 Q. And each one of them -- each one of those 22 U-shaped actuating members has two ends, correct? 23 MR. STOWELL: Objection. Vague. 24 THE WITNESS: Taken on its own, each of 25 the actuator members could be considered to have
146 1 BY MR. HAMILTON: 2 Q. Okay. And then in our hypothetical, we've said 3 that at least one filament means a single continuous 4 member. So if we substitute that into the filament, 5 which it's referring to, then the actuator must be 6 coupled to the single continuous member; is that right? 7 MR. STOWELL: Objection. Outside the 8 scope. 9 THE WITNESS: I haven't considered that 10 option. 11 BY MR. HAMILTON: 12 Q. What do you mean you haven't considered that 13 option? 14 A. I haven't considered that hypothetical that you 15 proposed. 16 Q. Are you having trouble understanding it? 17 A. I haven't considered it in my deposition. 18 Q. So I'm asking you to consider it now. Can you 19 consider it now? 20 A. I can't consider it now. 21 Q. Okay. Let's -- let's do this maybe a little 22 differently. If you could take a look at either 23 Exhibit 1005 or 1008. Your choice. We're going to look 24 at the figures. And we will just go to Figure 33. 25 A. (Complying.)	148 1 two ends. 2 BY MR. HAMILTON: 3 Q. Do they have two ends? What do you mean, "could 4 be considered"? 5 A. When it's assembled here, they're acting 6 together as a -- more than one filament -- at least one 7 filament. 8 Q. Okay. So let's take them each individually. 9 Each individual actuating member here has two ends, 10 right? 11 MR. STOWELL: Objection. Outside the 12 scope. And vague. 13 THE WITNESS: They each have a -- they 14 each have two ends if you consider the components 15 separately. 16 BY MR. HAMILTON: 17 Q. Okay. So I'm going to ask you to consider them 18 separately. The two ends of one of those actuating 19 members -- each one has two ends. The two ends of one 20 of them is attached to one actuating button, correct? 21 MR. STOWELL: Objection. Form. Outside 22 the scope. 23 THE WITNESS: They are attached to the 24 actuating button. 25 BY MR. HAMILTON:

149 1 Q. So both ends of a single actuating member is 2 attached to the same button; is that correct? 3 MR. STOWELL: Objection. Vague. 4 THE WITNESS: Yes. 5 BY MR. HAMILTON: 6 Q. And then for the other actuating member, the two 7 ends of that actuating member attach to a different -- 8 are attached to a different button, correct? 9 A. They are. 10 Q. So this -- these two actuating members in Figure 11 33 -- I'll withdraw the question. Let me start that 12 over. 13 So Figure 33 does not disclose a single 14 one-piece member that attaches to two different buttons, 15 does it? 16 MR. STOWELL: Objection. Vague. 17 THE WITNESS: It shows two actuating 18 members 55 in Figure 33. 19 BY MR. HAMILTON: 20 Q. And each of those are attached to different 21 buttons. We just established that, right? 22 A. Each of them is attached to a different button, 23 yes. 24 Q. Figure 33 does not show a single continuous 25 member attached to both buttons, correct?	151 1 A. Generally, it would be machined from a piece -- 2 piece of aluminum to create the part that you want. 3 Q. And would that result in a rigid part? 4 MR. STOWELL: Objection. Vague. 5 THE WITNESS: It depends how -- it 6 depends what the dimensions are of the components 7 in question. 8 BY MR. HAMILTON: 9 Q. Are you familiar with machining aluminum? 10 A. Somewhat. I'm not a machinist, but I've had 11 components made out of aluminum. 12 Q. Would a person of skill in the art generally 13 create parts that are meant to be flexible from -- by 14 machining aluminum? 15 A. Depends on how flexible it would need to be. 16 Q. Let's say flexible enough to conform in the 17 Shafer patent to the shape of the lumen around which the 18 U-shaped member is placed. 19 MR. STOWELL: Objection. Vague. 20 THE WITNESS: Can you repeat the 21 question? 22 BY MR. HAMILTON: 23 Q. Let's say flexible enough to conform to the 24 shape of the lumen around which the U-shaped member is 25 placed.
150 1 MR. STOWELL: Objection. Vague. 2 THE WITNESS: It shows two separate 3 members attached to each button. 4 BY MR. HAMILTON: 5 Q. Let's turn to Exhibit 1005. This is the Shafer 6 reference. 7 A. (Complying.) 8 Q. If you look at paragraph 82 on page 27 of 9 Exhibit 1005, you see the sentence, "The actuating 10 member 55 and the actuating button 261 is machined from 11 aluminum" 12 Do you see that? 13 A. I see that it starts out by saying "in one 14 option is made from" -- that the -- "the stasis valve 10 15 in one option is made from machining preexisting amounts 16 of metals and/or plastics." 17 Q. Okay. And then we're focusing on the next line: 18 "The actuating member 55 and the actuating button 261 is 19 machined from aluminum." 20 Do you see that? 21 A. Yes. 22 Q. What does that mean? 23 A. That in an option, those members could be 24 machined from aluminum. 25 Q. What does "machined from aluminum" mean?	152 1 MR. STOWELL: Same objection. 2 THE WITNESS: Difficult to say without 3 knowing the dimensions and how it was processed and 4 what type of aluminum it is. Aluminum can be quite 5 flexible. I have aluminum wire in my garage that's 6 quite flexible material. 7 BY MR. HAMILTON: 8 Q. And -- and is it your understanding that 9 aluminum wire can be made by machining aluminum? 10 A. Typically it would not be. 11 Q. I'm going to hand you what's been marked as 12 Exhibit 1011. 13 A. Can I go back and add one thing to my last 14 answer? 15 Q. Sure. 16 A. I wanted to point to paragraph 81 that states 17 the actuating members and/or actuating button 261 in one 18 option includes aluminum, which means other materials 19 could be used, and aluminum is provided as an option. 20 Q. So I'm looking at that statement, "the actuating 21 member 55 and the actuating button 261 is machined from 22 aluminum." I don't see "in one option." Where are you 23 getting "in one option"? 24 A. It's in paragraph 81, the prior page. The first 25 line -- the second line says "in one option includes

153 1 aluminum." 2 Q. And that line doesn't say how it's manufactured, 3 does it? 4 A. I believe they just talk about material choices 5 here. 6 Q. Material. 7 And then when you look at page 82 -- excuse me 8 -- paragraph 82, how it is manufactured is by machining, 9 correct? 10 MR. STOWELL: Objection. Form. 11 Misstates the document. 12 THE WITNESS: Well, once again, line -- 13 paragraph 82 starts with "the stasis valve in one 14 option is made from machining preexisting amounts 15 of metal and/or plastics." So it's provided as an 16 option. 17 BY MR. HAMILTON: 18 Q. Does it give any other examples? 19 A. Not that I recall. 20 Q. In the next line, does it start with "in another 21 example"? You see that? 22 A. Yes. 23 Q. And in that other example, it's also machining, 24 isn't it? 25 A. Machined from plastic.	155 1 A. I think every stroke is probably considered 2 important to treat as quickly as possible. 3 Q. What does "ischemic" mean in that statement? 4 A. I'm not a doctor, but I believe it means causing 5 ischemia or lack of blood flow to certain tissues. 6 Q. What -- any particular tissues? 7 A. With regard to stroke, it's related to brain 8 tissue. 9 Q. So ischemia could be lack of blood flow to any 10 tissue, and stroke tells you that it -- that -- that 11 this statement is referring to brain tissue; is that 12 right? 13 A. Yes. You can have ischemia in your legs and 14 other places. 15 Q. If you could take a look at paragraph 7. And 16 that's on page 38 of the document. 17 A. (Complying.) 18 Q. And if you want to look at it for a minute, take 19 your time. My question is going to be, what does -- 20 what -- what does cerebral and intracranial art- -- 21 arteries mean? 22 A. Refers to arteries that provide blood flow to 23 the brain. 24 Q. What does relatively short transcarotid -- 25 excuse me -- transcarotid --
154 1 Q. Yeah. Different material, but machined. Those 2 are the two options set forth in paragraph 82, correct? 3 A. Yes. 4 Q. Are you aware of any other option set forth in 5 Exhibit 1005 for making the actuating members 55? 6 A. I don't believe they provide other options, but 7 a person of ordinary skill in the art would know when 8 there would be multiple ways to manufacture these types 9 of components. 10 Q. Okay. Is your previous answer complete now? 11 A. Yes. 12 Q. Great. 13 Now let's look at Exhibit 1011. 14 A. (Complying.) 15 Q. Do you recognize Exhibit 1011? 16 A. Yes. 17 Q. What is acute ischemic -- ischemic stroke? 18 Did I pronounce that right? 19 A. Acute ischemic stroke is when a blood clot 20 blocks a vessel in the brain. 21 Q. What does "acute" mean to that phrase? 22 A. That it occurs relatively quickly. The symptoms 23 occur relatively quickly. 24 Q. Does that -- does that indicate one way or 25 another whether treatment is required quickly or not?	156 1 A. Carotid. Carotid. 2 Q. Carotid. Thank you. 3 A. Sorry to interrupt. 4 Q. Access to the -- what does relatively short 5 transcarotid access mean? 6 MR. STOWELL: Objection. Outside the 7 scope. 8 THE WITNESS: So it's not -- this is not 9 related to things I covered in the disclosure, so 10 I'm not sure I can talk about this in great detail. 11 BY MR. HAMILTON: 12 Q. You reviewed this Garrison reference in relation 13 to your declaration, didn't you? 14 A. I have. 15 Q. Do you have an understanding of what that term 16 means as you sit here today? 17 A. Transcarotid access means putting an access 18 sheath in the carotid artery. 19 Q. What does -- what does the "relatively short" 20 part of it mean? 21 A. You're not very far from the brain. 22 Q. If you could take a look at -- well, no. 23 Actually, before we do that, let's look at Figure -- 24 Figures 2 and 3 on page 3. 25 A. (Complying.)

157 1 Q. Do you understand what's depicted in Figures 2 2 and 3? 3 A. Yes. 4 Q. Is that depicting transcarotid access into a 5 patient? 6 A. Yes. It appears to be access into the common 7 carotid artery, labeled CCA. 8 Q. And then do you see item 10 in those two 9 figures? It's up at the top. 10 A. Yes. 11 Q. What is item 10? Do you have an understanding 12 of what that is? 13 A. I'd have to look in more detail how they 14 describe it, but in my own words, I believe it's the 15 thrombotic material that is attempted to be treated, 16 removed. 17 Q. Would -- would that be an occlusion? 18 A. Occlusion to me implies complete occlusion. 19 Sometimes that could be a partial occlusion and cause 20 symptoms. 21 Q. And where is that item 10 located in those 22 Figures 1 and 2 -- excuse me -- 2 and 3? 23 MR. STOWELL: Objection. Outside the 24 scope. 25 THE WITNESS: One of the arteries in the	159 1 Q. If you could take a look at page 39, paragraph 2 42. 3 A. (Complying.) 4 Q. First line of paragraph 42: "Interventions in 5 the cerebral or intracranial vasculature often have 6 special access challenges." 7 Do you understand what that means? 8 A. Yes. 9 Q. And what does that mean? 10 A. That it can be difficult to access the more 11 distal vessels because of tortuosity and small diameters 12 of the vessels in those locations. 13 Q. Do you have an understanding for what size 14 catheter would be used for interventions in cerebral or 15 intracranial vasculature? 16 A. I'd have to look through the patent to see what 17 they -- what they describe. 18 Q. Would you use a 24 French catheter? 19 MR. STOWELL: Objection. Outside the 20 scope. 21 THE WITNESS: To get to the cerebral or 22 intracranial vascular, no. That's much too big. 23 BY MR. HAMILTON: 24 Q. I'll just point you to paragraph 63. This might 25 be helpful. In paragraph 63 they mention 6 French and 8
158 1 brain. 2 BY MR. HAMILTON: 3 Q. Would that be a part of the cerebral 4 vasculature? 5 A. Cerebral or intracranial. 6 Q. Okay. So that item 10 is -- is in the cerebral 7 or intracranial vasculature; is that right? 8 A. I'd have to look at the patent in more detail if 9 we want to go into detail of the nomenclature that is 10 used in the location of the -- for Figure 3. 11 Q. Is -- is that somewhere near the brain? Is that 12 what that is? Is that reasonable? 13 A. Within the brain. 14 Q. Within the brain. Okay. 15 And -- and your -- your issue in not answering 16 the previous question is what does cerebral or 17 intracranial vasculature mean -- vasculature mean? Was 18 that -- was that the problem with my previous question? 19 MR. STOWELL: Objection. Form. 20 THE WITNESS: Yeah. I'm just not sure of 21 the anatomy that they're showing here. 22 BY MR. HAMILTON: 23 Q. But you are sure it's somewhere in the brain? 24 A. Occlusions can occur before it gets to the 25 brain, but I think this depiction is in the brain.	160 1 French. Is that consistent with your understanding of 2 what size catheters would be used in interventions in 3 the cerebral or intracranial vasculature? 4 A. Because it does not relate to the hemostasis 5 valve, I haven't looked at it in great detail. It seems 6 like a reasonable size for the vessel size, in my 7 opinion. 8 Q. And we can go to the -- the paragraph just above 9 that, 62. And I'm going to want to ask you about -- 10 about middle of the page, there's a sentence that begins 11 "the hemostasis valve 226 can be," and it lists a couple 12 things. And I want to ask you what those things are. 13 A. Yes. 14 Q. What's a static seal-type passive valve? 15 And to be clear, the sentence begins "the 16 hemostasis valve can be," and then it describes this. 17 So in the context of a hemostasis valve, what's a static 18 seal-type passive valve? 19 MR. STOWELL: Objection. Outside the 20 scope. 21 THE WITNESS: I would say a static 22 seal-type passive valve is a very commonly used, 23 readily available valve that's used on many 24 introducer sheaths. It has a rubber material or 25 other elastomeric material, possibly with a slit

161 1 through it, so that seals around the devices, but 2 through it with or without a device in it. 3 BY MR. HAMILTON: 4 Q. And is that your understanding, that it's called 5 static because it seals without intervention by a user, 6 as we discussed the term "static" earlier today? 7 A. Yes. There is no rotating or pinching required 8 to open or close the valve. 9 Q. Sorry. I said static. I meant passive. It's a 10 passive valve, no opening and closing? 11 A. Yeah, passive valve wouldn't require any 12 movement by the operator to open or close the valve. 13 Q. What does the static part mean? Do you know? 14 A. I think it's just description of a passive 15 sealing valve. 16 Q. Okay. Let's talk about the next one, 17 "adjustable opening valve, such as a Tuohy Borst valve." 18 What's a Tuohy Borst valve? 19 A. It's a rotating hemostatic valve where the 20 physician would rotate counterclockwise to open the seal 21 and insert or remove devices, and then rotate clockwise 22 to reseal against the devices or close the valve, 23 whether there was a device inside or not. 24 Q. And then what about rotating hemostasis valve, 25 RHV; what is that?	163 1 MR. STOWELL: Objection. Outside the 2 scope. 3 THE WITNESS: I haven't really considered 4 that for this declaration. 5 BY MR. HAMILTON: 6 Q. Do you understand what it means? 7 A. I have an understanding. 8 Q. And what is that understanding? 9 A. As you get farther and farther into the 10 vasculature, the vessels become thinner and smaller and 11 more difficult to access and more prone to injury. 12 Q. So would it be fair to say the -- it's more 13 delicate and prone to perforation? 14 A. I think perforation could occur, among other 15 complications, I believe. 16 Q. And other complications meaning other injuries, 17 not necessarily perforation but -- is that right? 18 A. Dissection, I think, can occur. 19 Q. Okay. The next phrase, "access challenges," do 20 you have an understanding what that means with respect 21 to treatment of acute ischemic stroke? 22 MR. STOWELL: Objection. Outside the 23 scope. 24 THE WITNESS: Yeah, I haven't considered 25 that in the declaration because it's not relevant
162 1 A. In my experience, that's the same as a Tuohy 2 Borst valve. Tuohy Borst was just a trade name for one 3 of the companies. 4 Q. So then that would be a Tuohy Borst valve made 5 by somebody else; is that -- I'll withdraw the question. 6 A. To me, they're the same thing. 7 Q. Okay. I don't want you to say that someone is 8 infringing somebody else's something. 9 If you could turn to paragraph 45. 10 A. (Complying.) 11 Exhibit 1101 still? 12 Q. Yes. 13 And what I'm going to want to ask you is the 14 last sentence, unfortunately. And I want to understand 15 what delicate anatomy and access challenges mean, and 16 the need for rapid intervention means. 17 MR. STOWELL: Objection. There is not a 18 question pending. Objection. Outside the scope. 19 THE WITNESS: Okay. 20 BY MR. HAMILTON: 21 Q. Why don't we start -- 22 A. Okay. 23 Q. Why don't we start with delicate anatomy. What 24 does that mean with respect to treatment of acute 25 ischemic stroke?	164 1 to the hemostasis valve in the declaration. 2 BY MR. HAMILTON: 3 Q. Do you have an understanding of what that means 4 in that sentence? "Access challenges." 5 MR. STOWELL: Same objection. 6 THE WITNESS: As I said earlier, the 7 vasculature gets small in diameter and can be quite 8 tortuous as you get farther and deeper into the 9 anatomy, which -- which would provide challenges to 10 access. 11 BY MR. HAMILTON: 12 Q. And then what about the need for rapid 13 intervention? What does that mean with respect to 14 treatment of acute ischemic stroke? 15 MR. STOWELL: Objection. Outside the 16 scope. 17 THE WITNESS: What this whole paragraph 18 is saying is that there are cerebral protection 19 devices -- filters, let's say -- that are used for 20 carotid artery surgery, but in cases of stroke, 21 they typically do not use those types of systems. 22 BY MR. HAMILTON: 23 Q. And then this last sentence, unfortunately, 24 explains some of the reasons why those aren't used, 25 correct?

165 1 A. Right. Partly for the delicate anatomy and need 2 to go quickly, they may not take the time or have the 3 right filter devices to use. 4 Q. And so need to go quick quickly, that's need for 5 rapid intervention; is that right? 6 A. Yes. 7 Q. And why is there a need for rapid intervention 8 in treatment of acute ischemic stroke? 9 A. I think the neurointerventional radiologists say 10 time is brain. 11 Q. Does that mean the longer you wait to -- to 12 provide intervention, the more brain injury can occur? 13 A. The higher risk for complications from the 14 stroke. 15 Q. So for treatment of acute ischemic stroke, you 16 want to do it as quickly as possible; is that right? 17 MR. STOWELL: Objection. Form. 18 THE WITNESS: My understanding is that 19 most treatment is still drug delivery to the site, 20 but that too should start as quickly as possible. 21 Whether it's drug delivery or they use an 22 interventional procedure as disclosed in this 23 patent, it's certainly good to do things quickly. 24 BY MR. HAMILTON: 25 Q. Okay. If you could -- have I given you Exhibit	167 1 if we could look at paragraph 62, the sentence that 2 identified the valves, the hemostasis valves. 3 A. Yes. 4 Q. So this first static seal-type passive valve, 5 are there any advantages to using that type of valve in 6 treating acute ischemic stroke? 7 MR. STOWELL: Objection. Outside the 8 scope. 9 THE WITNESS: Yeah, I don't know. I 10 haven't considered that. 11 BY MR. HAMILTON: 12 Q. What about a Tuohy Borst valve? Any advantages 13 or disadvantages in using that valve to treat acute 14 ischemic stroke? 15 MR. STOWELL: Same objection. 16 THE WITNESS: I haven't considered that 17 question for the deposition -- or the declaration. 18 BY MR. HAMILTON: 19 Q. Are you able to answer the question? 20 A. I haven't really thought about it. No. 21 Q. Does that mean, as you sit here today, you can't 22 answer the question? 23 A. It's not obvious to me that there are any 24 advantages or disadvantages because they work very 25 similarly, with a simple one-handed operation.
166 1 1006? Do you have that over there? That is Hartley. 2 A. I don't believe so. 3 Q. If you can find that. 4 MR. HAMILTON: How long have we been 5 going? 6 THE WITNESS: I could use a break if 7 you're switching -- 8 MR. HAMILTON: We're switching. That 9 would be -- that would be just fine. 10 THE VIDEOGRAPHER: We're going off the 11 record at 1449. 12 (Recess.) 13 THE VIDEOGRAPHER: We are back on the 14 record at 1459. 15 BY MR. HAMILTON: 16 Q. Do you understand you're still under oath? 17 A. Yes. 18 Q. Did you discuss your testimony today with 19 anybody during the break? 20 A. No. 21 Q. Look at any documents? 22 A. No. 23 Q. So I know I had said I was going to move to 24 something else, but let's just go back. A couple more 25 questions on 1011. That's the Garrison reference. And	168 1 Q. Okay. You can set that aside. 2 (Complying.) 3 Q. I had promised Hartley, 1006. 4 A. Thank you. 5 Q. Do you recognize Exhibit 1006? 6 A. Yes. 7 Q. Is this the Hartley referred to in your 8 declaration? 9 A. Yes. 10 Q. If you could turn to Figure 1. 11 (Complying.) 12 Q. Do you understand what's depicted in Figure 1? 13 A. Yes. 14 Q. What is item 4 in that figure? 15 A. "Catheter body" is how they describe it in the 16 patent. 17 Q. So would that be the end of the catheter? 18 A. Yes. 19 Q. And does that connect to the valve shown in 20 Figure 1? 21 A. Yes. 22 Q. How is it connected? 23 MR. STOWELL: Objection. Vague. 24 THE WITNESS: I'm not sure without 25 looking in more detail at the patent, but there are

169 1 many ways to connect a catheter tube, catheter 2 body, to a valve. 3 BY MR. HAMILTON: 4 Q. Does the -- the image in Figure 1 depict any 5 particular way to connect a catheter to a valve? Do you 6 recognize it? 7 A. It appears to be an outwardly extending radial 8 flange which is clamped against the end of the catheter 9 by means of the cylindrical housing 6. 10 Q. Is that a common way to connect catheters in the 11 field? 12 MR. STOWELL: Objection. Vague. 13 THE WITNESS: I think it's one of many 14 ways to connect catheters to other components. 15 BY MR. HAMILTON: 16 Q. Is there -- is there a common way to connect 17 catheters to other components? And by "other 18 components," let's just -- let's not say other 19 components. Let's just say hemostasis valves. 20 A. It depends on the designs. I think they are 21 frequently built in together, and I've also worked on 22 designs where we purchased a hemostasis valve with a 23 luer connection that attached to the component we were 24 designing. 25 Q. What's a luer connection?	171 1 A. Paragraph 33 at the end says "the rotary 2 actuator may be rotated in either direction to cause 3 constriction of the constriction valve, and the detents 4 provide tactile feel, the action of the valve." 5 Q. So what does that mean, "provide tactile feel, 6 the action of the valve"? 7 A. I believe that's so the physician knows whether 8 he's going one click in the open direction or one click 9 in the closed direction in that example, because there 10 are two detents. 11 Q. And let's -- let's -- if you compare Figures 3 12 and 4, there's actually three detents. It's just you 13 can't see one in Figure 3, but you can see it in Figure 14 4; isn't that right? 15 A. Yes. In Figure 3 the detent is not labeled 16 because the component 28 is within the detent. 17 Q. And you said the detents provide tactile feel, 18 the action of the valve? 19 A. That's how it's written here. Written poorly, 20 but that's how it's written. 21 Q. Probably meant tactile feel for the action of 22 the valve; is that fair? 23 A. Yes. 24 Q. Or of the action of the valve? 25 A. Yes.
170 1 A. It's a standard medical connection to connect 2 plastic parts usually -- plastic or metal parts. 3 Q. And is it -- is it a well-understood type of 4 connection with respect to, for example, catheters and 5 hemostasis valves? 6 A. I would say it's very well understood and very 7 commonly used for syringes, all types of components that 8 are being connected by the physician. 9 Q. And that Figure 1 we just discussed, does that 10 appear to be a luer connection? 11 A. In Figure 1? 12 Q. Uh-huh. 13 A. No, I don't think it was described as a luer 14 connection. 15 Q. Okay. If you could turn over to Figures 3 and 16 4. 17 A. (Complying.) 18 Q. And let's -- let's focus on Figure 3 first. Do 19 you see item 36 in Figure 3? 20 A. Yes. 21 Q. What is -- what is -- what is 36? 22 A. I believe they call it a detent. 23 Q. And what is the purpose of the detents in Figure 24 3 -- let's say the purpose -- purpose of item 36 -- the 25 two item 36s in Figure 3?	172 1 Q. And does that mean how far the valve is closed 2 in one direction or open in the other direction? 3 A. That's how I understand the patent. 4 Q. Can the detents be used to hold the valve in a 5 particular configuration; so a particular size opening, 6 for example? 7 A. So I do think the detents could provide stops 8 and hold it in position, depending on the size of the 9 detents, the strength of the spring, the amount of 10 resistance that it is trying to overcome. 11 Q. Excuse me. 12 Does Hartley include a single rotary actuator? 13 A. Yes. They discuss a rotary actuator 12. It's a 14 -- one component. 15 Q. Did you do any preparation for your depo today? 16 A. Today, no. 17 Q. Did you do any prepara- -- preparation at any 18 time for the deposition that is occurring today? 19 A. Yes. 20 Q. And when did you prepare? 21 A. Yesterday and the day before. 22 Q. And what did you do in that preparation? 23 A. I reviewed documents on my own. I met with 24 counsel part of yesterday. 25 Q. Other than part of yesterday, did you meet with

173 1 anybody else? 2 A. I did not. 3 Q. And part of yesterday, you said you met with 4 counsel. Who did you meet with? 5 A. Josh. And Lizzie was there too. 6 Q. Anybody else? 7 A. No. 8 Q. Other than those two days, did you do any other 9 preparation for this deposition? 10 A. I'd have to look back at my time sheet. There 11 might have been a couple hours before that, earlier in 12 the week. 13 Q. And you said you reviewed documents in 14 preparation for your deposition today? 15 A. I did not review them today. 16 Q. Let me rephrase it. 17 You said you reviewed documents in preparation 18 for your deposition; is that correct? 19 A. I did. 20 Q. What documents did you review? 21 A. My declaration, some of the other exhibits. 22 Q. Do you recall any specific exhibits? 23 A. Probably most of them on the exhibit list. 24 Q. Did you review anything that's not on the 25 exhibit list in preparation for your deposition?	175 1 A. Yes. 2 Q. Have you ever act -- acted as an expert for any 3 other litigation? 4 A. No. 5 Q. Who first contacted you to be an expert in this 6 matter? 7 A. I'm not sure. 8 Q. Was it a lawyer? 9 A. It was a lawyer for Knobbe Martens. 10 Q. Have you ever been retained by Knobbe prior to 11 this, let's say, collection of matters that are all 12 related? 13 A. No. 14 Q. Does Knobbe pay you for your work on this 15 matter? 16 A. I am reimbursed for my time, yes. 17 Q. And who writes those checks? 18 A. Knobbe Martens. 19 Q. Do you ever receive any payment from Imperative? 20 A. I have not. 21 Q. Have you ever consulted for Imperative? 22 A. I have not. 23 Q. When did you first hear of Imperative? 24 A. Many years ago. 25 Q. And how did you come to hear of Imperative?
174 1 A. No. 2 Q. Do you consider yourself a professional expert? 3 A. I'm not sure what the definition would be of 4 professional expert. 5 Q. What does professional expert mean to you? 6 A. I don't know. 7 Q. It doesn't have any meaning to you? 8 MR. STOWELL: Objection. Asked and 9 answered. 10 THE WITNESS: I don't know if there's a 11 legal generally accepted term. I'm not familiar 12 with professional expert. 13 BY MR. HAMILTON: 14 Q. Do you derive money acting as an expert? 15 A. This is my first experience as an expert 16 witness. 17 Q. And when you say "this," you mean this IPR? 18 A. I think this was the first IPR, and there was 19 some work after that with Knobbe Martens. 20 Q. So you've been retained in connection with this 21 IPR and related IPRs and related litigation; is that 22 correct? 23 A. Yes. 24 Q. And that's the only matter in which you've acted 25 as an expert; is that correct?	176 1 A. I know some people that work there. 2 Q. Did you ever work with Imperative or those 3 people? 4 A. I never worked with Imperative. 5 Q. But you've worked with those people who went to 6 Imperative after you worked with them or before? 7 MR. STOWELL: Objection. Form. 8 THE WITNESS: There are a couple of 9 people at or that were at Imperative that I used to 10 work with at former companies. 11 BY MR. HAMILTON: 12 Q. Are you friends with those individuals? 13 A. Not particularly. 14 Q. Have you stayed in touch with those individuals 15 since working with them? 16 A. Not closely. 17 Q. And when you say "not closely," what does that 18 mean? Not on an annual basis? 19 A. Not annually either. 20 Q. When did you first hear of Inari Medical? 21 A. Some years ago. 22 Q. And how did you first hear about Inari Medical? 23 A. When I was working for Abbott Ventures, the 24 venture capital part of Abbott Vascular, we met with 25 some of the folks at the incubator company that started

177 1 Inari. 2 Q. Do you recall what year that was? 3 A. I don't. 4 Q. Do you know or have -- have you ever met any 5 inventor of the '011 Patent? That's the patent at issue 6 for Inari in this case. 7 A. Paul Lubock, I have met. 8 Q. And how do you meet Paul Lubock? 9 A. During the meetings with -- when I was with 10 Abbott Ventures. 11 Q. And about what year was that? 12 MR. STOWELL: Objection. Asked and 13 answered. 14 THE WITNESS: I can look at my resume to 15 confirm. Oh, it's in -- it's an attachment. It's 16 an exhibit there. 17 BY MR. HAMILTON: 18 Q. It may be. 19 A. Exhibit 1004. 20 Q. So I'm going to hand you what's been previously 21 marked Exhibit 1004. 22 (Tendered.) 23 A. So between June 2012 and December 2014, I was 24 working as a program director at Abbott Ventures, so it 25 probably would have been during that time when I met	179 1 I don't remember. 2 Q. Do you recall how many hours you spent preparing 3 your declaration? 4 A. That's what I was referring to. 5 Q. So you don't recall how many hours you spent 6 preparing your declaration. Was it more than 100? 7 A. Less. 8 Q. More than 50? 9 A. Less. 10 Q. More than 25? 11 A. Probably. 12 Q. Did you write the declaration? 13 A. I worked with counsel to write, edit, and modify 14 it over the period we were working on it. 15 Q. In preparation of your declaration, did you meet 16 with, speak with, or otherwise communicate with anybody 17 at Imperative? 18 A. I did not. 19 Q. Did you meet with, speak with, or otherwise 20 communicate with anybody other than lawyers at Knobbe 21 Martens? 22 A. No. 23 Q. If you want to grab your declaration, let's go 24 back to -- I believe it's paragraph 35. 25 A. (Complying.)
178 1 with Paul's incubator company, whose name escapes me. 2 Q. And that name -- that company was not Inari; 3 it's a different company? 4 A. It's a different company. I believe they spun 5 off Inari as its own company. 6 Q. Did you meet Benjamin Merritt or John Thress? 7 A. I don't remember meeting those people, no. 8 Q. Have you ever worked with, for or against Inari 9 Medical in any capacity? 10 A. I have not. 11 Q. When were you first retained in this collection 12 of matters? 13 A. I don't recall exactly. 14 Q. Do you recall roughly? 15 A. This was executed -- "this" meaning the 16 declaration -- on July 8, 2024, so it was likely a 17 number of months before that date. 18 Q. Six months? 19 A. Could have been around that time frame. I don't 20 remember. 21 Q. Do you know how many hours you have spent on 22 this particular IPR? 23 A. I do not. 24 Q. Do you have a rough estimate? 25 A. I do not. This was nine or ten months ago now.	180 1 Q. And this paragraph identifies the qualifications 2 of someone of ordinary skill in the art, correct? Do 3 you remember discussing that this morning? 4 A. Yes. 5 Q. What I want to understand is, what does two to 6 four years of product design or engineering experience 7 mean? 8 A. Two to four years of designing products or 9 working as an engineer in some other capacity. 10 Q. Is that designing any products? 11 A. I've certainly hired engineers that came from 12 other fields besides medical devices. 13 Q. Would you consider a person of ordinary skill in 14 the art to be someone who has no experience designing 15 hemostasis valves? 16 A. Yes. I don't think you would have to have 17 experience designing hemostasis valves in order to 18 design one, if you had mechanical engineering or related 19 engineering experience. 20 Q. What about medical experience at all; not just 21 hemostasis valves, but any experience designing medical 22 devices? Would a person of ordinary skill in the art 23 need to have some sort of experience designing medical 24 devices? 25 A. Not necessarily.

181 1 Q. If you can go to paragraph 21 of your 2 declaration. 3 A. (Complying.) 4 Q. And in that first sentence, you say someone may 5 redefine a claim term. What do you mean by "redefine"? 6 A. Meaning to define a claim term to have a meaning 7 that is different from the plain and ordinary meaning. 8 Q. And when you say "plain and ordinary meaning" in 9 that sentence you just used, what did you mean? 10 A. I meant the plain and ordinary meaning that 11 would be generally understood. 12 Q. And generally understood by a person of ordinary 13 skill in the art or anybody? 14 A. Yeah, I'm not sure. 15 Q. And let's go to the 1001 exhibit. That's the 16 '011 Patent. 17 A. Uh-huh. 18 Q. And I want you to turn to column 22. That's on 19 the second-to-last page. 20 I want to talk about Claim 1 a little bit. 21 A. (Complying.) 22 Column 17? 23 Q. Column 22. 24 A. Claim 1? Oh. 25 Q. In preparing your declaration, you came to an	183 1 MR. STOWELL: Objection. Vague. Outside 2 the scope. 3 BY MR. HAMILTON: 4 Q. Let me -- let me rephrase that. 5 What other types of actuators immediately come 6 to mind? 7 MR. STOWELL: Objection. Vague. Outside 8 the scope. 9 THE WITNESS: The type of actuators that 10 we're discussing in '011. 11 BY MR. HAMILTON: 12 Q. You had experience with hemostasis valves prior 13 to seeing the '011 Patent, correct? 14 A. Yes. 15 Q. And do those -- did those hemostasis valves -- 16 any of those hemostasis valves have actuators? 17 MR. STOWELL: Objection. Calls for a 18 legal conclusion. Form. 19 THE WITNESS: I think one can call the 20 rotating hemostatic valve an actuator, as they did 21 in Hartley. There's also a pinch valve I -- that 22 we prototyped that would have been considered an 23 active pinch mechanism. 24 BY MR. HAMILTON: 25 Q. So prior to seeing the '011 Patent, you were --
182 1 understanding of what Claim 1 means, didn't you? 2 A. Yes. 3 Q. You see a couple lines down from the beginning 4 of Claim 1, so line 24, "an actuator"? 5 A. Yes. 6 Q. Do you understand what an actuator is? 7 A. As it applies to this '011 Patent, I believe so. 8 Q. When you see the term "actuator" in the claim, 9 does that make you think of any particular structures? 10 A. It makes me think of the structures that are 11 defined and delineated in the patent. 12 Q. Any other structures? 13 A. No. 14 Q. Earlier we talked about the rotating actuary in 15 -- actuator in Hartley. Do you recall that? 16 A. Yes. 17 Q. Is that a common type of actuator in hemostasis 18 valves? 19 MR. STOWELL: Objection. Form. Outside 20 the scope. 21 THE WITNESS: I think it's one type of 22 actuator for a rotating hemostasis valve. 23 BY MR. HAMILTON: 24 Q. When you think of actuators in hemostasis 25 valves, what other type of actuators are there?	184 1 he were aware of many actuators in the field of 2 hemostasis valves, correct? 3 MR. STOWELL: Objection. 4 BY MR. HAMILTON: 5 Q. Although least those two? 6 MR. STOWELL: Objection. Misstates 7 testimony. Calls for legal conclusions. 8 THE WITNESS: I was familiar with a pinch 9 valve and the rotating hemostatic valve as a means 10 to actuate the valve. 11 BY MR. HAMILTON: 12 Q. Any other actuators with respect to hemostasis 13 valves? 14 MR. STOWELL: Objection. Misstates 15 testimony. Calls for a legal conclusion. 16 THE WITNESS: None that I can think of at 17 this moment. 18 BY MR. HAMILTON: 19 Q. If you go down to line 38, same column, 22. 20 A. (Complying.) 21 Q. You see the phrase "a biasing system configured 22 to bias," et cetera? 23 A. "And a biasing system configured to bias the 24 first member and the second member to the first 25 position."

185 1 Q. Do you understand what a bias -- biasing system 2 is? 3 A. In the patent, it was the spring attached to the 4 actuator. 5 Q. Would one of skill in the art understand that 6 other structures could be a biasing system in the field 7 of hemostasis valves? 8 MR. STOWELL: Objection. Outside the 9 scope. 10 THE WITNESS: I think in this patent 11 that's the only type of biasing system they 12 disclose. 13 BY MR. HAMILTON: 14 Q. Are you aware of any other biasing systems with 15 respect to hemostasis valves? 16 MR. STOWELL: Objection. Outside the 17 scope. Calls for a legal conclusion. 18 THE WITNESS: The one I can think of is 19 Ellers had a -- they disclosed a torsion spring 20 that was bias the -- their actuator to a closed 21 position. 22 BY MR. HAMILTON: 23 Q. So it might sound silly: Is a torsion spring a 24 spring? 25 A. It's a type of spring.	187 1 And the way I read that, the problem is essentially -- 2 those are essentially design considerations. Is that -- 3 is that a fair understanding? 4 A. Those are some of the design considerations that 5 -- some of which I mentioned earlier. 6 Q. Okay. So we talked about some design 7 considerations earlier, and then this lists some that 8 might be overlapping or related, but it lists a couple 9 design considerations for design -- for designing a 10 hemostasis valve; is that correct? 11 A. Yes, these are design considerations. 12 Q. What does that mean, "balance between closing 13 force, opening force" -- let's -- actually, let's -- let 14 me withdraw that. 15 What does closing force mean in that statement? 16 A. Could mean a couple different things. One is 17 the action of the doctor to close the valve. It could 18 also mean force that closes down on the -- how much 19 force is exerted on the catheter that's inside the 20 valve. 21 Q. And why is the amount of force exerted on the 22 catheter inside the valve a problem or a design 23 consideration? 24 MR. STOWELL: Objection. Form. 25 THE WITNESS: Well, I think as the -- as
186 1 Q. What other types of springs are there? 2 A. Many types of springs: Leaf spring, compression 3 spring, opposite of compression -- sorry -- extension 4 spring would be opposite of a compression spring. 5 Probably several others I'm not recalling. 6 Q. So all those types of springs you just 7 mentioned, those are all springs; is that right? 8 A. I consider them springs. 9 Q. If you could take a look at Exhibit 1005. 10 That's Shafer. 11 A. (Complying.) 12 Q. And then turn to page 21, paragraph 7. 13 A. (Complying.) 14 Q. And let me know when you're ready for a 15 question. 16 A. Okay. 17 Q. So you see the first sentence: "Thus, the 18 problems are complex and involve a balance between 19 closing force, opening force, friction, compression and 20 durability." 21 Do you see that? 22 A. Yes. 23 Q. So earlier today we were talking about design 24 considerations that a person of skill in the art would 25 take into account when designing a hemostasis valve.	188 1 this patent says, if the valve is too tight, soft, 2 flexible instrumentation such as a flat-tip guide 3 wire and others it lists could be damaged by 4 excessive compression or insertion force. 5 BY MR. HAMILTON: 6 Q. And what about opening force? Why is that a 7 design consideration? 8 A. I think that's more related to user, the 9 difficulty -- the force required for the user to open 10 the valve, whether it's pinching two actuator buttons or 11 rotating a hemostasis valve. It's probably a 12 user-related design requirement. 13 Q. So that kind of goes towards making the -- the 14 device easy for the user to use? 15 A. Yes. 16 Q. Or even more control for the user? Be a balance 17 of those two things? 18 A. Possibly. 19 Q. And what about friction; why is that a problem 20 or a design consideration? 21 A. For many procedures, the doctor wants to be able 22 to feel, have tactile feedback to the catheter in his 23 hand, and in that case you don't want too much friction 24 for the portion that's -- might be sliding through the 25 valve.

189 1 Q. And what about compression; why is that a design 2 consideration? 3 A. This patent is not so clear on these terms, but 4 my understanding in general, it is probably talking 5 about a design requirement for a compression on the 6 device that's inside. So a thin-walled catheter could 7 collapse if there's too much compression from the valve. 8 Q. Okay. And I think a minute ago, when we talked 9 about closing force, you said that was similar, that 10 would -- that could damage, maybe crush a catheter 11 that's going through the valve. And, really, it's 12 because there's too much compression force; is that -- 13 is that the issue? 14 And what I'm getting at is, maybe closing force 15 means the effort or the force needed to -- to close the 16 valve in the first place, as opposed to how much 17 compression force is applied. Or they might be related. 18 MR. STOWELL: Objection. Form. 19 THE WITNESS: Yeah, I think closing force 20 and opening -- I think opening force is most likely 21 a design requirement related to physician use. 22 Closing force, I think, is probably most related to 23 having enough force to seal around the members but 24 not too much force to damage the catheter inside. 25 BY MR. HAMILTON:	191 1 provided to you by Knobbe? 2 A. I believe Shafer was provided by Knobbe. 3 Q. If you could turn back to Exhibit 1006. 4 A. (Complying.) 5 Hartley? 6 Q. Yes. And I want to point you to the first page, 7 the title, "Access Valve." 8 Do you understand what access valve means in 9 that title? 10 A. On the abstract, they state "an access valve for 11 laparoscopic device or an intraluminal deployment 12 device." 13 Q. Does access valve mean hemostasis valve? 14 A. I believe this is focused on hemostasis. 15 Q. Could access valve mean anything other than a 16 hemostasis valve? 17 A. Laparoscopic procedures would also use an access 18 device like this. 19 Q. And why wouldn't an access device like this for 20 a laparoscopic procedure not be considered a hemostasis 21 valve? 22 MR. STOWELL: Objection. Form. 23 THE WITNESS: Can you repeat the 24 question? 25 BY MR. HAMILTON:
190 1 Q. So -- so very similar to compression, the 2 compression design consideration; is that -- is that 3 fair? 4 A. I think it's similar to compression requirement. 5 Q. And then durability; why is that a design 6 requirement or problem when designing a hemostasis 7 valve? 8 A. Well, it would be a design requirement such that 9 it could be opened and closed multiple times during the 10 procedure and still function adequately. 11 Q. If you could look at the first page of 12 Exhibit 1005. That's Shafer that you have in front of 13 you. 14 A. (Complying.) 15 Q. Are you familiar with the assignee listed on 16 that page, Medamicus? 17 A. I'm not. 18 Q. You've never heard that name before? 19 A. I have not. 20 Q. Are you familiar with any of the inventors 21 listed: David Shafer, Michael Shafer or Brian Fisher? 22 A. I am not. 23 Q. We talked about this generally, but specifically 24 with respect to Shafer, did you find Shafer in 25 connection with your work on this matter or was Shafer	192 1 Q. Why would an access valve for use with a 2 laparoscopic procedure not be considered a hemostasis 3 valve? 4 A. "Hemo" implies blood, and "intraluminal" in 5 their abstract implies to me to be in the lumen of a 6 blood vessel. 7 Q. So Hartley discloses valves that are more broad 8 than hemostasis valves; is that correct? 9 MR. STOWELL: Objection. Form. 10 THE WITNESS: I don't know if it's more 11 broad, but laparoscopic procedures can and do use 12 valves on the proximal end of their access devices. 13 BY MR. HAMILTON: 14 Q. What's the purpose of a valve in a laparoscopic 15 procedure? 16 A. Well, it wasn't the focus of my disclosure. I'm 17 not that familiar with laparoscopic procedures. And my 18 understanding is that they frequently inflate the 19 abdomen. For certain procedures they use CO2, I 20 believe, to expand the abdominal cavity to perform some 21 of these laparoscopic procedures. So in that case, they 22 want to keep the air that they're injecting in the 23 patient. 24 Q. So that would be to -- to prevent something 25 other than blood from flowing out of the patient; and in

193 1 the example you just gave, it's air? 2 A. I think it's CO2 or another gas that they're 3 injecting. 4 Q. Are you aware of any other use of an access -- 5 or other reason to use an access valve for a 6 laparoscopic procedure, other than to prevent the escape 7 of CO2? 8 A. I'm sure there are many other laparoscopic 9 procedures I'm not familiar with. I'm not really an 10 expert in laparoscopic procedures. 11 Q. And so in those procedures, the -- the valve 12 would be used to prevent the escape of some sort of 13 fluid, whether it be liquid or air, or the introduction 14 of some fluid, whether it be liquid or -- or air; is 15 that fair to say? 16 A. I think I answered it before. So whatever I 17 said before, I think, answers the question. 18 Q. I think you're probably right. 19 Let me ask you this: Are there reasons a person 20 of skill in the art would select -- and let's -- let's 21 use your -- the way you had termed it, speccing out a 22 hemostasis valve -- would -- would select the valve of 23 Hartley versus the valve of Shafer in a certain 24 application? 25 MR. STOWELL: Objection. Outside the	195 1 Exhibit 1004, as well. That's the -- the resume. And 2 what I want to figure out is in which matter listed 3 either in your declaration or the resume is the matter 4 that you described earlier where you had an engineer and 5 worked with an engineer to design a hemostasis valve. 6 Is that matter listed either -- 7 A. Yes. 8 Q. -- on your resume -- it is? 9 Okay. Which matter is it on your resume? 10 A. For the 2000 to 2012, I was vice president of 11 R&D at Evalve, and that is the time when we developed 12 the MitraClip device, which had -- we utilized four 13 different hemostasis valves on that product. 14 At Prograft, the company before that, I recall 15 at least two hemostasis valves that we used on the 16 devices there. 17 Q. So for Prograft, that would be the -- the 18 devices that you referred to earlier today as where you 19 specced them out for a particular application; is that 20 right? 21 A. I believe one of those was a custom sheath with 22 a hemostasis valve on that we worked with the vendor to 23 develop a custom sheath for us. So I guess we specced 24 it out, worked with the vendor to develop that sheath. 25 Q. So earlier today -- I'm going to put it in kind
194 1 scope. 2 THE WITNESS: Yeah, I'm not -- I'm not 3 sure. 4 BY MR. HAMILTON: 5 Q. What are the advantages of using the valve of 6 Hartley? 7 A. I'm not sure. 8 Q. So as you sit here today, if you were speccing 9 out a hemostasis valve for a particular procedure, is 10 there any reason you would choose the valve of Shafer or 11 the valve of Hartley? 12 MR. STOWELL: Objection. Incomplete 13 hypothetical. Form. 14 THE WITNESS: There could be, but I have 15 not really considered those options in my 16 declaration. 17 BY MR. HAMILTON: 18 Q. Would it depend on the particular procedure? 19 A. It would depend on the procedure and the devices 20 going through the procedure -- through the valve, and 21 several of the other aspects that I think I discussed 22 earlier. 23 Q. Fair enough. 24 If we could go to your declaration, Exhibit 25 1003. And if you -- if you need to, you can use	196 1 of two big -- two broad categories. One is a project 2 where you had an engineer design some valves and then a 3 project where you specced out valves. The design is -- 4 in your declaration that happened with respect to number 5 -- paragraph 9 in your declaration your work at Evalve; 6 is that fair? 7 A. Evalve was the one that we -- the one valve I 8 can recall that we really designed from scratch 9 internally. 10 Q. Is Evalve a -- a hemostasis valve? 11 A. No. That was the name of the company that 12 developed the MitraClip device that was acquired by 13 Abbott. 14 Q. And the MitraClip device included a hemostasis 15 valve; is that correct? 16 A. A little confusing -- the MitraClip device is 17 the actual implant that's implanted on the leaflets of 18 the mitral valve. The MitraClip system consisted of 19 three different catheters and a dilator. All three of 20 those catheters and the dilator had a hemostasis valve, 21 one of which was designed from scratch -- I would say at 22 least one of which was designed from scratch. I can't 23 remember if the other one was also an internal design or 24 not. 25 Q. Okay. Other than those two instances you just

197 1 identified -- so that's in figure -- excuse me -- 2 paragraph 9 at Evalve and paragraph 10 at Prograft, is 3 it fair to say you have not been involved in the design 4 of any other hemostasis valves? 5 A. During my time at Guidant, '89 to '95 -- 6 Advanced Cardiovascular Systems, later Guidant -- I 7 worked on catheters that also had a hemostasis valve, 8 but my recollection is that those devices used 9 off-the-shelf components, typically a rotating 10 hemostatic valve. 11 Q. Were you involved in the selection of the 12 rotating hemostatic valve in that project? 13 A. I believe so. 14 Q. And do you recall why you selected a rotating 15 hemostatic valve in that project? 16 A. They were readily available. They were being 17 used on other similar devices to seal around the guide 18 wire of the size that we were using at the time. 19 Q. Do you recall the size you were using at the 20 time? 21 A. I was usually working on 018 -- 0 -- 0.018-inch 22 guide-wire-type devices. 23 Q. Good memory. 24 A. Pretty standard still. 25 MR. HAMILTON: Okay. Why don't we take a	199 1 matter? 2 A. Yes. 3 Q. Okay. If you could, I am going to hand you a 4 new exhibit. I've affixed 2006 to it. 5 (Tendered.) 6 (Exhibit 2006, US Patent Number 7,682,380 7 82, dated March 23, 2010 (s4) KTNK-RESISTANT 8 BIFURCATED, was marked for identification.) 9 BY MR. HAMILTON: 10 Q. Do you recognize Exhibit 2006? 11 A. I've certainly have seen it before, but I have 12 not reviewed this in a long time. 13 Q. Where have you seen it before? 14 A. Well, I'm an inventor on this patent. 15 Q. So -- 16 A. So I would have reviewed it during its 17 prosecution. 18 Q. When you say you would have reviewed it, do you 19 recall reviewing it during its prosecution? 20 A. Yes. It looks familiar. 21 Q. Do you recall signing an oath or a declaration 22 during prosecution that the statements in the disclosure 23 are true and correct? 24 A. I probably did. I don't really recall that 25 specific document.
198 1 break. Let's see if I've got anything else. I 2 think I'm getting close. 3 THE WITNESS: Okay. 4 THE VIDEOGRAPHER: We are going off the 5 record at 1601. 6 (Recess.) 7 THE VIDEOGRAPHER: We are back on the 8 record at 1617. 9 BY MR. HAMILTON: 10 Q. Do you understand you're still under oath? 11 A. Yes. 12 Q. Did you discuss your deposition with anybody 13 during the last break? 14 A. No. 15 Q. Review any documents during the last break? 16 A. No. 17 Q. Okay. If you could -- you have your declaration 18 in front of you, Exhibit 1003. If you could turn to 19 page 1, paragraph 4. 20 A. (Complying.) 21 Q. It says you're being compensated at your 22 customary hourly rate. At what rate are you can 23 compensated for this matter? 24 A. \$500 per hour. 25 Q. And has that been since the inception of the	200 1 Q. Would you put something in your own patent that 2 you thought wasn't true or correct? 3 A. I would not. 4 Q. Do you have any reason to doubt that this is a 5 true and correct copy of a patent in which you're an 6 inventor? 7 A. I haven't looked at it to confirm all the pages 8 are there, but certainly it would appear that it is the 9 full patent. 10 Q. And, generally, what's the invention disclosed 11 in this patent -- let me -- let me rephrase that. I 12 don't want to trip you up on saying what invention you 13 have or what you don't. 14 So what's -- what's the general subject matter 15 of this patent? 16 A. It's an endoluminal prosthesis for placement at 17 a bifurcation site within the body. 18 Q. Would you consider this a medical device? 19 A. It is a stent graft for treating abdominal 20 aortic aneurysms. 21 Q. Okay. You can set that aside. 22 A. (Complying.) 23 Q. And if you would pull up Exhibit 1005. 24 A. (Complying.) 25 Q. And if we could go to Figure 27.

201 1 A. (Complying.) 2 Q. It's going to be page 14 of the exhibit. And if 3 you want, we can use the other figures if something is 4 not clear in that figure that you don't understand. 5 A. No, this figure is probably fine. 6 Q. Do you see any items in this figure that would 7 apply compressive or constrictive force to the lumen 8 shown in this figure? 9 MR. STOWELL: Objection. Form. Outside 10 the scope. 11 THE WITNESS: The description of Figure 12 27 illustrates a perspective view of a stasis valve 13 and external mechan- -- mechanism assembly in 14 accordance with one embodiment. 15 BY MR. HAMILTON: 16 Q. For the record can you identify what paragraph 17 you're reading there? 18 A. Paragraph 37. 19 Q. Are there any items in Figure 27 that apply a 20 compressive or constricting force to the lumen shown in 21 27? 22 A. Looking in the patent to see how they -- what 23 they call the different components here. 24 Q. If it's helpful, I'll point you to paragraph 74. 25 A. So item 300 shown in Figure 27, they're	203 1 amount of rigidity relative to the tube that it's 2 compressing. 3 BY MR. HAMILTON: 4 Q. And is that one of the reasons you wouldn't call 5 those two items that do the compressing a filament? 6 MR. STOWELL: Objection. Form. 7 THE WITNESS: I would call it a clamp, 8 not a filament. 9 BY MR. HAMILTON: 10 Q. Okay. If you could turn to Figures 16 through 11 19 on page 11. 12 A. (Complying.) 13 Q. Do you understand what's depicted in Figures 16 14 through 19? 15 A. I'll have to confirm that these are related to 16 Figures 12 through 15. 17 Q. If you want to look at paragraph 60, that might 18 help. 19 A. (Complying.) 12. 20 Can you repeat the question? 21 Q. Do you understand what's depicted in Figures 16 22 through 19? 23 A. Yes. 24 Q. Do Figures 16 through 19 show what happens to a 25 sealing member when a compressive force is applied to a
202 1 referring to it as a separate tool or device, such as a 2 clamp, forceps, hemostat or combination thereof. 3 Q. And is there anything in that item 300 that 4 applies a compressive force -- 5 A. Yes, I -- 6 Q. -- to item 100? 7 A. Yes. I believe the components above and below 8 the member 110, the seal module 100 act to compress that 9 seal module. 10 Q. Are those members that act to compress the seal 11 module filaments? 12 A. I wouldn't call them filaments. They are a 13 separate tool or device, such as a clamp, forceps or 14 hemostat. 15 Q. And why wouldn't you call those filaments? 16 A. Because it's represented as a clamp or a forceps 17 or a hemostat. 18 Q. And would the two arms of the clamp be rigid 19 relative to the item in -- that those two arms are 20 applying a compressive force to? 21 MR. STOWELL: Objection. Form. 22 THE WITNESS: For this type of valve -- a 23 pinch valve is what I might call it -- the members 24 doing the pinching or squeezing would typically be 25 a forceps or hemostat, which would have a fair	204 1 lumen, including the sealing member? 2 And let me just be clear: Sealing member 165. 3 A. Well, as the patent says in Section 60, 4 paragraph 60, with reference to Figures 10-A, 10-B, 16 5 through 19, "highly compliant third central seal member 6 165 seals around a variety of profile shapes 192 and 7 diameters 194 of the lumen 193 when at least one side of 8 compressive force 67 is exerted upon the central region 9 195 with respect to the central portion 110 of the 10 containment structure." 11 Q. So does Figures 16 through 19 show what happens 12 to a sealing member within a lumen -- let's say sealing 13 member supposition 165 because that's the sealing member 14 shown in those figures -- when a compressive force is 15 applied to the lumen? 16 MR. STOWELL: Objection. Form. 17 THE WITNESS: When a compression force is 18 applied -- sorry. Back up. 19 When at least one side of compressive 20 force is exerted upon the central region, that's 21 what it's depicting in 16 through 19. 22 BY MR. HAMILTON: 23 Q. So does Figures 16 through 19 show how sealing 24 member 165 completely seals a lumen when a compressive 25 force is applied to the outside of the lumen?

205 1 MR. STOWELL: Objection. Asked and 2 answered. Form. 3 THE WITNESS: The figures aren't that 4 clear, but Figure 17 would appear to be completely 5 closed, with no instrument inside. 6 BY MR. HAMILTON: 7 Q. Then what about Figure 18? 8 A. I think they're trying to show a variety of 9 different profile shapes 192. So in Figure 18 it's a 10 somewhat triangular lumen remaining. 11 Q. And -- and it's a somewhat triangular lumen 12 because the tool inserted in Figure 18 is somewhat 13 triangular? Is that the -- is that what Figure 18 is 14 trying to show? 15 MR. STOWELL: Objection. Misstates the 16 document. 17 THE WITNESS: Well, it's a bit unclear to 18 me because 190 in Figure 16 is said to be the 19 lumen, not an instrument placed inside. 20 BY MR. HAMILTON: 21 Q. So what about 192 in Figure 18? 22 A. It shows sealing around a variety of pro -- 23 profile shapes 192. 24 Q. So what would cause that profile shape 192 in 25 Figure 18? Would that be a tool of that shape within	207 1 A. Yes. The two U-shaped actuators move relative 2 to the seal module. 3 Q. And let's -- let's just make sure we're clear 4 here. I've got my other figures. Don't see it in that. 5 So the U-shaped items are actuating members, 6 aren't they? 7 A. I believe those are considered the actuators. 8 Q. I'll just point you to paragraph 76, which 9 refers to two circular actuators 50 in this figure. 10 What are the two circular actuators 50 in this figure? 11 A. I don't see 50 denoted on Figure 33. 12 Q. Do you want to look at Figure 32? Well, 13 actually, Figure 33 -- 50 - 50 is the top right, just 14 above what I believe is a button. 15 A. Oh. 16 Q. Is that -- does that tell you what circulator -- 17 circular actuator 50 is? 18 A. Yes. 19 Q. What is circular actuator 50 in Figure 33? 20 A. It's referring to the assembly of the circular 21 actuator 50 together with the U-shaped actuator members 22 55. 23 Q. And is that actuator 50 movable in this 24 embodiment? 25 A. Yes. They're compressed inward to release
206 1 the lumen? 2 MR. STOWELL: Objection. Form. 3 THE WITNESS: Potentially. 4 BY MR. HAMILTON: 5 Q. It could be anything in the lumen, couldn't it? 6 A. Could be a tool in the lumen. It's not well 7 described in the patent, I would say. 8 Q. Okay. So with that understanding, if you look 9 at Figures 19, 18 and 16, you have a variety of sizes, 10 19 being small, 16 being larger, and you have a shape -- 11 different shape, 18. So do those three figures show how 12 the sealing member seals around a variety of sizes and 13 shapes when a compression force is applied to the lumen? 14 A. Yes, that's what it's showing. 15 Q. And then 17 is when nothing is in -- inside the 16 lumen, it completely seals the lumen; is that right? 17 A. That's my assumption. 18 Q. If you could look at -- we better use the other 19 figures. Let me start with these. Let's look at Figure 20 33. 21 A. (Complying.) 22 Q. And if you need to and Figure 33 doesn't show 23 much -- you have the other figure already. Okay. 24 Is the actuator shown in Figure 33 a movable 25 actuator?	208 1 tension on the valve. 2 Q. And is the way those actuators move in this 3 embodiment by sliding? 4 A. They're pushed inward manually, so they are 5 sliding within the housing. 6 MR. HAMILTON: All right. Why don't we 7 take another quick break? I think I might be done. 8 THE VIDEOGRAPHER: We are going off the 9 record at 1643. 10 (Recess.) 11 THE VIDEOGRAPHER: We are back on the 12 record at 1648. 13 BY MR. HAMILTON: 14 Q. Are you aware that patent owner Inari submitted 15 a declaration by Paul Zalesky in this matter? 16 A. Yes. 17 Q. Have you read that declaration? 18 A. Did review it briefly last night. 19 Q. Was that the first time you've seen that 20 declaration? 21 A. Yes. 22 Q. Have you -- in reviewing it, did you see 23 Mr. Zalesky's credentials or background and experience? 24 A. I breezed through that portion, but I saw some 25 of it.

Transcript of Troy L. Thornton
Conducted on March 19, 2025

53 (209 to 212)

209 1 Q. Did you see any reason to doubt that Mr. Zalesky 2 should be qualified as an expert in this matter? 3 A. No. 4 Q. Do you believe Mr. Zalesky is an expert in this 5 matter? 6 A. I don't have an opinion on that. 7 MR. HAMILTON: All right. I have no 8 further questions. 9 MR. STOWELL: I have no questions for 10 Mr. Thornton either. 11 THE VIDEOGRAPHER: All right. Please 12 stand by. 13 This marks the end of the deposition of 14 Troy Thornton. We are going off the record at 15 1649. 16 (The deposition was concluded at 4:49 17 p.m.) 18 19 20 21 22 23 24 25	211 1 deposition. Planet Depos, will charge its usual 2 and customary rates to all parties in the case, and 3 a financial discount will not be given to any party 4 to this litigation. 5 6 <u>Susan DiFilippantonio</u> Susan DiFilippantonio, Notary Public 7 and Registered Professional Reporter Commission Expires 10-22-2028 8 Georgia Certificate Number 2125 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
210 1 DISCLOSURE 2 Pursuant to Article 10.B of the Rules and 3 Regulations of the Board of Court Reporting of the 4 Judicial Council of Georgia which states: Each 5 court reporter shall tender a disclosure form at 6 the time of the taking of the deposition stating 7 the arrangements made for the reporting services of 8 the certified court reporter, by the certified 9 court reporter, the court reporter's employer or 10 the referral source for the deposition, with any 11 party to the litigation, counsel to the parties, or 12 other entity. Such form shall be attached to the 13 deposition transcript, I make the following 14 disclosure: I am a Georgia Certified Court 15 Reporter. I am here as a representative of Planet 16 Depos. 17 Planet Depos, was 18 contacted to provide court reporting services for 19 the deposition. Planet Depos, will not be taking 20 this deposition under any contract that is 21 prohibited by O.C.G.A. 9-11-28(c). Planet Depos, 22 has no contract/agreement to provide reporting 23 services with any party to the case, any counsel in 24 the case, or any reporter or reporting agency from 25 whom a referral might have been made to cover this	212 1 STATE OF GEORGIA: 2 COUNTY OF FULTON: 3 I hereby certify that the foregoing transcript was 4 reported, as stated in the caption, and the questions 5 and answers thereto were reduced to typewriting under my 6 direction; that the foregoing pages represent a true, 7 complete, and correct transcript of the evidence given 8 upon said hearing, and I further certify that I am not 9 of kin or counsel to the parties in the case; am not in 10 the employ of counsel for any of said parties; nor am I 11 in any way interested in the result of said case. 12 13 <u>Susan DiFilippantonio</u> Susan DiFilippantonio, Notary Public 14 and Registered Professional Reporter Commission Expires 10-22-2028 15 Georgia Certificate Number 2125 16 17 18 19 20 21 22 23 24 25

Transcript of Troy L. Thornton
Conducted on March 19, 2025

54 (213 to 216)

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1 CAPTION 2 The Deposition of TROY THORNTON, taken in the 3 matter, on the date, and at the time and place set out 4 on the title page hereof. 5 It was requested that the deposition be taken by 6 the reporter and that same be reduced to typewritten 7 form. 8 It was agreed by and between counsel and the 9 parties that the Deponent will read and sign the 10 transcript of said deposition. 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	1 DEPOSITION ERRATA SHEET 2 Assignment No.: 575710 3 Case Caption: IMPERATIVE CARE, INC. -vs- INARI MEDICAL, 4 INC. 5 Witness: TROY THORNTON 6 DECLARATION UNDER PENALTY OF PERJURY I declare 7 under penalty of perjury that I have read the entire 8 transcript of my deposition taken in the captioned 9 matter or the same has been read to me, and the same is 10 true and accurate, save and except for changes and/or 11 corrections, if any, as indicated by me on the 12 DEPOSITION ERRATA SHEET hereof, with the understanding 13 that I offer these changes as if still under oath. 14 _____ There are no changes noted. 15 _____ The following changes are noted: 16 Page No. _____ Line No. _____ Should read: _____ 17 _____ 18 Reason for Change: _____ Page No. _____ Line No. _____ 19 Should read: _____ 20 _____ 21 Reason for Change: _____ Page No. _____ Line No. _____ 22 Should read: _____ 23 _____ 24 Reason for Change: _____ Page No. _____ Line No. _____ 25 Should read: _____ Reason for Change: _____
1 CERTIFICATE OF REPORTER 2 STATE OF GEORGIA 3 COUNTY OF FULTON 4 Before me, this day, personally appeared, TROY 5 THORNTON, who, being duly sworn, states that the 6 foregoing transcript of his deposition, taken in the 7 matter, on the date, and at the time and place set out 8 on the title page hereof, constitutes a true and 9 accurate transcript of said deposition. 10 11 *If no changes need to be made on the following two 12 pages, place a check here _____, and return only this 13 signed page.* 14 15 16 17 18 19 20 21 22 23 24 25	1 Page No. _____ Line No. _____ Should read: _____ 2 _____ 3 Reason for Change: _____ Page No. _____ Line No. _____ 4 Should read: _____ 5 _____ Reason for Change: _____ 6 SIGNATURE OF DEPONENT 7 _____ 8 TROY THORNTON 9 Sworn to and subscribed before me 10 this _____ day of _____, _____. 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

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