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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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Imperative Care v. Inari Medical
US Patent 12,109,384
Imperative Care Ex. 1018

1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

3 IMPERATIVE CARE, INC., :
4 Petitioner, :
5 : CASE: IPR2024-01157
6 versus :
7 : PATENT NO: 11,697,011B2
8 INARI MEDICAL, INC., :
9 Patent Owner. :

10 VIDEOTAPED DEPOSITION OF
11 TROY L. THORNTON

12 9:03 a.m.
13 March 19, 2025

14 KNOBBE MARTENS OLSON & BEAR, LLP
15 333 Bush Street
16 21st Floor
17 San Francisco, California

18
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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E X H I B I T S

Exhibit 2006, US Patent Number 7,682,380 82, dated March 23,2010 (s4) KTNK-RESISTANT BIFURCATED	199
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Transcript of Troy L. Thornton
Conducted on March 19, 2025

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1	(Wednesday, March 19, 2025	9:03 a.m.)	12:03:07
2	THE VIDEOGRAPHER: Here begins Media		12:02:38
3	Number 1 in the videotaped deposition of Troy		12:02:39
4	Thornton in the matter of Imperative Care, Inc. v.		12:02:43
5	Inari Medical, Inc. in the United States Patent and		12:02:49
6	Trademark Office before the Patent Trial and Appeal		12:02:51
7	Board, Case Number IPR202401157.		12:02:54
8	Today's date is March 19, 2025. The time		12:03:01
9	on the video monitor is 9:03. The videographer		12:03:05
10	today is Philip Astor, representing Planet Depos.		12:03:10
11	This video deposition is taking place at Knobbe		12:03:12
12	Martens Olson & Bear, San Francisco, California.		12:03:17
13	Would counsel please voice-identify		12:03:19
14	themselves and state whom they represent.		12:03:21
15	MR. HAMILTON: This is Joseph Hamilton		12:03:24
16	from Perkins Coie, representing the patent owner.		12:03:26
17	MR. STOWELL: Joshua Stowell of Knobbe		12:03:31
18	Martens, representing the petitioner, Imperative		12:03:33
19	Care, and the witness.		12:03:36
20	THE VIDEOGRAPHER: The Court Reporter		12:03:38
21	today is Susan DiFilippantonio, representing Planet		12:03:40
22	Depos. The witness will now be sworn.		12:03:44
23	THE REPORTER: This is Susan		12:03:42
24	DiFilippantonio, California CSR Number 14383.		
25	TROY L. THORNTON,		

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? 12:04:05

7 A. Yes. 12:04:08

8 Q. How many times? 12:04:09

9 A. Excuse me. I believe two times. 12:04:12

10 Q. There's a couple ground rules. I'm sure you're 12:04:15
11 familiar with some of them. I'm just going to go over 12:04:21
12 them again. 12:04:24

13 You understand you're under oath? 12:04:25

14 A. I do. 12:04:27

15 Q. At the conclusion of the deposition, sometime 12:04:27
16 after, you'll be given a transcript, with an opportunity 12:04:30
17 to correct errors. Do you understand that any 12:04:33
18 substantive changes may be commented upon and may affect 12:04:36
19 your credibility? 12:04:42

20 A. Can you repeat that? 12:04:43

21 Q. If you change your testimony after the 12:04:44
22 deposition, do you understand that might affect your 12:04:46
23 credibility? 12:04:48

24 A. Yes. 12:04:49

25 Q. I'm going to be asking questions. There's a 12:04:50

1 Court Reporter taking down everything. If I could ask, 12:04:56
2 to make it easier on her, that we not spoke over each 12:04:58
3 other. I'll try to wait until you're finished with your 12:05:03
4 answer before I ask the next question. If you could 12:05:05
5 wait until I finish my question to answer. 12:05:08
6 Can you do that for me? 12:05:09
7 A. Yes. 12:05:11
8 Q. Great. 12:05:11
9 If there's anything that's unclear in my 12:05:14
10 question, please ask for clarification, definition, 12:05:18
11 explanation, and any issue you have with the question. 12:05:22
12 If you don't ask, we're going to assume you understand 12:05:26
13 the question. 12:05:28
14 Is that fair? 12:05:29
15 A. Yes. 12:05:29
16 Q. Because everything is taken down via the Court 12:05:30
17 Reporter, if you could give an audible answer, as 12:05:38
18 opposed to a head nod. So a yes or no. Do you 12:05:41
19 understand that? 12:05:45
20 A. Yes. 12:05:45
21 Q. Are you on any medications or have any health 12:05:45
22 conditions that might affect your ability to testify 12:05:51
23 truthfully here today? 12:05:56
24 A. No. 12:05:57
25 Q. Is there any reason you cannot give your 12:05:58

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

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1 complete and full truthful testimony here today? 12:06:00
2 A. No. 12:06:03
3 Q. If you need a break, please just ask. My only 12:06:04
4 request is we don't take a break while the question is 12:06:08
5 pending. Occasionally I'll be in a line of questioning 12:06:11
6 and I'll want to finish that up, as well, but -- but 12:06:14
7 please feel free to ask if you need a break. 12:06:17
8 Did you bring any documents with you here today? 12:06:24
9 A. Not in here, no. 12:06:27
10 Q. And when you say "not in here," you mean you 12:06:29
11 brought some to this office? 12:06:32
12 A. I have a binder in the other room. 12:06:34
13 Q. Does that binder relate to this case? 12:06:37
14 A. Yes. 12:06:39
15 Q. And -- and what's in that binder? 12:06:40
16 A. Several documents, including my declaration. 12:06:42
17 Q. Are there any notes in that binder, on those 12:06:56
18 documents? 12:07:00
19 A. I don't think so. 12:07:01
20 Q. Are there any notes in that binder at all? 12:07:02
21 A. I don't believe so. 12:07:05
22 Q. So the binder you have are documents from this 12:07:09
23 case. And are they limited to documents from this case? 12:07:12
24 A. Yes. 12:07:16
25 Q. And is it your understanding those documents are 12:07:18

1 marked as exhibits in this case? 12:07:21

2 A. There were some exhibits, yes. 12:07:22

3 Q. Is there anything besides exhibits in that 12:07:26

4 binder? 12:07:29

5 A. No. 12:07:30

6 Q. I'm going to hand you what has been marked 12:07:30

7 previously as Exhibit 1003. 12:07:51

8 (Tendered.) 12:07:54

9 MR. HAMILTON: For some of these I have 12:07:58

10 an extra copy. Would you like it? 12:07:59

11 MR. STOWELL: Thanks, John. 12:08:02

12 MR. HAMILTON: As many as I can get rid 12:08:04

13 of. 12:08:06

14 MR. STOWELL: Yeah, right. You don't 12:08:06

15 want to take them back. I get it. 12:08:07

16 BY MR. HAMILTON: 12:08:09

17 Q. Okay. Do you -- do you recognize Exhibit 1003? 12:08:09

18 A. Yes. 12:08:11

19 Q. And what is Exhibit 1003? 12:08:12

20 A. It's a Declaration of Troy L. Thornton in 12:08:15

21 Support of Petition for Inter Partes Review of U.S. 12:08:20

22 Patent Number 11,697,011. 12:08:25

23 Q. Is this the declaration you submitted in 12:08:28

24 connection with the interference for which we're -- 12:08:31

25 you're testifying here today? 12:08:35

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

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1	MR. STOWELL: Objection. Form.	12:08:36
2	THE WITNESS: Yes.	12:08:38
3	BY MR. HAMILTON:	12:08:51
4	Q. I noticed you turned to the last page, 133. Is	12:08:54
5	that your signature on page 133?	12:08:58
6	A. My electronic signature, yes.	12:09:00
7	Q. And do you see in the paragraph above your	12:09:03
8	signature, 186, an oath that your declaration is	12:09:11
9	truthful? Do you see that?	12:09:18
10	A. Yeah. Paragraph 186?	12:09:20
11	Q. Yes.	12:09:28
12	A. Yes.	12:09:36
13	Q. Since signing your declaration on July 8, 2024,	12:09:36
14	have you reviewed your declaration?	12:09:44
15	A. Yes.	12:09:46
16	Q. Have you found anything that's not truthful in	12:09:46
17	your declaration?	12:09:52
18	A. No.	12:09:54
19	Q. Have you found anything that is an error or	12:09:54
20	incorrect in your declaration?	12:10:01
21	A. Not that I've noticed.	12:10:04
22	Q. Is there anything you want to change in your	12:10:06
23	declaration as you sit here today?	12:10:14
24	A. No.	12:10:16
25	Q. Let's take a look at paragraph 16.	12:10:17

1	A.	(Complying.)	12:10:27
2	Q.	And that's on page 5. Let me know when you're	12:10:28
3		there.	12:10:39
4	A.	Yes.	12:10:50
5	Q.	Does paragraph 16 state that you've considered	12:10:51
6		the materials identified in the attached list of	12:11:01
7		exhibits to your declaration?	12:11:03
8	A.	Yes.	12:11:08
9	Q.	And is that -- if you go to page -- it's going	12:11:08
10		to be a couple pages in, titled "Table of Exhibits." Is	12:11:24
11		that your list of exhibits that you're referring to in	12:11:29
12		paragraph 16?	12:11:31
13	A.	Yes.	12:11:32
14	Q.	Is this everything that you considered in	12:11:32
15		preparing your declaration?	12:11:37
16	A.	I believe there were other patents that we also	12:11:40
17		looked at and considered.	12:11:47
18	Q.	And -- and just before I get into a line of	12:11:51
19		questioning, when I say "declaration" today, I'm going	12:11:56
20		to refer to Exhibit 1003. I understand you've done some	12:11:59
21		declarations in other IPRs. So is it -- is it -- is it	12:12:02
22		fair that we define, when I say "declaration" or you say	12:12:09
23		"declaration," we're referring to this Exhibit 1003?	12:12:12
24	A.	Yes.	12:12:15
25	Q.	Okay. Great.	12:12:15

1	What other patents did you review?	12:12:17
2	A. I don't recall.	12:12:18
3	Q. Did you rely on anything that's not in this	12:12:21
4	table of exhibits in forming your opinions in the	12:12:24
5	declaration?	12:12:28
6	A. I don't believe so.	12:12:30
7	Q. Why did you look at those other patents?	12:12:31
8	A. One always looks at a wide range of patents to	12:12:37
9	decide which ones are most appropriate to consider.	12:12:46
10	Q. And you determined everything in the list on the	12:12:51
11	table of exhibits were most appropriate; is that	12:12:54
12	correct?	12:12:58
13	A. We determined that these were appropriate to	12:12:58
14	include.	12:13:02
15	Q. You just said "we." What do you mean, "we"?	12:13:03
16	A. Working with counsel.	12:13:07
17	Q. So you and counsel together determined that this	12:13:10
18	was the list of exhibits you should -- you should	12:13:12
19	include as what you considered; is that right?	12:13:14
20	A. Yes.	12:13:18
21	Q. Did counsel provide all these exhibits to you?	12:13:18
22	A. Yes.	12:13:27
23	Q. Did you go find any of these exhibits on your	12:13:31
24	own?	12:13:37
25	A. I don't believe so.	12:13:37

1 Q. Did you go look for other material related to 12:13:39
2 the subject matter of this case on your own? 12:13:44
3 A. I did some other searches, yes. 12:13:47
4 Q. And did you find anything that changed your 12:13:58
5 opinions in this matter? 12:14:00
6 A. No. 12:14:02
7 Q. Did you rely on everything in the table of 12:14:03
8 exhibits of Exhibit 1003 in forming your opinions in 12:14:07
9 this matter? 12:14:14
10 A. Can you repeat the question? 12:14:17
11 Q. So there's -- there's a list of exhibits here. 12:14:20
12 And in paragraph 16 you said, "In preparing this 12:14:23
13 declaration, I have considered the materials referenced 12:14:28
14 in the declaration and identified in the attached list 12:14:31
15 of exhibits." 12:14:34
16 So in preparing your declaration, you considered 12:14:36
17 everything listed in that attached list of exhibits; is 12:14:40
18 that correct? 12:14:44
19 A. Yes. 12:14:44
20 Q. Are you sure? 12:14:45
21 A. Yes. 12:14:51
22 Q. And let's -- let's just look at that list of 12:14:53
23 exhibits. If you take a look, you can see Exhibit 1003. 12:14:57
24 A. (Complying.) 12:15:03
25 Q. What's Exhibit 1003 in that list of exhibits? 12:15:04

1 A. I would have to see the document to be able to 12:15:08
2 answer that. 12:15:18
3 Q. Is -- this is your declaration, isn't it? 12:15:19
4 A. Sorry. I thought this was 001, so... 12:15:22
5 Yes, this is Exhibit 1003. 12:15:29
6 Q. So in the list of exhibits, you reference 12:15:31
7 Exhibit 1003, which is -- which is your declaration -- 12:15:35
8 A. Yes. 12:15:38
9 Q. -- as being considered in preparing that 12:15:39
10 declaration; is that right? 12:15:42
11 MR. STOWELL: Objection. Form. 12:15:44
12 THE WITNESS: So maybe that wasn't 12:15:46
13 appropriate, to say it was used in the paragraph 12:15:57
14 16. Maybe it wasn't appropriate to say I've 12:16:04
15 considered the materials referenced in this 12:16:10
16 declaration and identified them in the list of the 12:16:13
17 exhibits, because it wasn't prepared at the time 12:16:17
18 that the declaration was prepared. 12:16:19
19 BY MR. HAMILTON: 12:16:20
20 Q. Okay. So in this paragraph 16, you say that in 12:16:20
21 preparing the declaration, you considered the material 12:16:24
22 in the identified -- excuse me -- the attached list of 12:16:27
23 exhibits. And what you're telling me here today is you 12:16:32
24 - you didn't consider Exhibit 1003 because this is 12:16:36
25 Exhibit 1003; is that right? 12:16:40

1	MR. STOWELL: Objection. Misstates	12:16:41
2	testimony.	12:16:44
3	THE WITNESS: It wasn't completed at the	12:16:44
4	time that the declaration was completed, so it was	12:16:46
5	probably a mistake to list it as a -- or to say	12:16:50
6	that this was considered -- that this was one of	12:16:54
7	the materials considered and referenced in this	12:17:03
8	declaration.	12:17:08
9	BY MR. HAMILTON:	12:17:12
10	Q. Okay. So for -- for paragraph 16, this isn't	12:17:13
11	correct, at least with respect to Exhibit 1003; is that	12:17:19
12	right?	12:17:23
13	MR. STOWELL: Objection. Misstates	12:17:23
14	testimony. Form.	12:17:26
15	THE WITNESS: Yes; 0 -- 1003 possibly	12:17:27
16	should not be in this list.	12:17:34
17	BY MR. HAMILTON:	12:17:37
18	Q. You had said there were earlier versions of	12:17:37
19	Exhibit 1003. Did you rely on those versions in	12:17:41
20	preparing your declaration? Is that what you meant by	12:17:45
21	paragraph 16?	12:17:47
22	MR. STOWELL: Objection. Misstates	12:17:48
23	testimony.	12:17:50
24	THE WITNESS: I don't believe I said	12:17:50
25	there were earlier versions that were included	12:17:51

1	here.	12:17:53
2	BY MR. HAMILTON:	12:17:53
3	Q. Were there earlier versions?	12:17:54
4	A. Yes. There were several drafts during	12:17:57
5	preparing -- during the preparation of this document.	12:18:01
6	Q. Did you rely on those drafts in preparing your	12:18:04
7	declaration?	12:18:10
8	MR. STOWELL: Objection. Form.	12:18:12
9	THE WITNESS: No.	12:18:13
10	BY MR. HAMILTON:	12:18:13
11	Q. If you look at the next paragraph, paragraph	12:18:17
12	17 -- you can take a moment just to read that.	12:18:20
13	A. Yes.	12:18:26
14	Q. Do you see the last clause in that paragraph	12:18:26
15	"field of the '011 Patent"?	12:18:32
16	What did you mean by the "field of the '011	12:18:35
17	Patent"?	12:18:43
18	A. Field relates to hemostasis valves.	12:18:43
19	Q. So the field of the '011 Patent is hemostasis	12:19:01
20	valves; is that right?	12:19:07
21	A. If I can get a copy of the '011 Patent, I can	12:19:07
22	confirm that.	12:19:11
23	Q. You bet.	12:19:13
24	So I'm going to hand you what's been previously	12:19:17
25	marked as Exhibit 1001.	12:19:23

1 (Tendered.) 12:19:25

2 And, you know, if -- if it's helpful, I'll also 12:19:49

3 refer you to paragraph 26 of your declaration, where you 12:19:54

4 also discuss the field, and that might help you 12:20:01

5 articulate what the field is, if -- if you'd like to 12:20:04

6 look at that. 12:20:10

7 A. So your question again? 12:20:32

8 Q. So my question is, what is the field of the '011 12:20:42

9 Patent? 12:20:45

10 A. As I reference in paragraph 26 of the 12:20:48

11 declaration, hemostasis valves were used during 12:20:54

12 intravascular procedures. 12:21:01

13 Q. So is it fair to say, then, the field of the 12:21:03

14 invention of the '011 patent is what's set forth here on 12:21:07

15 -- on paragraph 26, "hemostasis valves for use during 12:21:18

16 intravascular procedures"? 12:21:21

17 Is that the field of the invention of the '011 12:21:22

18 Patent? 12:21:25

19 A. That's my understanding, "hemostasis valves for 12:21:27

20 use during intravascular procedures." 12:21:31

21 Q. Does the field of the invention of the '011 12:21:33

22 Patent include anything else? 12:21:36

23 And the reason I ask is in paragraph 26, you say 12:21:40

24 "e.g." I just want to make sure that's not just an 12:21:44

25 example of one of the fields of the invention. I want 12:21:48

1	to -- I want to -- I want to clarify what the actual	12:21:50
2	field of the invention of the '011 Patent is.	12:21:52
3	A. That's my understanding of the field that's	12:22:00
4	focused on with this '011 Patent.	12:22:05
5	Q. And when you say "focused on," what do you mean	12:22:09
6	by focused on?	12:22:14
7	A. That the main thrust of the entire patent is	12:22:16
8	focused on sealing -- is focused on hemostasis valves	12:22:52
9	for use during intravascular procedures.	12:22:59
10	Q. Okay. What -- what -- what is a hemostasis	12:23:02
11	valve?	12:23:06
12	A. It's a valve used on the proximal end of a	12:23:10
13	catheter to prevent leakage of blood from the patient.	12:23:30
14	Q. Is that your complete answer?	12:23:47
15	A. Yes.	12:23:50
16	Q. When you say "on the proximal end of a	12:23:51
17	catheter," are hemostasis valves only used with	12:23:57
18	catheters?	12:24:00
19	A. In my experience, they are used with	12:24:04
20	intravascular catheters.	12:24:09
21	Q. Are you aware of hemostasis valves being used in	12:24:12
22	any other application that doesn't involve intravascular	12:24:15
23	catheters?	12:24:19
24	MR. STOWELL: Objection. Form.	12:24:20
25	THE WITNESS: Well, the word "hemo"	12:24:22

1 implies blood. So in my experience, they're always 12:24:28
2 used in a patient's vascular system. 12:24:30
3 BY MR. HAMILTON: 12:24:40
4 Q. In your definition, you also said "to prevent 12:24:41
5 leakage of blood from the patient." Do hemostasis 12:24:44
6 valves have any other use other than to prevent leakage 12:24:48
7 of blood from the patient? 12:24:54
8 A. They also are there to prevent entrainment of 12:24:56
9 air into the patient. 12:25:07
10 Q. Is it fair to say air or -- or any other foreign 12:25:10
11 substance or particle, things like that? Is that fair 12:25:18
12 to say? 12:25:21
13 A. In my experience, it's to prevent air 12:25:22
14 introduction into the patient. 12:25:26
15 Q. Okay. So hemostasis valves prevent leakage of 12:25:28
16 blood and they prevent air into a patient during an 12:25:32
17 intravascular procedure; is that right? 12:25:36
18 A. Based on my experience, that's what I would say. 12:25:39
19 Q. When you say based on your experience, have you 12:25:42
20 ever designed a hemostasis valve? 12:26:00
21 A. I have hired engineers who design hemostasis 12:26:02
22 valves, yes. 12:26:08
23 Q. Have you ever designed a hemostasis valve? 12:26:09
24 A. I was involved with the design in working with 12:26:16
25 the engineer who reported to me. 12:26:19

1 Q. So when you say you were involved with the 12:26:23
2 design in working with the engineer who reported to you, 12:26:48
3 is that the only time you've been involved in the design 12:26:53
4 of a hemostasis valve? 12:26:56
5 A. I've been involved in speccking out hemostasis 12:27:00
6 valves that we purchased for other applications. 12:27:09
7 Q. Okay. So just to be clear, the experience in 12:27:13
8 designing was with one engineer for one valve; is that 12:27:16
9 right? 12:27:21
10 MR. STOWELL: Objection. Misstates 12:27:21
11 testimony. 12:27:24
12 THE WITNESS: For the most recent product 12:27:24
13 that I was responsible for, there were three 12:27:33
14 hemostasis valves on three different catheters. 12:27:40
15 BY MR. HAMILTON: 12:27:46
16 Q. When you say three valves, three different types 12:27:46
17 of valves or three of the same valve? 12:27:49
18 A. Three different types of valves. 12:27:54
19 Q. Were all -- those all used at the same time? 12:27:58
20 A. During the same procedure, there were three 12:28:02
21 catheters used, and all three were used at some points 12:28:05
22 during the procedure. 12:28:08
23 Q. So in this project that you worked on with the 12:28:09
24 engineer, the result of that project was three different 12:28:15
25 types of hemostasis valves; is that right? 12:28:18

1	A.	Yes.	12:28:21
2	Q.	And other than that project and -- and working	12:28:21
3		with this engineer on three different types of	12:28:26
4		hemostasis valves, have you been involved in the design	12:28:29
5		of any other hemostasis valve?	12:28:31
6	A.	On an earlier project there were two hemostasis	12:28:35
7		valves on two different components of the system.	12:28:49
8	Q.	And you designed those two valves in that	12:28:57
9		earlier project?	12:29:03
10	A.	In that project I believe we specced out	12:29:05
11		off-the-shelf valves. We were able to find more	12:29:10
12		standard off-the-shelf valves to use.	12:29:15
13	Q.	And what does that mean, specced out?	12:29:18
14	A.	We set out the design requirements to the	12:29:21
15		vendors.	12:29:26
16	Q.	Specced out mean anything else besides setting	12:29:31
17		out the design requirements to the vendors?	12:29:38
18	A.	Not really.	12:29:40
19	Q.	Okay. So there are many types of hemostasis	12:29:41
20		valves; is that correct?	12:29:45
21		MR. STOWELL: Objection. Form.	12:29:47
22		THE WITNESS: I am familiar with several	12:29:48
23		types of hemostasis valves.	12:29:49
24		BY MR. HAMILTON:	12:29:50
25	Q.	And so in this project that we were just	12:29:51

1 discussing, you went to a vendor and said, These are our 12:29:53
2 requirements for the hemostasis valve. And that's what 12:29:57
3 you mean by spec'd out; is that right? 12:30:02
4 A. For the valves that we specced out that were 12:30:04
5 readily available from vendors, yes, we gave them the 12:30:07
6 design requirements, we made sure that they functioned 12:30:11
7 as they were supposed to. 12:30:13
8 Q. And -- and how do you figure out what the design 12:30:14
9 requirements were in that project? 12:30:17
10 A. We needed to -- sorry. We required a certain 12:30:22
11 diameter of device to fit within the valve. 12:30:32
12 Q. Uh-huh. 12:30:37
13 A. Can you repeat the question? 12:30:41
14 Q. How did you -- how did you determine what the 12:30:48
15 design requirements were for the hemostasis valve in 12:30:55
16 that project? 12:30:58
17 A. How did we determine it? 12:31:01
18 Q. Yes. 12:31:05
19 A. We're engineers trying to solve the problem. 12:31:06
20 Q. So did you have to figure out what the procedure 12:31:11
21 was? 12:31:15
22 A. We were developing a procedure. 12:31:16
23 Q. Uh-huh. 12:31:19
24 A. We knew the requirements for the size of 12:31:20
25 catheter would need to go through with the valve. 12:31:23

1 Q. So different procedures would require different 12:31:26
2 hemostasis valves; is that right? 12:31:29

3 MR. STOWELL: Objection. Misstates 12:31:30
4 testimony. 12:31:33

5 THE WITNESS: For the projects I'm 12:31:33
6 discussing, these were different size catheters, 12:31:36
7 different sized valves. They had different 12:31:42
8 requirements. 12:31:47

9 BY MR. HAMILTON: 12:31:48

10 Q. So as an engineer trying to figure out what 12:31:51
11 hemostasis valve to use with a particular procedure, you 12:31:54
12 would need to know what the procedure is first, wouldn't 12:31:59
13 you? 12:32:01

14 MR. STOWELL: Objection. Form. 12:32:03

15 THE WITNESS: We did know the procedure 12:32:04
16 we were developing; yes. 12:32:09

17 BY MR. HAMILTON: 12:32:10

18 Q. And you would choose a hemostasis valve that was 12:32:11
19 particularly suited for that procedure; is that right? 12:32:13

20 A. We would choose the hemostasis valve based on 12:32:16
21 the needs of what had to go through it, what the size 12:32:21
22 was, what the frictional requirements might be. 12:32:25

23 Q. Are those design requirements you just listed -- 12:32:32
24 so what went through it, the frictional requirements, 12:32:42
25 are those -- is that what you mean by design 12:32:46

1 requirements? 12:32:48

2 A. Those are some examples of design requirements. 12:32:49

3 Q. What other design requirements are there for a 12:32:51

4 hemostasis valve? 12:32:54

5 A. We had requirements for the ability to seal 12:32:56

6 around whatever device is going through it, at given 12:33:15

7 pressures or vacuums. 12:33:22

8 Q. Anything else? 12:33:30

9 A. Those are the ones I can think of at this 12:33:32

10 moment. 12:33:39

11 Q. Okay. So I've heard four: The diameter, what 12:33:40

12 goes through the valve, the friction requirements, and 12:33:44

13 the ability to seal at a pressure or a vacuum. Other 12:33:49

14 than those four, as you sit here today, can you think of 12:33:54

15 any other design requirements in selecting a hemostasis 12:33:59

16 valve for a particular procedure? 12:34:01

17 A. We also had to consider what it was attaching 12:34:06

18 to, so the attachment component; if we were buying an 12:34:10

19 off-the-shelf component, how it would attach to our 12:34:16

20 catheter, let's say. 12:34:22

21 Q. Any others? 12:34:23

22 A. Those are the ones I can think of offhand at 12:34:28

23 this moment. 12:34:32

24 Q. And all these design requirements are driven by 12:34:33

25 the particular procedure; is that right? 12:34:36

1	MR. STOWELL: Objection. Form.	12:34:39
2	THE WITNESS: It was driven by the needs	12:34:42
3	of the procedure.	12:34:43
4	BY MR. HAMILTON:	12:34:48
5	Q. So then is it fair to say, in selecting a	12:34:53
6	hemostasis valve for use with a procedure, to determine	12:34:57
7	the design requirements for the hemostasis valve, you	12:35:02
8	would need to understand the needs of the procedure?	12:35:04
9	MR. STOWELL: Objection. Form.	12:35:11
10	THE WITNESS: I think, as engineers, we	12:35:12
11	always design to the needs of the physician, the	12:35:21
12	procedure, the environment, the sterilization plan,	12:35:28
13	which was another design requirement I just thought	12:35:38
14	of.	12:35:46
15	BY MR. HAMILTON:	12:35:46
16	Q. And all those requirements relate to the needs	12:35:49
17	from the procedure; is that right?	12:35:52
18	MR. STOWELL: Objection. Form.	12:35:54
19	THE WITNESS: Needs from the physician,	12:35:55
20	the needs of the procedure, the needs of the	12:35:59
21	patient.	12:36:03
22	BY MR. HAMILTON:	12:36:11
23	Q. And do different procedures have different needs	12:36:33
24	or requirements?	12:36:36
25	MR. STOWELL: Objection. Form.	12:36:38

1	THE WITNESS: Of course.	12:36:39
2	BY MR. HAMILTON:	12:37:08
3	Q. And is it fair to say that --	12:37:08
4	A. Excuse me. My phone was ringing. I forgot to	12:37:10
5	turn it off.	12:37:13
6	Q. Is it fair to say, then, that different designs	12:37:14
7	of hemostasis valves will satisfy different design	12:37:26
8	requirements depending on the procedure?	12:37:30
9	MR. STOWELL: Objection to form.	12:37:33
10	THE WITNESS: We certainly had different	12:37:34
11	hemostasis valves for the different catheters	12:37:38
12	because they had different needs and requirements.	12:37:41
13	BY MR. HAMILTON:	12:37:44
14	Q. So one hemostasis valve design isn't going to	12:37:46
15	satisfy every need and every medical procedure; is that	12:37:50
16	right?	12:37:54
17	A. Certainly for the examples I'm familiar with,	12:37:54
18	that is -- different -- different hemostasis valves were	12:37:58
19	important to have for the different aspects of the	12:38:06
20	system.	12:38:08
21	Q. Why is -- why is diameter an important design	12:38:09
22	requirement?	12:38:15
23	MR. STOWELL: Objection. Form.	12:38:15
24	THE WITNESS: For some hemostasis valves,	12:38:15
25	only a guide wire needed to go through. For some	12:38:21

1 hemostasis valves, a 20 French catheter needed to 12:38:25
2 go through. So diameter would be pretty important. 12:38:29
3 BY MR. HAMILTON: 12:38:38
4 Q. You said "20 French catheter." Is that a large 12:38:39
5 catheter? 12:38:43
6 MR. STOWELL: Objection. Vague. 12:38:43
7 BY MR. HAMILTON: 12:38:46
8 Q. A large-diameter catheter? Let me clarify. 12:38:46
9 MR. STOWELL: Same objection. 12:38:50
10 THE WITNESS: It depends on the 12:38:51
11 procedure. There are larger catheters used in 12:38:52
12 medical procedures that I'm familiar with, and 12:38:54
13 smaller catheters used. 12:38:56
14 BY MR. HAMILTON: 12:38:59
15 Q. So the size of the catheter generally depends on 12:38:59
16 the specific procedure; is that right? 12:39:03
17 A. It depends on the procedure and depends on the 12:39:08
18 vessel you're going through. 12:39:10
19 Q. If the size of the catheter was, let's say, 12:39:30
20 relatively small compared to the vas- -- vasculature, 12:39:34
21 would the diameter of the hemostasis valve -- would a 12:39:41
22 design requirement be to have the diameter of the 12:39:49
23 hemostasis valve as close to that small size as 12:39:54
24 possible? 12:39:57
25 MR. STOWELL: Objection. Vague. 12:39:58

1	THE WITNESS: I'm not sure.	12:40:00
2	BY MR. HAMILTON:	12:40:03
3	Q. If you were just going to put a guide wire in,	12:40:03
4	would you choose a hemostasis valve that was 24 French,	12:40:06
5	for example?	12:40:11
6	MR. STOWELL: Objection. Vague.	12:40:13
7	THE WITNESS: For example, the catheters	12:40:15
8	I worked on, when a guide wire was going through,	12:40:19
9	it was a relatively small hemostasis valve designed	12:40:24
10	to fit the guide wire.	12:40:28
11	BY MR. HAMILTON:	12:40:30
12	Q. And why would you choose a relatively small	12:40:31
13	hemostasis valve designed to fit the guide wire, as	12:40:35
14	opposed to a bigger valve, in that instance?	12:40:38
15	A. It just makes sense from an engineering	12:40:42
16	standpoint.	12:40:46
17	Q. And what do you mean by "makes sense from an	12:40:47
18	engineering standpoint"? What about it makes sense?	12:40:55
19	A. It wouldn't make sense to have a huge valve if	12:40:59
20	you were only trying to seal against a small-diameter	12:41:05
21	guide wire. So --	12:41:08
22	Q. Why not -- oh, you had more to say. Sorry.	12:41:11
23	A. Hemostasis valves to go around guide wires are	12:41:15
24	very readily available off the shelf, so it wouldn't	12:41:20
25	have made sense to design your own extra large valve,	12:41:25

1 which were less available at the time of my -- these 12:41:29
2 projects I'm talking about. 12:41:35
3 Q. So other than availability, is that the only 12:41:36
4 reason you choose a smaller hemostasis valve if you're 12:41:39
5 just inserting a guide wire? 12:41:44
6 A. Just makes sense from an engineering standpoint. 12:41:47
7 Q. What about blood loss? Wouldn't you have more 12:41:52
8 risk of blood loss if you chose a larger-diameter 12:41:55
9 hemostasis valve? 12:42:00
10 MR. STOWELL: Objection. Form. 12:42:02
11 BY MR. HAMILTON: 12:42:03
12 Q. One that was much larger than the needs of 12:42:03
13 what's being inserted? 12:42:06
14 MR. STOWELL: Same objection. 12:42:07
15 THE WITNESS: Even if it were designed to 12:42:13
16 be much larger, the doctor wouldn't open it up much 12:42:18
17 larger than the guide wire, so I'm not sure it 12:42:21
18 would make much difference for blood loss. 12:42:25
19 BY MR. HAMILTON: 12:42:27
20 Q. So is it your testimony that a person of skill 12:42:28
21 in the art, in choosing a hemostasis valve for a 12:42:30
22 procedure that's just inserting a catheter, could choose 12:42:33
23 a 24 French hemostasis valve or a much smaller 12:42:35
24 hemostasis valve and it doesn't make much difference? 12:42:41
25 Is that your testimony? 12:42:44

1 A. Can you repeat the question? 12:42:46

2 Q. Is it your testimony that a person of skill in 12:42:49

3 the art choosing a hemostasis valve for a procedure that 12:42:51

4 includes just inserting a catheter would choose a 24 12:42:55

5 French hemostasis valve or a much smaller hemostasis 12:43:00

6 valve and it doesn't make much difference for blood 12:43:03

7 loss? 12:43:07

8 A. I haven't really considered that. 12:43:12

9 Q. Why would someone choosing a hemostasis valve 12:43:13

10 for insertion of just a catheter choose a 24 French 12:43:19

11 hemostasis valve? 12:43:23

12 MR. STOWELL: Objection. Vague. 12:43:23

13 THE WITNESS: Just a catheter? What size 12:43:25

14 catheter are you talking about? 12:43:28

15 BY MR. HAMILTON: 12:43:30

16 Q. Excuse me. The guide wire. Pardon me. 12:43:30

17 A. Can you repeat the question, then? 12:43:33

18 Q. Why would someone selecting a hemostasis valve 12:43:36

19 for insertion of just a guide wire select a 24 French 12:43:40

20 hemostasis valve? Why would that not make much 12:43:45

21 difference? 12:43:49

22 A. I don't believe a typical engineer would select 12:43:52

23 a large hemostasis valve if you were trying to seal just 12:43:57

24 against the guide wire. 12:44:00

25 Q. So it would make a difference, then; is that 12:44:02

1 right? 12:44:07

2 MR. STOWELL: Objection. Misstates 12:44:07

3 testimony. 12:44:10

4 THE WITNESS: I just don't think it would 12:44:10

5 make sense to design a huge hemostasis valve if you 12:44:12

6 were only trying to seal against a guide wire. 12:44:17

7 BY MR. HAMILTON: 12:44:22

8 Q. Let's -- let's just be clear. When you say 12:44:28

9 "huge hemostasis valve," what do you mean by huge? 12:44:30

10 A. I believe you said 24 French. That's on the 12:44:34

11 large side. 12:44:37

12 Q. 20 French on the large side? 12:44:38

13 A. Difficult to say. There are a range of 12:44:42

14 catheters out there now from very tiny to 35 French for 12:44:47

15 some procedures. 12:44:55

16 Q. Compared to insertion of a guide wire, is 20 12:44:56

17 French huge? 12:45:00

18 MR. STOWELL: Objection. Vague. 12:45:00

19 THE WITNESS: I would characterize that 12:45:02

20 as being larger than necessary to seal against a 12:45:05

21 guide wire. 12:45:11

22 BY MR. HAMILTON: 12:45:13

23 Q. And would one of the reasons you wouldn't select 12:45:23

24 a hemostasis valve that is larger than necessary -- the 12:45:27

25 risk of more blood loss with a regular hemostasis valve, 12:45:34

1 was that a consideration? 12:45:40

2 A. I've never really considered that as a 12:45:42

3 consideration for the valves that I've worked on. 12:45:47

4 Q. So the amount of blood loss based on the size of 12:45:49

5 the valve is not a design consideration for anything 12:45:52

6 that you've worked on; is that right? 12:45:55

7 A. For the devices I've worked on, it was -- always 12:46:03

8 made the most sense to design a valve that was the right 12:46:07

9 size for the device going through it, and that's what we 12:46:11

10 did. 12:46:17

11 Q. So it made sense to match the size of the 12:46:17

12 hemostasis valve to the device going through it in every 12:46:21

13 project you've worked on; is that right? 12:46:27

14 A. In all the valves that I worked on, the size of 12:46:31

15 the valve was closely matched to the size of the 12:46:35

16 catheter or guide wire going through it, yes. 12:46:39

17 Q. And would a POSITA designing a -- and when I say 12:46:42

18 "POSITA," a person of ordinary skill in the art, as 12:46:47

19 you've used the term in your declaration -- match the 12:46:50

20 size of the hemostasis valve to the device going through 12:46:57

21 it, just like you did in every project you've worked on? 12:47:01

22 MR. STOWELL: Objection. Vague. 12:47:04

23 Misstates testimony. 12:47:05

24 THE WITNESS: Certainly I and the 12:47:11

25 engineers I worked with, that was how we typically 12:47:18

1 designed the hemostasis valves, for the size of the 12:47:20
2 device going through it. 12:47:25
3 BY MR. HAMILTON: 12:47:26
4 Q. And what about for a person of ordinary skill in 12:47:28
5 the art? 12:47:30
6 A. I and those engineers would have been people of 12:47:33
7 ordinary skill in the art. 12:47:38
8 Q. So a person of ordinary skill in the art would 12:47:39
9 match the size of the hemostasis valve to the device 12:47:41
10 going through it -- 12:47:44
11 MR. STOWELL: Objection. Misstates the 12:47:45
12 testimony. 12:47:47
13 BY MR. HAMILTON: 12:47:47
14 Q. -- when designing a hemostasis valve for a 12:47:47
15 particular application; is that correct? 12:47:50
16 MR. STOWELL: Objection. Misstates the 12:47:53
17 testimony. 12:47:54
18 THE WITNESS: I would say that's what we 12:47:55
19 did; we matched the size of the valve closely to 12:47:56
20 the device going through it. 12:48:03
21 BY MR. HAMILTON: 12:48:04
22 Q. Do you have an opinion on what a person of 12:48:05
23 ordinary skill in the art would do in that circumstance? 12:48:07
24 A. I think they would do the same thing. 12:48:13
25 Q. Let's turn to page 81 of your declaration, 12:48:16

1 Exhibit 1003. 12:48:25
2 A. (Complying.) 12:48:30
3 Q. Actually, before we do that, let's just clarify 12:48:36
4 something. Paragraph 35 of your declaration, if you 12:48:42
5 could turn to that. It's on page 12. 12:48:58
6 A. (Complying.) 12:49:01
7 Q. Page 12, paragraph 35. 12:49:02
8 A. Oh, I'm sorry. 12:49:11
9 Q. No problem. I'll try to be consistent when I 12:49:12
10 say it. 12:49:16
11 Does paragraph 35 set forth the definition of a 12:49:34
12 person of ordinary skill in the art as you've applied it 12:49:39
13 in your declaration? 12:49:43
14 A. Yes. 12:49:45
15 Q. Is that your complete definition of a person of 12:49:45
16 ordinary skill in the art? 12:49:50
17 A. Yes. 12:49:51
18 Q. Is anything missing from that definition in 12:49:53
19 paragraph 35 that you'd like to include? 12:49:56
20 A. No. 12:49:59
21 Q. Okay. So when I say "a person of ordinary skill 12:50:00
22 in the art" or "POSITA," your understanding is that it's 12:50:05
23 this definition in paragraph 35; is that fair? Do we 12:50:16
24 have that understanding? 12:50:20
25 A. Yeah, this is my definition of POSITA for 12:50:22

1 this -- related to the '011 Patent. 12:50:28

2 Q. And you've applied that definition in rendering 12:50:30

3 all your opinions in your declaration; is that right? 12:50:34

4 A. Yes. 12:50:36

5 Q. I want to clarify one other thing. So is there 12:50:38

6 a particular time period for the POSITA that you applied 12:50:44

7 in your declaration? A POSITA as of a particular date? 12:50:47

8 A. Yes. September 6th, 2017. 12:50:52

9 Q. And how did you choose that date? 12:51:24

10 A. This is the relevant priority date from the '011 12:51:27

11 Patent. 12:51:35

12 Q. So the perspective of a POSITA as you've applied 12:51:35

13 it in your declaration is someone who has the 12:51:39

14 qualifications in paragraph 35 -- and nothing more, 12:51:43

15 nothing less -- as of the date you just specified; is 12:51:49

16 that right? 12:51:54

17 MR. STOWELL: Objection. Form. 12:51:54

18 THE WITNESS: As of the date 2017, yes. 12:52:14

19 BY MR. HAMILTON: 12:52:24

20 Q. Is that your complete answer? 12:52:24

21 A. The two to four years of product design or 12:52:25

22 engineering experience, I suppose one could have more 12:52:29

23 than that number of years of product design or 12:52:31

24 engineering experience. 12:52:36

25 Q. So someone with more product design and 12:52:37

1 engineering experience would still be a person of skill 12:52:40
2 in the art, under your definition? 12:52:44
3 A. I believe so. 12:52:46
4 Q. So in applying your definition of a person of 12:52:47
5 ordinary skill in the art, what's set forth in paragraph 12:52:58
6 35 says two to four years, but actually the definition 12:53:06
7 that you applied is someone that could have more 12:53:09
8 experience than two to four years; is that right? 12:53:12
9 MR. STOWELL: Objection. Misstates 12:53:14
10 testimony. 12:53:16
11 THE WITNESS: Certainly I think if 12:53:16
12 someone had more than four years, they would be a 12:53:17
13 person of skill in the art also. 12:53:21
14 BY MR. HAMILTON: 12:53:22
15 Q. They would have more experience than a person of 12:53:23
16 ordinary skill in the art, wouldn't they? 12:53:26
17 A. They would have at least this requirement, yes. 12:53:28
18 Q. What if they have 30 years of experience; would 12:53:31
19 they be a person of ordinary skill in the art? 12:53:35
20 A. If they had the other requirements, yes. 12:53:39
21 Q. So the definition of a person of ordinary skill 12:53:46
22 in the art that you applied in rendering your opinions 12:53:50
23 is someone that could have anywhere from two to 12:53:52
24 four years of experience, up to an unlimited amount of 12:53:56
25 experience in the field; is that right? 12:54:00

1	MR. STOWELL: Objection. Misstates	12:54:02
2	testimony.	12:54:04
3	THE WITNESS: I think two to four years	12:54:04
4	would be an appropriate range, but if someone had	12:54:09
5	more experience, that could also be a person of	12:54:12
6	ordinary skill.	12:54:16
7	BY MR. HAMILTON:	12:54:18
8	Q. And you've applied that definition in rendering	12:54:18
9	your opinions in this declaration; is that right?	12:54:21
10	A. I've applied the two to four years in rendering	12:54:24
11	the opinion.	12:54:27
12	Q. Are you a person of ordinary skill in the art?	12:54:28
13	A. I believe I do meet the definition of this with	12:54:50
14	more than two to four years of experience.	12:55:00
15	Q. So your opinions in this matter, for example,	12:55:03
16	are -- are -- when you say a person of ordinary skill in	12:55:16
17	the art would think this or do this, you mean someone	12:55:19
18	just like you?	12:55:23
19	MR. STOWELL: Objection. Misstates	12:55:24
20	testimony.	12:55:26
21	THE WITNESS: No. I mean someone just	12:55:26
22	like I wrote in paragraph 35, with two to	12:55:28
23	four years of product design or engineering	12:55:32
24	experience.	12:55:34
25	BY MR. HAMILTON:	12:55:38

1	Q.	Okay. Let's go to -- what did I say, paragraph	12:55:46
2		81?	12:55:52
3	A.	(Complying.)	12:55:57
4		Okay.	12:56:33
5	Q.	Do you understand what is shown in the image in	12:56:33
6		paragraph 81?	12:56:37
7	A.	Let me read the section.	12:56:40
8		Okay. Can you repeat the question?	12:58:20
9	Q.	Sure.	12:58:26
10		Do you understand what is shown in the image in	12:58:27
11		paragraph 81?	12:58:31
12	A.	Yes.	12:58:32
13	Q.	What's depicted in the image in paragraph 81?	12:58:32
14	A.	U-shaped -- U-shaped actuating members in	12:58:36
15		orange; the interventional tool shown in the center in	12:58:51
16		red; and the -- and the cylindrical diaphragm in green.	12:58:58
17		It's labeled as "lumen," which is really the interior of	12:59:30
18		the cylindrical diaphragm.	12:59:34
19	Q.	And those components you just referenced, are	12:59:41
20		those components from an embodiment in the Shafer	12:59:45
21		publication?	12:59:54
22	A.	This section is talking about Shaffer's U-shaped	12:59:55
23		members, yes.	12:59:59
24	Q.	So is this a depiction of what you believe	12:59:59
25		happens when Shaffer's U-shaped members are used --	13:00:04

1	MR. STOWELL: Objection.	13:00:07
2	BY MR. HAMILTON:	13:00:08
3	Q. -- in a hemostasis valve?	13:00:08
4	MR. STOWELL: Objection. Form.	13:00:09
5	MR. HAMILTON: Withdraw the question.	13:00:12
6	BY MR. HAMILTON:	13:00:15
7	Q. So does this figure show what you believe	13:00:15
8	happens in the hemostasis valve disclosed in Shafer?	13:00:18
9	A. Not necessarily. I think Shafer would seal very	13:00:25
10	well most of the time. It's possible, if it didn't seal	13:00:30
11	well, that gaps could form as shown in the -- in the	13:00:35
12	image on page 56, Section 81.	13:00:39
13	Q. Why would Shafer seal very well most of the	13:00:43
14	time?	13:00:47
15	A. Because it's designed to seal as a hemostasis	13:00:50
16	valve.	13:00:55
17	Q. And it would accomplish that goal, right?	13:00:55
18	MR. STOWELL: Objection. Vague.	13:00:59
19	THE WITNESS: The patent states that it	13:01:00
20	does seal against when tools are inside or with no	13:01:06
21	tool inside.	13:01:11
22	BY MR. HAMILTON:	13:01:12
23	Q. And do you have any reason to doubt that	13:01:12
24	statement in Shafer?	13:01:15
25	A. I do believe it seals well, given the design	13:01:18

1 that's shown in the patent. 13:01:25

2 Q. When you say you do believe it seals well, you 13:01:27

3 mean you do believe it doesn't form these gaps as shown 13:01:32

4 in the image on page 81? 13:01:36

5 MR. STOWELL: Objection. Misstates 13:01:38

6 testimony. 13:01:41

7 THE WITNESS: I think it depends on the 13:01:41

8 materials of the lumen, the materials of the 13:01:45

9 actuators, the size of the tool going through. The 13:01:50

10 other aspects, like the spring force, would all 13:01:55

11 vary and may seal very well if it's designed 13:02:04

12 appropriately. 13:02:09

13 BY MR. HAMILTON: 13:02:10

14 Q. So if you take the design of Shafer, including 13:02:10

15 all those things you mentioned, like the materials of 13:02:16

16 the lumen, the materials of the actuators, the size of 13:02:20

17 the tool, et cetera, as disclosed in Shafer, these gaps 13:02:25

18 would not form; is that right? 13:02:31

19 MR. STOWELL: Objection. Vague, 13:02:33

20 misstates testimony. 13:02:34

21 THE WITNESS: It's unclear if they would 13:02:35

22 or would not form, because many of those details 13:02:37

23 are not provided in Shafer. 13:02:40

24 BY MR. HAMILTON: 13:02:43

25 Q. So what you say here in paragraph 81 is, "A 13:02:45

1 person of ordinary skill in the art would have 13:02:50
2 recognized that if a tool did not fit the size of 13:02:52
3 Shafer's U-shaped members, small gaps could form between 13:02:56
4 the tool and the valve's lumen." 13:03:00
5 Is that a true statement? 13:03:02
6 A. I'd like to see a copy of Shafer. 13:03:07
7 Q. What do you need to see in Shafer? 13:03:14
8 A. The components, the materials, the additional 13:03:18
9 information. 13:03:23
10 Q. And that's not mentioned in your figure there? 13:03:23
11 A. This is a simple graphic. 13:03:26
12 Q. So I'm going to hand you what's been previously 13:03:44
13 marked as Exhibit 1005. 13:03:48
14 (Tendered.) 13:03:51
15 Is 1005 the Shafer we were just referring to and 13:04:09
16 that's referred to in paragraph 81? 13:04:15
17 A. Yes. 13:04:17
18 Q. So when I refer to Shafer, is it fair that we 13:04:18
19 both understand I'm referring to Exhibit 1005? 13:04:23
20 A. I believe there's another Shafer in my table of 13:04:27
21 exhibits which has better images, Exhibit 1009. 13:04:33
22 Q. So you want to include Exhibit 1009 and, when we 13:04:40
23 refer to Shafer, includes both those exhibits? Is that 13:04:45
24 -- is that what you're saying? 13:04:48
25 A. I'd like to see 1009. 13:04:52

1	Q.	Is it -- is it 1009? Are you sure that's what	13:04:59
2		it is?	13:05:03
3		Does this look like it? Is this what you're	13:05:06
4		referencing, or are you referencing something else?	13:05:10
5	A.	Sorry. 1008, the drawings submitted during	13:05:13
6		prosecution.	13:05:17
7	Q.	All right. I'll just give you that,	13:05:18
8		Exhibit 1008, previously marked.	13:05:21
9	A.	Yes.	13:05:22
10	Q.	Sorry, I don't have an extra copy of that, I	13:05:23
11		don't believe.	13:05:29
12		So when you refer to Shafer, you're referring to	13:05:31
13		both these exhibits, is that right, in your declaration?	13:05:35
14	A.	Yes.	13:05:38
15	Q.	And you used Exhibit 1008 to understand the	13:05:39
16		disclosure of Exhibit 1005; is that right?	13:05:46
17	A.	Yes. They were better images of the -- of	13:05:57
18		certain figures, specifically Figures 30 through 34,	13:06:08
19		that had used from 1008.	13:06:23
20	Q.	When you say "better images," you can see	13:06:27
21		features in the images in 1008 that you can't see in	13:06:33
22		1005; is that right?	13:06:37
23		MR. STOWELL: Objection. Vague.	13:06:40
24		THE WITNESS: The images seem to be	13:06:41
25		almost photographs and were unclear for certain	13:06:54

1	features in 1005.	13:06:59
2	BY MR. HAMILTON:	13:07:04
3	Q. And for those features that were unclear, you	13:07:07
4	looked at Exhibit 1008; is that right?	13:07:09
5	A. Yes.	13:07:12
6	Q. So when you refer to Shafer in your declaration,	13:07:29
7	you're referring to Exhibit 1005 and Exhibit 1008; is	13:07:39
8	that right?	13:07:46
9	A. Yes.	13:07:46
10	Q. Okay. So with that, let's go back to the	13:07:47
11	question. And you said you wanted to understand and see	13:08:06
12	a copy of Shafer to answer the question, so I'm just	13:08:24
13	going to read back the question to you.	13:08:27
14	A. Okay.	13:08:29
15	Q. So when you say here in paragraph 81, "A person	13:08:29
16	of ordinary skill in the art would have recognized that	13:08:32
17	if a tool did not fit the size of Shafer's U-shaped	13:08:35
18	members, small gaps could form between the tool and the	13:08:39
19	valve's lumen," is that a true statement?	13:08:43
20	A. Which sentence are you reading?	13:08:51
21	Q. It's the last sentence prior to the image in	13:08:55
22	paragraph 81.	13:09:01
23	A. The first sentence says, "Second, a person of	13:09:03
24	ordinary skill in the art would have recognized that	13:09:14
25	Hartley's flexible string may better seal the valve than	13:09:16

1 Shafer's metallic/plastic U-shaped actuating members," 13:09:22
2 and continued on with the sentence you read: "A person 13:09:29
3 of ordinary skill in the art would have recognized that 13:09:32
4 if a tool did not fit the size of the Shafer's U-shaped 13:09:34
5 member, that small gaps could form between the tool and 13:09:39
6 the valve's lumen, as illustrated below." 13:09:43
7 Q. So let me just jump back. Earlier you had said 13:09:48
8 Shafer has -- Shafer does seal well in some embodiments; 13:10:19
9 is that right? 13:10:28
10 MR. STOWELL: Objection. Misstates 13:10:28
11 testimony. 13:10:32
12 THE WITNESS: Shafer shows in Figure 32 13:10:32
13 that it seals well with no tool inside. 13:10:55
14 BY MR. HAMILTON: 13:11:03
15 Q. So with no tool, Shafer doesn't have the gap 13:11:04
16 problem; is that right? 13:11:07
17 A. Shafer also discusses sealing well with tools 13:11:11
18 inside. 13:11:18
19 Q. So Shafer -- this embodiment of Shafer -- and 13:11:19
20 let's just be clear, the embodiment we're talking about 13:11:23
21 is the embodiment that's shown in Figures 30 through 13:11:26
22 34 -- seals well when there's nothing inside the lumen 13:11:34
23 and when there's tools inside the lumen; is that right? 13:11:41
24 MR. STOWELL: Objection. Misstates 13:11:46
25 testimony. 13:11:48

1 THE WITNESS: Let me look at Shafer to 13:11:48
2 see how they describe sealing. 13:12:00

3 Well, I'll just point to the abstract on 13:15:21
4 page 1 that says "a valve for blocking the flow of 13:15:24
5 gas or fluid, with or without an instrument in 13:15:27
6 place, within the gas fluid path. The valve 13:15:30
7 includes the seal module having a proximal end, 13:15:34
8 distal end and a lumen side to allow passage of 13:15:37
9 fluids or gases." 13:15:40

10 BY MR. HAMILTON: 13:15:47

11 Q. So when this says a valve -- what you just read 13:15:47
12 in the abstract, "a valve for blocking the flow of gas" 13:15:50
13 -- "gas or fluid, with or without an instrument in 13:15:54
14 place, within the gas fluid path," that's referring to 13:15:56
15 an instance where gap -- gaps are not formed as shown in 13:16:02
16 81; is that -- is that right? Am I understanding that 13:16:05
17 correctly? 13:16:08

18 MR. STOWELL: Objection. Vague. 13:16:09

19 THE WITNESS: It's certainly designed to 13:16:11
20 block the flow of gas or fluid with or without an 13:16:14
21 instrument in place. 13:16:18

22 BY MR. HAMILTON: 13:16:19

23 Q. So the gaps that you show in paragraph 81, 13:16:19
24 that's not what -- that -- that's -- is not happening 13:16:21
25 when -- with -- for a valve that blocks the flow of gas 13:16:25

1 or fluid with or without an instrument in place within 13:16:29
2 the gas fluid path; is that correct? 13:16:32
3 MR. STOWELL: Objection. Form. 13:16:36
4 THE WITNESS: It's designed to seal with 13:16:37
5 or without a tool in place. 13:16:39
6 BY MR. HAMILTON: 13:16:43
7 Q. So when it -- when it seals with or without a 13:16:43
8 tool in place, these gaps that you show in 81 are not 13:16:47
9 formed; is that right? 13:16:51
10 And let me just finish. And then if it doesn't 13:16:51
11 seal well, that's because these gaps are formed; is that 13:16:54
12 correct? 13:16:59
13 MR. STOWELL: Objection. Form. 13:16:59
14 THE WITNESS: That's what I'm describing 13:17:01
15 here, that if it weren't sealing well, then there 13:17:02
16 may be gaps formed. 13:17:06
17 BY MR. HAMILTON: 13:17:07
18 Q. Okay. So Shafer discloses a valve that seals 13:17:07
19 well so no gaps are formed, with or without a tool; is 13:17:10
20 that correct? 13:17:15
21 MR. STOWELL: Objection. Misstates 13:17:15
22 testimony. 13:17:17
23 THE WITNESS: Certainly Shafer's designed 13:17:17
24 to block the flow of gas or fluid with or without 13:17:20
25 an instrument. 13:17:25

1 BY MR. HAMILTON: 13:17:26

2 Q. And does Shafer accomplish that design goal? 13:17:26

3 A. I believe it could accomplish that goal with 13:17:33

4 appropriate materials and design features. 13:17:36

5 Q. Well, what about the materials and design 13:17:42

6 features shown with respect to Figures 30 through 34; 13:17:44

7 would that accomplish that goal? 13:17:48

8 A. I believe it would. 13:17:51

9 Q. So let's just make sure our -- our -- we're 13:17:55

10 using the same language. So for a complete seal or 13:18:00

11 seals well, that would mean there's no gaps when I say 13:18:15

12 that. And then if -- if it doesn't seal well or if it's 13:18:18

13 not a complete seal -- seal, then there are gaps as 13:18:21

14 shown in 81. Is -- is that a fair characterization of 13:18:25

15 those terms? 13:18:28

16 MR. STOWELL: Objection to form. 13:18:29

17 THE WITNESS: I think that's fair. 13:18:30

18 BY MR. HAMILTON: 13:18:33

19 Q. Okay. You -- a moment ago you pointed to Figure 13:18:34

20 32 of Exhibit 1008. Can you take a look at that? 13:18:39

21 A. Yes. 13:18:48

22 Q. And -- and does that show a complete seal, 13:18:49

23 meaning no gaps, when nothing is inserted in the -- in 13:18:55

24 the lumen? 13:19:03

25 A. Yes. There's no instrument inserted or tool 13:19:06

1 inserted in the lumen in this figure. 13:19:10

2 Q. And when no tool is inserted, there are no gaps 13:19:12

3 in the lumen; is that correct? 13:19:18

4 A. That's what figure 32 is showing. 13:19:21

5 Q. And so for Figure 32, when you have this image 13:19:24

6 of gaps in figure 81, there's -- that wouldn't occur, 13:19:31

7 right? There's no tool, there's no gaps, you have a 13:19:35

8 complete seal in Figure 32; is that right? 13:19:38

9 MR. STOWELL: Objection. Vague. 13:19:42

10 THE WITNESS: Figure 32 is showing a 13:19:43

11 sealed lumen with no tool in place. 13:19:48

12 BY MR. HAMILTON: 13:19:53

13 Q. And when you say "a sealed lumen," that means 13:19:53

14 the lumen is completely closed? Is that what you mean? 13:19:56

15 A. It means no air or fluid could pass, so they're 13:20:01

16 in contact with each other. 13:20:08

17 Q. And is another way to -- to phrase that 13:20:09

18 "completely closed"? 13:20:11

19 MR. STOWELL: Objection. Vague. 13:20:12

20 THE WITNESS: A portion of it is 13:20:13

21 completely closed, where it's touching each other. 13:20:14

22 BY MR. HAMILTON: 13:20:18

23 Q. Okay. Now, let's -- let's focus on 81 and the 13:20:19

24 figure in 81 and the gaps. And what I want to 13:20:22

25 understand is, in what instance would gaps be formed in 13:20:24

1 this embodiment of Shafer, Figures 30 through 34? 13:20:30

2 A. In the instance that if -- if the tool did not 13:20:36

3 fit the size of the U-shaped members and small gaps 13:20:45

4 formed, then small gaps could form. 13:20:49

5 Q. And what do you mean by "not fit the size"? 13:20:55

6 A. If certain tools were of a different shape or 13:20:59

7 size that wasn't compatible with the design of the -- 13:21:12

8 design and materials of the actuated members, the 13:21:21

9 compression -- the tube, the springs, then small gaps 13:21:25

10 could form between the tool and the valve lumen. 13:21:30

11 Q. So I'm looking at the tool that you have 13:21:33

12 depicted in paragraph 81. It looks like a circle to me, 13:21:36

13 and it looks pretty dang close to the circle that's 13:21:40

14 formed by the two actuating members, but that's not -- 13:21:43

15 that doesn't fit the size of the U-shaped members. Is 13:21:48

16 that -- is that -- is that right? 13:21:51

17 A. I'm just saying that it may not work in all 13:21:54

18 cases, depending on the materials chosen and the size 13:21:59

19 and diameter -- size and shape of the tool. And in that 13:22:03

20 case, a person of ordinary skill in the art would have 13:22:10

21 recognized that a flexible string may seal better around 13:22:18

22 the valve. 13:22:24

23 Q. Okay. So let's talk about the U-shaped members 13:22:25

24 that are shown in 81. And to form these gaps, would 13:22:30

25 those U-shaped members have to be rigid? 13:22:38

1	A.	I don't know what level of rigidity you're	13:22:45
2		suggesting.	13:22:50
3	Q.	More rigid than a string; how about that?	13:22:51
4	A.	Not necessarily.	13:22:57
5	Q.	So if the U-shaped members were strings, you	13:22:58
6		would still get these gaps; is that right?	13:23:03
7	A.	I believe a string may seal better depending on	13:23:07
8		the characteristics of the string, depending on the	13:23:12
9		characteristics of the U-shaped members, depending on	13:23:18
10		the other material choices and dimensions for these	13:23:21
11		different components.	13:23:25
12	Q.	So in this paragraph you talk about replacing	13:23:26
13		the U-shaped members with strings, and I'm trying to	13:23:30
14		figure out why these U-shaped members don't seal and	13:23:34
15		form the gaps and why a string would. Can you explain	13:23:38
16		why that would be?	13:23:42
17	A.	It could occur depending if -- depending on the	13:23:47
18		size and shape and material properties of the U-shaped	13:23:54
19		members and depending on the tool inserted.	13:24:00
20	Q.	Size, shape and material properties of the	13:24:04
21		U-shaped members; what do you mean by that?	13:24:14
22	A.	Exactly what I said.	13:24:17
23	Q.	So let's take material properties. What do you	13:24:23
24		-- what did you mean by the material properties? What	13:24:28
25		properties?	13:24:30

1 A. The relative flexibility of the U-shaped 13:24:31
2 members. 13:24:46
3 Q. And if the relative flexibility was too rigid 13:24:51
4 such that the gaps would form -- I'll withdraw that 13:24:55
5 question. 13:24:58
6 Relative flexibility to what? 13:24:59
7 A. To something more flexible or less flexible. 13:25:02
8 Q. What about to the -- to the lumen? Would that 13:25:08
9 be a good way to think of the relative flexibility? 13:25:12
10 MR. STOWELL: Objection. Vague. 13:25:16
11 THE WITNESS: I'm not sure. 13:25:17
12 BY MR. HAMILTON: 13:25:19
13 Q. If the U-shaped members were less flexible than 13:25:19
14 the material that made up the lumen, these gaps would 13:25:24
15 form, wouldn't they? 13:25:30
16 A. Haven't really considered it relative to the 13:25:33
17 lumen material. 13:25:39
18 Q. So what did you consider it relative to? 13:25:39
19 MR. STOWELL: Objection. Vague. 13:25:47
20 THE WITNESS: I just considered there 13:25:55
21 could be cases where if it were not designed 13:25:58
22 appropriately, perfectly for every indication, for 13:26:02
23 every type of tool to go through, for instance, 13:26:05
24 that adjustments to the flexibility of the actuated 13:26:09
25 members could -- could be beneficial. 13:26:19

1	BY MR. HAMILTON:	13:26:22
2	Q. So you said "not designed appropriately,	13:26:22
3	perfectly for every indication, for every type of tool	13:26:26
4	to go through." Does that mean if it's -- if a tool is	13:26:29
5	inserted that it wasn't designed for? Is that what you	13:26:35
6	mean by that?	13:26:38
7	A. Can you repeat the question?	13:26:39
8	Q. I'm trying to understand what you meant by "not	13:26:41
9	designed appropriately, perfectly for every indication,	13:26:44
10	for every type of tool." What did you mean by that?	13:26:47
11	A. Just what I said.	13:26:50
12	Q. The U-shaped actuating members were not designed	13:26:53
13	for the tool that is being inserted through the lumen;	13:27:03
14	is that what that means?	13:27:07
15	A. If it weren't working appropriately for a range	13:27:08
16	of tools that the -- were necessary for the procedure,	13:27:15
17	then some adjustments might have to be made to the	13:27:18
18	actuating members or the lumen material or the spring	13:27:22
19	force, maybe other parameters also.	13:27:29
20	Q. And if an engineer knew the procedure, they	13:27:31
21	could design a hemostasis valve with actuating members	13:27:35
22	so that the gaps wouldn't form; isn't that correct?	13:27:37
23	MR. STOWELL: Objection. Form.	13:27:40
24	THE WITNESS: It would certainly be the	13:27:44
25	goal to create a valve that sealed around a variety	13:27:46

1 of tools used for that procedure. 13:27:51

2 BY MR. HAMILTON: 13:27:53

3 Q. And one of skill in the art could do that with 13:27:53

4 the valve that's disclosed in Shafer such that gaps are 13:27:55

5 not formed; is that correct? 13:28:01

6 MR. STOWELL: Objection. Form. 13:28:04

7 THE WITNESS: I believe they could. 13:28:05

8 BY MR. HAMILTON: 13:28:11

9 Q. And that would be by matching the U-shaped 13:28:11

10 members to fit the size of the tool? Is that how they 13:28:15

11 would do that? 13:28:20

12 A. I think they would adjust whatever needed to be 13:28:22

13 adjusting to seal well against a tool or the tools being 13:28:35

14 used in the procedure and when no tool was present. 13:28:40

15 Q. And if you're designing a hemostasis valve for a 13:28:45

16 procedure, do you know what tools are going to be used? 13:28:48

17 A. Not necessarily all the time. 13:28:52

18 Q. I'll withdraw the question. 13:29:04

19 If you know which tools are going to be used, 13:29:05

20 can you design Shafer's actuating members such that gaps 13:29:08

21 are not formed? 13:29:12

22 A. I would think a person of ordinary skill in the 13:29:14

23 art could do so. 13:29:19

24 Q. So what's the difference between Shafer's 13:29:21

25 U-shaped members and Hartley's string in terms of 13:29:30

1 flexibility? 13:29:36

2 MR. STOWELL: Objection. Vague. 13:29:37

3 THE WITNESS: It's not clear in the 13:29:38

4 patent or the patents considered what material 13:29:47

5 properties were -- would be of a string or the -- 13:29:52

6 necessarily the U-shaped members. So they could be 13:29:55

7 very similar or they could be somewhat different. 13:30:00

8 MR. STOWELL: Joe, we have been going for 13:30:10

9 about an hour and a half, so when you reach a good 13:30:13

10 breaking time, let's take a break. 13:30:15

11 MR. HAMILTON: Okay. 13:30:18

12 BY MR. HAMILTON: 13:30:29

13 Q. So taking this image in -- in paragraph 81, if 13:30:37

14 Hartley's strings -- string was used in place of each of 13:30:45

15 Shafer's U-shaped members, so you've got two springs -- 13:30:53

16 strings -- 13:30:56

17 A. Sorry, I think I went to the wrong page. You 13:30:57

18 said -- 13:31:00

19 Q. Paragraph 81, same paragraph that we've been 13:31:02

20 talking about. 13:31:05

21 A. Yeah, I -- I switched pages. There we go. 13:31:06

22 Q. So if you replaced each of Shafer's U-shaped 13:31:08

23 members with a string like the string in Hartley, would 13:31:12

24 these gaps form? 13:31:17

25 MR. STOWELL: Objection. Outside the 13:31:18

1 scope. 13:31:20

2 THE WITNESS: Well, as I say here, 13:31:23

3 "Hartley's flexible string may better conform to 13:31:29

4 the varying diameters than Shafer's U-shaped 13:31:33

5 members." 13:31:40

6 BY MR. HAMILTON: 13:31:42

7 Q. So if you replaced Shafer's -- each of the 13:31:42

8 Shafer's U-shaped members with a string, so a U-shaped 13:31:46

9 string, would these gaps form? 13:31:50

10 MR. STOWELL: Objection. Asked and 13:31:52

11 answered. 13:31:59

12 THE WITNESS: As I say below in paragraph 13:31:59

13 81, "Hartley's string encircles and, depending on 13:32:04

14 the materials, may conform to the size and shape of 13:32:08

15 a wider range of tools used with the valve." 13:32:12

16 BY MR. HAMILTON: 13:32:18

17 Q. So does that -- does that mean the gaps would 13:32:19

18 not form if you replaced Shafer's U-shaped members, each 13:32:21

19 of those, with a string from Hartley? 13:32:25

20 MR. STOWELL: Objection. Asked and 13:32:29

21 answered. 13:32:30

22 THE WITNESS: Or with a single string 13:32:34

23 that loops around, as disclosed later, on page 59. 13:32:36

24 BY MR. HAMILTON: 13:32:43

25 Q. You said "or with a single string." So let's 13:32:43

1 talk about those two instances. One is a single string 13:32:47
2 that loops around, and one is where each U-shaped member 13:32:50
3 is replaced by a separate string. In both those 13:32:55
4 instances, would the -- these gaps form? 13:32:59
5 MR. STOWELL: Objection. Outside the 13:33:02
6 scope. 13:33:04
7 BY MR. HAMILTON: 13:33:04
8 Q. Or in neither of those instances? 13:33:05
9 A. Well, I really haven't considered two strings of 13:33:08
10 Hartley's. I really considered a single string, as 13:33:22
11 Hartley discloses in their -- in their patent 13:33:25
12 application. 13:33:27
13 Q. Can you answer the question? 13:33:32
14 A. I haven't really considered that option. 13:33:35
15 Q. Can you consider it? 13:33:37
16 MR. STOWELL: Objection. Argumentative. 13:33:38
17 Asked and answered. 13:33:41
18 THE WITNESS: It's not something I 13:33:42
19 considered when putting this together. 13:33:44
20 BY MR. HAMILTON: 13:33:45
21 Q. So as you sit here today, if each of Shafer's 13:33:46
22 U-shaped members was replaced by a string, do you know 13:33:51
23 if gaps would be formed or not? 13:33:55
24 A. I don't know. It would also depend on the 13:34:00
25 material properties of the string and the U-shaped 13:34:05

1 Hartley, loop it around the lumen as shown -- not as 13:35:28
2 shown, but loop it around the lumen -- for example, the 13:35:32
3 lumen in the figure in 81 -- and gaps would still be 13:35:35
4 formed? Is that correct? 13:35:39
5 A. No. I believe Hartley's string encircling the 13:35:44
6 lumen may conform to the size and shape of a wider range 13:35:48
7 of tools used with the valve. 13:35:52
8 Q. And does that depend on what material the string 13:35:53
9 is made of? 13:35:56
10 A. I'm not sure. 13:35:59
11 Q. You say right here "depending on the materials." 13:36:00
12 What did you mean by that? 13:36:03
13 A. There could be poor material choices for a very 13:36:05
14 large-diameter metallic cable that may not conform very 13:36:20
15 well to this diameter required. 13:36:31
16 Q. And would a person of skill in the art -- art 13:36:32
17 choose a poor material? Is that something a person of 13:36:35
18 skill in the art would do? 13:36:38
19 A. Probably not. 13:36:40
20 Q. Okay. So let's take the material that would -- 13:36:42
21 would eliminate the gaps within an encircled lumen, 13:36:47
22 okay? You got that material in your head? 13:36:52
23 A. Yes. 13:36:55
24 Q. If you took that material and formed two -- used 13:36:55
25 that material for two strings, one for each of Shafer's 13:37:01

1	U-shaped members, would gaps form as shown in the figure	13:37:05
2	in paragraph 81 of your declaration?	13:37:09
3	MR. STOWELL: Objection. Outside the	13:37:11
4	scope.	13:37:13
5	THE WITNESS: Yeah, I don't know. I	13:37:13
6	haven't really considered that option in my	13:37:17
7	declaration.	13:37:20
8	BY MR. HAMILTON:	13:37:20
9	Q. Are you able to consider that option as we sit	13:37:20
10	here today?	13:37:23
11	A. No. I would need to consider it separately.	13:37:24
12	Q. So you don't know as you sit here today whether	13:37:30
13	or not gaps would form if each of Shafer's U-shaped	13:37:33
14	members were replaced by a string from Hartley that	13:37:37
15	otherwise would eliminate the gaps if it was completely	13:37:41
16	looped around the lumen; is that correct?	13:37:45
17	A. I don't know for sure.	13:37:48
18	Q. And you say you don't know for sure. You mean	13:37:50
19	you don't know, or -- or do you think something would	13:38:01
20	happen?	13:38:03
21	MR. STOWELL: Objection. Asked and	13:38:04
22	answered.	13:38:05
23	THE WITNESS: I don't know. I haven't	13:38:05
24	considered that option.	13:38:07
25	BY MR. HAMILTON:	13:38:08

1 Q. So as we sit here today, you don't know if gaps 13:38:08
2 would form in that scenario; is that correct? 13:38:11
3 A. That's correct. 13:38:14
4 Q. Is it possible in that scenario that the gaps 13:38:17
5 would be eliminated? 13:38:23
6 A. I'll speculate that it is possible. 13:38:26
7 Q. What do you mean by "speculate"? 13:38:33
8 A. I haven't really considered it or analyzed that 13:38:37
9 option. 13:38:41
10 Q. So you're just guessing? 13:38:41
11 A. You asked me to -- can you read back how you 13:38:44
12 phrased it last time? 13:38:51
13 Q. Is it possible in that scenario that the gaps 13:38:53
14 would be eliminated? 13:38:56
15 A. I think it is possible. 13:38:59
16 Q. And that's based on your experience as an expert 13:39:01
17 in this field; is that right? 13:39:04
18 A. Yes. 13:39:06
19 Q. So you're not speculating, you're not just 13:39:11
20 randomly guessing; is that right? 13:39:14
21 MR. STOWELL: Objection. Asked and 13:39:16
22 answered. Misstates testimony. 13:39:17
23 THE WITNESS: My prior answer is fine. 13:39:20
24 BY MR. HAMILTON: 13:39:23
25 Q. So let's take the two scenarios we just talked 13:39:41

1 about: Same material for the string, one, it encircles 13:39:46
2 the lumen, the other one you have two U-shaped strings. 13:39:53
3 Okay. Do you have that in your head? 13:39:58
4 A. Yes. 13:40:00
5 Q. Your declaration does not have an opinion as to 13:40:00
6 whether or not gaps would form with respect to the two 13:40:11
7 U-shaped strings; is that correct? 13:40:14
8 MR. STOWELL: Objection. Form. 13:40:17
9 THE WITNESS: I did not include that 13:40:18
10 option or consideration in this declaration. 13:40:22
11 BY MR. HAMILTON: 13:40:24
12 Q. And in the modification in your declaration, 13:40:25
13 it's not just replacing Shafer's U-shaped members with 13:40:35
14 strings, it's using a single string to encircle the 13:40:40
15 lumen; is that correct? 13:40:47
16 A. A single string to encircle the lumen is what I 13:40:53
17 discuss and show in the image on page 59. 13:40:56
18 Q. And that's the modification you're proposing one 13:41:00
19 of skill in the art would do when replacing Shafer's 13:41:18
20 U-shaped members with the string of Hartley; is that 13:41:21
21 right? 13:41:29
22 A. Yes. I state in Section 80 -- paragraph 80, "A 13:41:29
23 person of ordinary skill in the art would have been 13:42:03
24 motivated to replace Shafer's U-shaped actuating members 13:42:05
25 with Hartley's string/flexible member for several 13:42:08

1 reasons." 13:42:11

2 Q. And when you say "Hartley's string," you mean a 13:42:13

3 single string that encircles the lumen; is that right? 13:42:17

4 A. That's the option that I considered there, yes. 13:42:23

5 Q. And you didn't consider in your declaration the 13:42:26

6 option of replacing each actuator with a separate 13:42:28

7 string? 13:42:34

8 MR. STOWELL: Objection. Form. 13:42:35

9 BY MR. HAMILTON: 13:42:36

10 Q. Is that correct? 13:42:36

11 MR. STOWELL: Objection. Form. 13:42:38

12 THE WITNESS: I don't believe I included 13:42:38

13 that in the declaration. 13:42:39

14 MR. HAMILTON: Why don't we take a break? 13:43:00

15 THE VIDEOGRAPHER: Please stand by. 13:43:02

16 We are going off the record at 10:43. 13:43:03

17 (Recess.) 13:54:34

18 THE VIDEOGRAPHER: We are back on the 13:54:34

19 record at 10:55. 13:55:29

20 BY MR. HAMILTON: 13:55:31

21 Q. Do you understand you're still under oath? 13:55:34

22 A. Yes. 13:55:36

23 Q. Did you discuss your testimony during the break 13:55:36

24 with anybody? 13:55:42

25 A. No. 13:55:42

1	Q.	Did you look at any documents?	13:55:42
2	A.	No.	13:55:44
3	Q.	If you could take a look at Exhibit 1005.	13:55:44
4		That's Shafer.	13:55:52
5	A.	(Complying.)	13:55:56
6	Q.	If you could turn to paragraph 77. And I'm	13:55:57
7		going to ask you about a sentence in the portion of that	13:56:18
8		paragraph that's on the top of the second column on that	13:56:27
9		page. Let me know when you're there.	13:56:30
10	A.	Yeah, I'm looking at it. I haven't read it yet.	13:56:36
11	Q.	All right. So the sentence that begins after	13:56:42
12		the 20 -- 1, 2, 3, 4 -- 5 lines down, if you could just	13:56:44
13		take a moment to read that.	13:56:50
14	A.	(Complying.)	13:56:53
15	Q.	So I see you're looking at Exhibit 1008. Why is	13:57:06
16		that?	13:58:39
17	A.	Because this paragraph starting with 66 --	13:58:39
18		starting with paragraph 75 refers to Figures 30 through	13:58:44
19		34.	13:58:48
20	Q.	And you need Exhibit 1008 to understand those	13:58:50
21		figures; is that right?	13:58:54
22		MR. STOWELL: Objection. Vague.	13:58:56
23		THE WITNESS: I've read the section you	13:58:58
24		asked me to read now.	13:59:00
25		BY MR. HAMILTON:	13:59:01

1 Q. Why did you look at Exhibit 1008? 13:59:02

2 A. Because many of the references for the different 13:59:05
3 components are shown in Figures 31 through 34. 13:59:12

4 Q. So you're relying on Figures 31 through 34 in 13:59:22
5 Exhibit 1008 to understand this embodiment in these 13:59:26
6 paragraphs that we're going -- about to discuss; is that 13:59:32
7 right? 13:59:35

8 MR. STOWELL: Objection. Vague. 13:59:35

9 THE WITNESS: It may be helpful. I don't 13:59:36
10 know. 13:59:42

11 BY MR. HAMILTON: 13:59:42

12 Q. What does the term "forcibly disengage" mean in 13:59:53
13 the -- in the sixth line down in the paragraph I 13:59:59
14 referenced before, paragraph 77? So six lines -- sixth 14:00:02
15 line down from the top of the second column on page 6. 14:00:07

16 A. I read that sentence of "such movement allows 14:00:14
17 each engaged actuating member 55 to forcibly disengage 14:00:29
18 opposing outer walls 27 of the seal module 100, allowing 14:00:35
19 the portion 108 of the containment structure 160 to 14:00:41
20 retract to an uncollapsed configuration." 14:00:46

21 So can you ask the question again? 14:00:55

22 Q. What does "forcibly disengage" mean in that 14:00:56
23 sentence? 14:01:01

24 A. It means moving -- forcibly compressing the 14:01:02
25 buttons to compress the spring, which allows the 14:01:09

1 U-shaped actuating members 55 to move in opposite 14:01:17
2 directions so that the seal module can expand. 14:01:24
3 Q. When you say "move in opposite directions," how 14:01:32
4 do those actuating members move in opposite directions? 14:01:35
5 A. When one presses on the buttons to compress the 14:01:41
6 spring, they're moving toward the center, opposite 14:01:49
7 direction to each other. 14:01:55
8 Q. And is that because those actuating members have 14:01:58
9 some level of rigidity? 14:02:02
10 A. Let me back up. They're moving away from the 14:02:06
11 center. I said toward the center. Sorry. 14:02:09
12 Q. And the actuating members move -- let's just -- 14:02:14
13 let's just clarify. So when you say "away from the 14:02:25
14 center," the U-shaped portion of those members or the 14:02:28
15 curved portion moves away from the center; is that 14:02:32
16 right? 14:02:35
17 A. Yes. 14:02:35
18 Q. But the arms actually are heading towards the 14:02:35
19 center of each curved portion? 14:02:39
20 A. Yes. The buttons are being compressed toward 14:02:45
21 the center, which allows the U-shaped members to move 14:02:50
22 away from the center. 14:02:55
23 Q. And is that because the non-curved portion of 14:02:56
24 each U-shaped member is of a sufficient rigidity to push 14:03:02
25 the curved portion away from the center? 14:03:08

1 MR. STOWELL: Objection. Form. 14:03:13

2 THE WITNESS: It depends on the 14:03:14

3 flexibility of the U-shaped members. It's 14:03:15

4 certainly relieving the tension that those U-shaped 14:03:20

5 members are creating around the seal as you 14:03:22

6 compress the buttons. 14:03:27

7 BY MR. HAMILTON: 14:03:29

8 Q. And it's relieving the tension because the 14:03:35

9 U-shaped members forcibly disengage from the lumen; is 14:03:37

10 that right? 14:03:45

11 A. The force is being applied to the buttons in 14:03:45

12 order to relieve the tension on those actuating members, 14:03:48

13 is how I understand the design to work. 14:03:54

14 Q. So if you look at that sentence, it says -- it 14:03:58

15 says "the actuating members to forcibly disengage." So 14:04:01

16 it's not talking about the force on the buttons -- 14:04:11

17 that's -- that is the initiating force -- but it's 14:04:14

18 saying "the actuating members to forcibly disengage." 14:04:16

19 How do the actuating members forcibly disengage? 14:04:21

20 MR. STOWELL: Objection. Form. 14:04:25

21 THE WITNESS: My understanding is you're 14:04:29

22 applying a force to the buttons, and that allows 14:04:32

23 expansion of the resilient member because there's 14:04:37

24 less tension on the actuating members. 14:04:43

25 BY MR. HAMILTON: 14:04:45

1 Q. So if I'm understanding you, you -- you read 14:04:45
2 "forcibly disengage" to mean the tension is released on 14:04:49
3 the actuating members. That's what that means to you? 14:04:54
4 A. What I just said is what I meant. 14:04:58
5 Q. Does "forcibly disengage" mean release the 14:05:02
6 tension? 14:05:10
7 A. That's how I understand it for this design. 14:05:10
8 Q. Okay. So this sentence -- all this sentence 14:05:13
9 means to you is the tension is released on the actuating 14:05:16
10 members when the buttons are depressed; is that right? 14:05:20
11 MR. STOWELL: Objection. Misstates 14:05:25
12 testimony. 14:05:27
13 THE WITNESS: I think you were forcibly 14:05:27
14 releasing -- forcibly actuating the buttons to 14:05:34
15 release the tension on the actuators, allowing the 14:05:37
16 central member to expand. 14:05:40
17 BY MR. HAMILTON: 14:05:43
18 Q. So what happens to the actuators is release of 14:05:43
19 tension; is that right? 14:05:47
20 A. You're releasing the tension on the seal module 14:05:49
21 100. 14:05:59
22 Q. So your understanding of forcibly disengage 14:06:00
23 means -- that means the force applied to the buttons? 14:06:04
24 A. That's how I understand it. 14:06:08
25 Q. And let's go back to the example we talked about 14:06:10

1 before with respect to paragraph 81 in that figure. Do 14:06:23
2 you remember that from your declaration? 14:06:27
3 A. Paragraph 81, yes. 14:06:31
4 Q. And if you had a string that encircled the lumen 14:06:42
5 that had the -- a material that allowed the lumen to be 14:06:57
6 compressed so no gaps are formed, would that -- a string 14:07:02
7 made of that mate- -- material forcibly disengage as 14:07:08
8 that term is used in Shafer? 14:07:15
9 A. If it were a single loop as I show in -- on page 14:07:21
10 59, by forcibly compressing the buttons, it would 14:07:27
11 decrease the tension on that suture or string, allowing 14:07:35
12 the central seal member to open up. 14:07:42
13 Q. And that would be the actuating member forcibly 14:07:46
14 disengaging; is that right? 14:07:54
15 A. I think that term is appropriate for this design 14:07:56
16 also, the design I'm referring to on Shafer, plus 14:08:02
17 Hartley's string on page 59. 14:08:11
18 Q. And when you say the term is appropriate for 14:08:15
19 this design that you just referenced on page 59 -- and 14:08:30
20 that's page 59 of your declaration; is that right? 14:08:35
21 A. Of my declaration, yes. 14:08:38
22 Q. That term is appropriate because it means that 14:08:39
23 the tension on the string has been released; is that 14:08:47
24 right? 14:08:53
25 A. Yes. You're forcibly compressing the buttons, 14:08:53

1 which releases the tension on the string to allow the 14:08:57
2 seal member to expand. 14:09:01
3 Q. Okay. And when you say "seal member," what do 14:09:03
4 you mean? 14:09:27
5 A. Seal module 100 as shown in Figure 34. 14:09:27
6 Q. And that seal module as shown in Figure 34 14:09:57
7 includes third seal member 165; is that right? 14:10:19
8 And I'll just point you to the last sentence of 14:10:31
9 the paragraph we were just referring to in -- in -- on 14:10:37
10 page 26, paragraph 77 of Shafer, if that's helpful. 14:10:41
11 A. I see 165 in the -- in paragraph 77. I'm 14:10:48
12 looking for it on the figures. 14:10:57
13 Figure 34 that we were just discussing shows the 14:11:03
14 item 27, the outer walls of the seal module. I don't 14:11:10
15 see 165 on this Figure 34. 14:11:20
16 Q. Are you finished with your answer? 14:11:41
17 A. Yes. 14:11:51
18 Q. So are you saying that 165 is not found in the 14:11:52
19 embodiment that's shown in Figure 34? 14:11:55
20 A. Unless I missed it, I don't see it listed there. 14:11:58
21 Q. Okay. So you don't see 165 labeled on Figure 14:12:06
22 34. That's -- that's -- that's what you're looking at 14:12:10
23 right now; is that right? 14:12:12
24 A. Correct; I don't see 165 labeled here. 14:12:14
25 Q. But if you look at the paragraph 77 in the 14:12:18

1 document that you just said referred to the embodiments 14:12:21
2 from 30 to 34, it discusses third seal member 65? 14:12:24
3 A. Yes, at the end of that sentence. 14:12:32
4 Q. And despite that discussion at the end of the 14:12:35
5 sentence, it's your testimony that Figure 4 [sic] does 14:12:37
6 not include third seal member 165? 14:12:40
7 A. I don't see it labeled here. 14:12:45
8 Q. Does the embodiment shown in Figure 34 as it's 14:12:49
9 described in the specification as -- as it's described 14:12:53
10 in Exhibit 1005, Shafer, include seal member 165? 14:12:58
11 MR. STOWELL: Objection. Asked and 14:13:03
12 answered. 14:13:05
13 THE WITNESS: Can you repeat the 14:13:05
14 question? 14:13:09
15 BY MR. HAMILTON: 14:13:10
16 Q. Does the embodiment shown in Figure 4 -- Figure 14:13:10
17 34 -- excuse me -- include seal member 165? 14:13:16
18 A. I don't see it labeled here. 14:13:20
19 Q. Okay. So you don't see it labeled. Does the 14:13:23
20 embodiment include 165? 14:13:26
21 A. I'd have to look into the patent more deeply to 14:13:28
22 look at seal -- third seal member 165. 14:13:32
23 Q. Let's look at paragraph 77, the last sentence. 14:13:35
24 That paragraph is referring to the embodiment in 30 14:13:40
25 through 34, correct? 14:13:47

1 A. Yes, I believe so. 14:13:51

2 Q. And that paragraph mentions third seal member 14:13:53

3 165, correct? 14:13:58

4 A. It does. 14:14:00

5 Q. So does that mean that the embodiment of Figures 14:14:00

6 30 through 34, despite the fact that it's not labeled in 14:14:07

7 the figures itself, includes third seal member 165? 14:14:11

8 MR. STOWELL: Objection. Calls for a 14:14:16

9 legal conclusion. 14:14:18

10 THE WITNESS: Yeah, I don't know. I'd 14:14:18

11 have to look in more detail of what 165 -- how 165 14:14:19

12 is described in other areas of the patent. 14:14:26

13 BY MR. HAMILTON: 14:14:28

14 Q. Well, let's look how it's described right here. 14:14:29

15 That doesn't tell you whether or not 165 is part of the 14:14:33

16 embodiments of 30 through 34? 14:14:36

17 MR. STOWELL: Objection. Asked and 14:14:39

18 answered. 14:14:41

19 THE WITNESS: I'm not sure, since they're 14:14:52

20 not labeled on these figures. 14:15:29

21 BY MR. HAMILTON: 14:15:31

22 Q. So it's your testimony today that because it's 14:15:32

23 not labeled in the figure, you don't know if seal member 14:15:35

24 165 is included in the embodiments 30 through -- of 14:15:38

25 Figures 30 through 34? 14:15:44

1 MR. STOWELL: Objection. Misstates 14:15:46
2 testimony.

3 THE WITNESS: I would have to look in 14:15:47
4 more detail for what these -- what this seal member 14:15:49
5 165 is referring to. 14:15:52

6 BY MR. HAMILTON: 14:15:54

7 Q. Do you have an understanding what third seal 14:15:54
8 member 165 is as you sit here today? 14:15:58

9 A. I would need to look in more detail on the 14:16:02
10 patent. 14:16:05

11 Q. Is that a yes or a no? 14:16:06

12 MR. STOWELL: Objection. Asked and 14:16:07
13 answered. 14:16:11

14 THE WITNESS: I would need to look at 14:16:12
15 more detail in the patent. 14:16:13

16 BY MR. HAMILTON: 14:16:15

17 Q. Okay. Let's look at paragraph 75. 14:16:17

18 A. Of the declaration? 14:16:21

19 Q. No, of 1005, Shafer, the document you have in 14:16:24
20 front of you. 14:16:29

21 A. Which paragraph? 14:16:29

22 Q. 75. 14:16:30

23 A. (Complying.) 14:16:33

24 Okay. 14:17:08

25 Q. Do you see that statement "the seal module 100 14:17:08

1	is formed of one or more seal members"?	14:17:13
2	A. Yes.	14:17:17
3	Q. Does that mean the seal module includes at least	14:17:17
4	one or more seal members?	14:17:22
5	A. Yes, is formed from one or more seal members.	14:17:24
6	Q. And that's referring to seal module 100,	14:17:30
7	correct?	14:17:33
8	A. Yes.	14:17:33
9	Q. And then if you look at Figure 34, do you see	14:17:34
10	100 listed there?	14:17:38
11	A. Yes.	14:17:39
12	Q. Is that identified?	14:17:39
13	A. Yes.	14:17:41
14	Q. Okay. So Figure 34 includes a seal module; is	14:17:41
15	that right?	14:17:45
16	A. Yes.	14:17:45
17	Q. And that seal module includes one or more seal	14:17:46
18	members; is that right?	14:17:50
19	A. Yes.	14:17:50
20	Q. Okay. Now let's go to paragraph 77, that last	14:17:51
21	sentence.	14:17:55
22	A. (Complying.)	14:17:58
23	Q. That refers to seal module and third seal member	14:17:59
24	165?	14:18:06
25	A. Yes.	14:18:08

1 Q. So that paragraph -- excuse me. That sentence 14:18:08
2 indicates that seal module 100, which is labeled in 14:18:15
3 Figure 34, includes seal member 165; is that right? 14:18:18
4 MR. STOWELL: Objection. Form. Asked 14:18:23
5 and answered. 14:18:25
6 THE WITNESS: Paragraph 75 doesn't list 14:18:26
7 165 as being one of the -- as being the third seal 14:18:37
8 member, so I would have to look in more detail 14:18:41
9 elsewhere to confirm 165 as part of seal module 14:18:44
10 100. 14:18:50
11 BY MR. HAMILTON: 14:18:51
12 Q. Whether -- whether 165 is -- is a seal member, 14:18:54
13 is that -- is that your issue with it? 14:18:58
14 A. It's just not clear from the drawings where 165 14:19:01
15 would be located. 14:19:12
16 Q. And what about from that sentence at the end of 14:19:14
17 paragraph 77; is it clear from that sentence where 165 14:19:17
18 is located? 14:19:21
19 A. Paragraph 75? 14:19:22
20 Q. Paragraph 77, the sentence we were just 14:19:26
21 referring to. 14:19:32
22 A. It doesn't discuss a first seal member or a 14:19:36
23 second seal member, so I'm not sure where the third seal 14:19:42
24 member is without looking in more detail at the patent 14:19:45
25 at this point. 14:19:47

1 Q. And I think you're right, it doesn't discuss a 14:19:48
2 first or second. But it does discuss a third seal 14:19:51
3 member, 165, right? 14:19:54
4 A. Yes. 14:19:55
5 Q. And what does that third seal member do in that 14:19:56
6 sentence? What does it say about it? 14:19:59
7 A. It's able to retract to an unsealed 14:20:00
8 configuration. 14:20:03
9 Q. What does that mean to you? 14:20:04
10 A. That means that once the tension is released on 14:20:06
11 the actuators, on the U-shaped actuators, that the seal 14:20:11
12 member is able to retract to an unsealed position. 14:20:19
13 Q. Does that indicate where the third seal member 14:20:22
14 is in figure 34? 14:20:26
15 A. I can presume it's related -- it's in the area 14:20:29
16 where the U-shaped actuators are located. 14:20:35
17 Q. Let's take a look at paragraph 59 of that same 14:20:38
18 document, Exhibit 1005. 14:20:52
19 A. (Complying.) 14:20:54
20 Q. And you can just take a moment to read that 14:21:06
21 paragraph. 14:21:09
22 A. (Complying.) 14:21:11
23 59? 14:21:17
24 Q. 59, yes. 14:21:19
25 May I ask you what paragraph you're reading now? 14:23:57

1	A.	I'm up to 69.	14:24:01
2	Q.	69?	14:24:03
3	A.	59, sorry.	14:24:05
4	Q.	You're on 59?	14:24:06
5	A.	Starting with 59. I had to read the background	14:24:07
6		before.	14:24:10
7	Q.	Okay. And let me know when you're finished.	14:24:10
8	A.	Uh-huh. Okay.	14:24:14
9	Q.	Is paragraph 69 describing the third seal member	14:25:25
10		165?	14:25:36
11	A.	And 166 is also in that paragraph.	14:25:40
12	Q.	And what is 166?	14:25:48
13	A.	"The third central seal member 165 includes	14:25:51
14		material 166 that is highly elastic, deformable,	14:25:58
15		compliant, yet virtually noncompressible material 166	14:26:02
16		include modified vinyl, silicone, polyurethane or a	14:26:06
17		combination thereof."	14:26:12
18	Q.	So 166 is the material that makes up the -- the	14:26:13
19		seal member 165; is that right?	14:26:15
20	A.	That's how it's described here.	14:26:18
21	Q.	And what does highly elastic, deformable,	14:26:21
22		compliant and yet virtually noncompressible mean?	14:26:27
23	A.	It means very elastic, very deformable,	14:26:31
24		compliant. Noncompressible would mean that it's not	14:26:45
25		permanently compressed.	14:26:58

1 Q. What's the purpose of seal member 165? 14:27:00
2 MR. STOWELL: Objection. Vague. 14:27:24
3 THE WITNESS: In paragraph 60 it says, 14:27:26
4 "The highly compliant third central seal member 165 14:27:43
5 seals around a variety of profile shapes 192 and 14:27:47
6 diameters 194 of the lumen 193 when one side of 14:27:52
7 compressive force 67 is exerted upon the central 14:27:57
8 region." 14:28:01
9 BY MR. HAMILTON: 14:28:06
10 Q. So does that mean the seal member allows the 14:28:07
11 device of Shafer to seal around vari- -- various shapes 14:28:12
12 and diameters of tools? 14:28:15
13 A. It says it's to seal around a variety of profile 14:28:22
14 shapes and diameters when a force is exerted on it. 14:28:32
15 Q. So let's keep that -- keep that page in front of 14:28:37
16 you, on that paragraph, and let's go back to your 14:28:41
17 declaration, paragraph 81. 14:28:43
18 A. (Complying.) 14:28:48
19 Q. Paragraph 81, page 56. 14:28:49
20 So if what's depicted in the figure in -- in 14:29:00
21 paragraph 81 included seal member 165, these gaps would 14:29:06
22 not be formed; is that correct? 14:29:14
23 MR. STOWELL: Objection. Form. 14:29:16
24 THE WITNESS: I don't know. 14:29:17
25 BY MR. HAMILTON: 14:29:18

1 Q. Isn't that the point of seal member 165, to fill 14:29:18
2 in the gaps? 14:29:22

3 A. That's the goal of this design, is to prevent 14:29:24
4 gaps, yes. 14:29:33

5 Q. Okay. And so if that seal member 165 was 14:29:33
6 included as either part of the lumen or inside the lumen 14:29:37
7 around the tool, these gaps would not be formed; is that 14:29:48
8 correct? 14:29:52

9 MR. STOWELL: Objection. Form. 14:29:52

10 THE WITNESS: I don't know. 14:29:53

11 BY MR. HAMILTON: 14:29:53

12 Q. But that is the point of 165, to eliminate those 14:29:56
13 gaps? 14:30:01

14 A. The point of the design as a whole is to 14:30:01
15 eliminate those gaps. 14:30:04

16 Q. And the way the design does that is through seal 14:30:06
17 member 165; is that right? 14:30:10

18 MR. STOWELL: Objection. Vague. 14:30:12

19 THE WITNESS: I actually think this 14:30:13
20 paragraph 59 and 165, when we talk about extremely 14:30:32
21 soft, highly elastic materials, is referring to a 14:30:37
22 different design embodiment, though shown, I think, 14:30:45
23 in Figures 12 through 15. 14:30:54

24 BY MR. HAMILTON: 14:30:57

25 Q. Okay. So these paragraphs here are referring 14:30:58

1 to -- not referring to embodiments 30 through 34 -- or 14:31:00
2 Figures 30 through 34; is that right? 14:31:06
3 A. On paragraph 54 they start with references to 14:31:11
4 Figure 5 through 22. 14:31:18
5 Q. Okay. 14:31:19
6 A. Which are different embodiments from the 30 14:31:20
7 through 34 which are represented by the image on page 56 14:31:24
8 of my declaration. 14:31:28
9 Q. Okay. So let's assume 165 is not included in 14:31:30
10 the embodiment 30 through 34. If you included 165 in 14:31:36
11 your image shown in paragraph 81 of your declaration, 14:31:43
12 would that eliminate the gaps? 14:31:49
13 MR. STOWELL: Objection. Outside the 14:31:52
14 scope. Form. 14:31:53
15 THE WITNESS: I don't know. It wasn't 14:31:55
16 the description of the material used for the 14:32:02
17 sealing lumen for the later embodiments. 14:32:08
18 BY MR. HAMILTON: 14:32:13
19 Q. I'm sorry, what did you mean by that? 14:32:13
20 A. Figures 30 through 34 describe a different seal 14:32:15
21 module. 14:32:25
22 Q. Is that right? So -- so Figures 30 through 34 14:32:25
23 refer to the 165, but you think it's a different seal -- 14:32:28
24 seal member 165 a -- different from seal member 165 in 14:32:32
25 paragraph 59 and 60? Is that your testimony? 14:32:37

1 A. Let me look at the Shafer patent a bit more. 14:32:41
2 Q. So you're not looking at the Shafer patent. I 14:33:00
3 see you're looking at your declaration. 14:33:03
4 MR. STOWELL: Objection. Argumentive. 14:33:05
5 THE WITNESS: To find a reference that 14:33:06
6 would refer me to the Shafer patent. 14:33:08
7 BY MR. HAMILTON: 14:33:10
8 Q. Okay. 14:33:11
9 If you need a little time, why don't we go off 14:34:09
10 the record and -- 14:34:12
11 MR. STOWELL: No, no. Let's stay on the 14:34:12
12 record. There is a question pending and the 14:34:15
13 witness has said that he needs to review the 14:34:17
14 materials. 14:34:19
15 MR. HAMILTON: Yeah, I'm -- I'm not going 14:34:20
16 to waste my time as the witness reads through his 14:34:21
17 declaration. 14:34:23
18 BY MR. HAMILTON: 14:34:24
19 Q. Can you answer the question? 14:34:24
20 MR. STOWELL: For the record, the witness 14:34:25
21 has said he needs to review the materials to answer 14:34:27
22 the question, and counsel is not letting him answer 14:34:29
23 the question or review the materials. 14:34:31
24 BY MR. HAMILTON: 14:34:33
25 Q. Do you know what the question is? 14:34:33

1 A. I'm looking for the seal module description 14:34:37
2 that's used for the later embodiments 30 through 34. 14:34:43
3 Q. The seal module description used for the later 14:34:47
4 embodiments 30 through 34 in Shafer; is that right? 14:34:51
5 A. Yes. 14:34:54
6 Q. And you're looking at your declaration, you're 14:34:55
7 not looking at Shafer; is that right? 14:34:58
8 A. I'm looking at my declaration to see the 14:34:59
9 reference of where I can find it more quickly in the 14:35:02
10 Shafer patent. 14:35:05
11 Q. Wouldn't it be simpler just to look at Shafer 14:35:06
12 where it mentions seal member 165? 14:35:09
13 A. I thought this would be faster. 14:35:13
14 Q. Let me see if I can help you out. Why don't you 14:35:44
15 look at paragraph 81 of Shafer. 14:35:47
16 A. (Complying.) Okay. 14:35:52
17 Q. Is that the same description of the materials 14:36:58
18 that form the seal member 165 found in paragraph 59? 14:37:04
19 Ask when I say in that, I am referring to 14:37:09
20 paragraph 81. Isn't that referring to the same seal 14:37:11
21 member 165? 14:37:18
22 A. It says, "In one option, the third seal member 14:37:18
23 includes materials 166 that's highly elastic, 14:37:21
24 deformable, compliant." They also go on to say, "The 14:37:26
25 basic materials are in one option modified by 14:37:30

1 compounding them with waxes and/or oils or un-" -- "or 14:37:34
2 un-cross-linked modifiers," and then they give a range 14:37:39
3 of Shore hardness examples from 5 to 15, another option 14:37:44
4 of 15 to 20 Shore hardness on the 00 scale. 14:37:54
5 Q. Okay. Now compare that to paragraph 59. Isn't 14:38:02
6 that the exact same description of seal member 165? 14:38:11
7 A. Paragraph 59? The difference is in paragraph 14:38:17
8 59, after it talks about Shore hardness in the range 14:38:38
9 between 15 to 20 on the Shore -- 15 to 20 Shore on the 14:38:42
10 00 scale, "this provides material that is extremely soft 14:38:49
11 and compliant and intrinsically sticky." 14:38:53
12 Q. So let me stop you there. So that's describing 14:38:56
13 the material that's just described right above it, isn't 14:38:59
14 it? 14:39:02
15 A. In paragraph 59. 14:39:03
16 Q. Yep. 14:39:05
17 So the material that's described in paragraph 14:39:07
18 59, its property is -- excuse me. 14:39:11
19 It -- the paragraph 59 says, "This provides a 14:39:16
20 material that is extremely soft, compliant and 14:39:20
21 intrinsically sticky." That's referring to the material 14:39:22
22 that is just set forth right above that sentence in 14:39:25
23 paragraph 59, correct? 14:39:28
24 A. Yes. 14:39:29
25 Q. And that material is the same material and the 14:39:29

1 same description as paragraph 81 for the seal member 165 14:39:32
2 in embodiments 30 through 34 -- excuse me -- Figures 30 14:39:36
3 through 34; is that correct? 14:39:41
4 A. It's the same material and Shore hardness, but 14:39:42
5 they doesn't mention the sticky -- intrinsically sticky 14:39:46
6 attribute. 14:39:49
7 Q. So do you believe it wouldn't be sticky, have 14:39:50
8 that intrinsically sticky attribute? 14:39:53
9 A. I'm not that familiar with the soft materials 14:39:57
10 and whether they would be sticky or not. 14:40:01
11 Q. Okay. So there's some material described in 14:40:03
12 paragraph 59 and then it talks about the properties of 14:40:09
13 that material after, at the bottom of paragraph 59, 14:40:11
14 correct? 14:40:16
15 A. Right. These are given as examples, and it says 14:40:17
16 "for illus-" -- "illustrative purposes only, the nature 14:40:33
17 of the material of the third central seal member 165 can 14:40:34
18 be compared to a gelatinous substance. Material 166 is 14:40:39
19 of a self-closing nature in that it sticks occlusively 14:40:44
20 to itself, formally a nearly" -- "nearly fluid/gas tight 14:40:50
21 seal under very light compression." 14:40:55
22 Q. So that's referring to the material that's 14:40:57
23 described 166 at the beginning of that paragraph, right? 14:40:59
24 A. Yes. 14:41:03
25 Q. Those are the properties of that material? 14:41:04

1	A.	Yes.	14:41:06
2	Q.	And that same material is described in paragraph	14:41:06
3		81, isn't it?	14:41:11
4	A.	It is described in paragraph 81, but they don't	14:41:12
5		talk about the self-closing nature and the gelatinous	14:41:23
6		attributes of the material.	14:41:26
7	Q.	Okay. So we've got the same material that's	14:41:27
8		described in paragraph 59 as in paragraph 81. You just	14:41:29
9		don't know the properties of -- of the material in 81	14:41:33
10		because it's not laid out in 81; is that right?	14:41:35
11	A.	They don't give those descriptors of being	14:41:40
12		sticky and gelatinous.	14:41:50
13	Q.	Okay. So if one skilled in the art took that	14:41:51
14		material 165 in -- from paragraph 59 and put it in the	14:41:55
15		figure of 81 of your declaration, these gaps would not	14:42:01
16		be formed; is that correct?	14:42:07
17		MR. STOWELL: Objection. Outside the	14:42:09
18		scope.	14:42:12
19		THE WITNESS: I'm not sure if they would	14:42:12
20		be formed or not. What I do know is that it	14:42:16
21		probably wouldn't reopen, which the -- you know, as	14:42:20
22		we were reading before in paragraph 77, when the	14:42:26
23		actuating members are forcibly disengaged -- sorry	14:42:33
24		-- when they disengage opposing outer walls of the	14:42:38
25		seal module 100, allowing -- allowing portion 108	14:42:42

1 of the containment structure 160 to retract to an 14:42:48
2 uncollapsed configuration where gases and fluids 14:42:52
3 can pass through. 14:42:55
4 So if the material was chosen to be 14:42:55
5 extremely soft and sticky, then I don't believe it 14:42:58
6 would retract and open once the tension is 14:43:03
7 released, once the buttons are forcibly disengaged. 14:43:07
8 BY MR. HAMILTON: 14:43:11
9 Q. So let's focus on before the buttons are 14:43:11
10 disengaged. Before the buttons are disengaged, that 14:43:14
11 material would fill these gaps, so gaps would not be 14:43:17
12 formed, correct? 14:43:20
13 MR. STOWELL: Objection. Form. Outside 14:43:21
14 the scope. 14:43:23
15 THE WITNESS: I think it's possible. 14:43:24
16 BY MR. HAMILTON: 14:43:25
17 Q. You don't know? 14:43:25
18 A. It depends on the material properties of that 14:43:27
19 seal member. It depends on the U-shaped actuator 14:43:31
20 members that are compressing it. It depends on the tool 14:43:37
21 that's going inside. 14:43:40
22 Q. The purpose of that material is to seal around a 14:43:41
23 variety of profile shapes and diameters as shown in 14:43:44
24 paragraph 60, but you don't know if it would actually do 14:43:51
25 that. Is that -- is that your testimony? 14:43:58

1 A. It certainly would be designed to do that. I 14:44:01
2 also think it would be -- a person of skill in the art 14:44:04
3 wouldn't use a sticky material for the designs shown in 14:44:10
4 Figure 30 through 34 because it wouldn't reopen once the 14:44:15
5 tension is released on the actuators or suture line. 14:44:21
6 Q. What if the material was highly elastic, 14:44:27
7 deformable, compliant, and yet virtually 14:44:33
8 noncompressible; would it open in that instance? 14:44:37
9 A. It's hard to say what those meaning -- what 14:44:41
10 those definitions are. 14:44:45
11 Q. You don't understand what those words mean? 14:44:46
12 A. Those all have a range of mechanical parameters 14:44:49
13 that could be widely varying. 14:44:52
14 Q. And a person of skill in the art could pick a 14:44:56
15 material that had those parameters that would open, 14:44:59
16 correct? 14:45:02
17 A. I'm not sure, given the hardness ranges, if that 14:45:05
18 would be true or not. 14:45:12
19 Q. So 165 is referred to as a third seal member. 14:45:13
20 What are the other two seal members? If it's helpful, 14:46:28
21 I'll point you to paragraph 51. 14:46:48
22 A. Well, in paragraph 64 the seal model 100 14:46:51
23 includes, in one option, for seal member 170 having a 14:46:55
24 first material, the second seal member 180 having a 14:47:00
25 second material, and a third seal member 165 having a 14:47:05

1 third material. So as shown on Figures 12 through 15, 14:47:11
2 that delineates the first, second and third seal members 14:47:20
3 for this embodiment. 14:47:26
4 Q. So the first seal member is 170? 14:47:33
5 A. 1-7-0. 14:47:38
6 Q. So the second seal member is 180? 14:47:40
7 A. Yes. 14:47:43
8 Q. And the third seal member is 165, correct? 14:47:44
9 A. Yes. 14:47:48
10 Q. Do you understand what seal member 170 does, how 14:47:49
11 it operates? 14:47:58
12 A. Relating to Figures 12 through 15? 14:48:01
13 Q. Sure. We can take those figures. 14:48:07
14 A. Yeah, so in paragraph 65, the back pressure from 14:48:13
15 retrograde flow 270 forces the first seal member 170 to 14:48:43
16 move distally, to the right in the case of these 14:48:51
17 figures, toward the second seal member 180 under the 14:48:57
18 influence of pressure from the gas or fluid. The third 14:49:05
19 seal member is compressed. However, since the seal -- 14:49:09
20 since the material 166 of the third central seal member 14:49:17
21 165 is essentially noncompressible, the lumen 193 of the 14:49:21
22 third seal member 165 collapses upon itself 14:49:28
23 circumferentially. 14:49:32
24 Q. Okay. So that -- that -- let's look at Figure 14:49:33
25 13. Is that shown in Figure 13? 14:49:36

1	A.	Figure 13 shows the pressure 1 -- pressure 270	14:49:40
2		moving seal member 170 and compressing seal member 165,	14:49:52
3		collapsing it to seal.	14:50:03
4	Q.	Would you -- would you describe that -- would it	14:50:05
5		be fair to say that that would be a passive hemostasis	14:50:20
6		valve?	14:50:27
7	A.	Yeah. This embodiment does not include any	14:50:27
8		exterior members that are compressing the seal module,	14:50:34
9		so it -- I think it could be considered a passive valve.	14:50:41
10	Q.	Would you -- would you -- what -- what would	14:50:46
11		that term mean to you, passive -- a passive hemostasis	14:50:47
12		valve?	14:50:53
13	A.	That it's able to seal on its own without	14:50:53
14		additional manipulation or buttons being pushed or a	14:50:59
15		rotator being rotated on a rotating hemostasis valve.	14:51:07
16	Q.	And then let's contrast that to an active	14:51:12
17		hemostasis valve. What would an active hemostasis valve	14:51:15
18		be?	14:51:17
19	A.	Something like a rotating hemostatic valve,	14:51:18
20		which is commonly used in medical procedures.	14:51:22
21	Q.	So something that requires an active -- an	14:51:25
22		action from -- from a user, like a medical practitioner,	14:51:29
23		push the buttons, rotate the dial?	14:51:33
24	A.	Or pinch the valve, yes.	14:51:36
25	Q.	Let's go back to paragraph 59 of Exhibit 1005.	14:51:39

1 A. (Complying.) 14:52:12

2 Q. Scratch that. Paragraph 63. This is the -- 14:52:13

3 this is the embodiments we were just talking about. 14:52:45

4 First sentence says "the use of a seal module 100 that 14:52:48

5 requires no compressive load for use in sealing the 14:52:55

6 stasis valve." 14:52:58

7 Is that a description of a passive valve, as we 14:53:14

8 just discussed? 14:53:17

9 A. Yes, I would consider this a description of a 14:53:19

10 passive valve. 14:53:23

11 Q. Paragraph 65, last sentence -- I'm sorry. 14:53:24

12 Do you see the sentence that begins "In one 14:53:53

13 option, at least one of the first and second materials 14:54:11

14 have a higher durometer than the third material"? 14:54:14

15 Paragraph 65, last sentence that's on the next page. 14:54:18

16 A. Yes. 14:54:25

17 Q. What does that mean, the higher durometer? 14:54:30

18 A. That it's a harder plastic and less able to 14:54:34

19 deform under, in this case, blood pressure, I guess. 14:54:42

20 Q. So does that mean that the first or second 14:54:50

21 material won't deform, while the third material will? 14:55:00

22 A. That's my understanding of this design, where 14:55:06

23 you can see in Figure 13, 170 has moved to the right, 14:55:11

24 given the pressure 270 exerted on it, and causes only 14:55:19

25 165, the third seal member, to collapse on itself. The 14:55:24

1 other two, 170 and 180, have not collapsed inwardly on 14:55:33
2 themselves. 14:55:39

3 Q. Do you recall earlier this morning we were 14:55:40
4 discussing design considerations when designing a 14:56:05
5 hemostasis valve? 14:56:08

6 A. Yes. 14:56:09

7 Q. Would ease of manufacture ability be a design 14:56:09
8 consideration when designing a hemostasis valve? 14:56:17

9 A. I think the ability to manufacture is always a 14:56:18
10 good consideration to use when designing anything, yes. 14:56:24

11 Q. All right. What about durability; would that be 14:56:28
12 a design consideration in designing a hemostasis valve? 14:56:31

13 A. Certainly the valve -- a valve would have to be 14:56:34
14 durable enough to be used during the procedure, but I 14:56:45
15 don't typically think of durability as being an issue 14:56:49
16 with hemostasis valves. 14:56:52

17 Q. And -- and is that because they're used one 14:56:53
18 time? Is that -- is that why you don't really consider 14:56:56
19 durability? 14:56:59

20 A. The ones I've worked on have been single-use 14:57:00
21 devices, used for a single procedure. 14:57:04

22 Q. Okay. So let's define durability as durable 14:57:06
23 enough for that single procedure. Would that be a 14:57:09
24 design consideration? 14:57:11

25 A. Yes. It has to work during the entire 14:57:13

1 procedure. 14:57:16

2 Q. Okay. Let's go -- I'm going to change gears a 14:57:17

3 little bit. 14:57:51

4 Did I give you Exhibit 1001? Do you have that? 14:57:54

5 That's the -- the patent at issue. 14:57:58

6 A. Yes. 14:58:00

7 Q. Okay. Let's take a look at that. I want to 14:58:00

8 point you to column 13, starting at line 9. 14:58:08

9 A. (Complying.) 14:58:20

10 Q. If you could read that sentence, line 9 to 12. 14:58:21

11 A. (Complying.) 14:58:40

12 Q. Let me know when you're ready for the question. 14:59:40

13 A. Okay. 14:59:57

14 Q. What does that mean, "in embodiments in which 14:59:58

15 the filament comprises multiple filaments"? 15:00:07

16 What does that sentence mean to you -- or that 15:00:11

17 phrase? 15:00:14

18 MR. STOWELL: Objection. Vague. 15:00:15

19 THE WITNESS: I believe what you're 15:00:22

20 referring to, Figure 7, 8 and 9, which have 15:00:23

21 multiple filaments. 15:00:29

22 BY MR. HAMILTON: 15:00:32

23 Q. When you say -- what do you mean by multiple 15:00:38

24 filaments? 15:00:41

25 A. More than one. 15:00:42

1 Q. So multiple filaments -- each of the more than 15:00:44
2 one filament is a single continuous piece; is that 15:00:50
3 right? 15:00:54

4 MR. STOWELL: Objection. Form. 15:00:54

5 THE WITNESS: The patent described it as 15:00:56
6 the at least one filament. So two or more 15:01:03
7 filaments could be acting together to compress the 15:01:09
8 central member. 15:01:18

9 BY MR. HAMILTON: 15:01:19

10 Q. And when you say "two or more filaments," you 15:01:20
11 mean two or more single continuous pieces, correct? 15:01:23

12 A. As shown in Figures 7 and 8, there are two 15:01:26
13 separate filaments. 15:01:39

14 Q. So going back to this phrase, Column 13, 15:01:42
15 starting at line 9, "in embodiments in which the 15:01:48
16 filament 150 comprises multiple filaments," the question 15:01:52
17 was, multiple filaments in that sentence means 15:01:58
18 individual continuous filaments -- 15:02:01

19 MR. STOWELL: Objection. 15:02:05

20 BY MR. HAMILTON: 15:02:05

21 Q. -- correct? 15:02:06

22 MR. STOWELL: Objection. Calls for a 15:02:06
23 legal conclusion. 15:02:08

24 THE WITNESS: It doesn't say 15:02:09
25 "continuous," but it's shown in Figures 6 and 7 as 15:02:10

1 two individual filaments. 15:02:13

2 BY MR. HAMILTON: 15:02:16

3 Q. And this sentence is -- is getting at when the 15:02:16

4 filament in total, so made up of multiple filaments, 15:02:19

5 in -- in which the filament 150 comprises multiple 15:02:23

6 filaments. So you have a filament that can be made up 15:02:28

7 of many individual filaments, correct? That's what that 15:02:31

8 means? 15:02:34

9 A. Yes. It can be -- it can comprise multiple 15:02:35

10 filaments. 15:02:42

11 Q. And let's -- let's try to make it more clear, 15:02:42

12 because we're using the word "filament" a lot. So I'm 15:02:45

13 just going to substitute -- one -- one example of a 15:02:49

14 filament, I think, is a string in the patent. 15:02:51

15 A. Cord -- 15:02:55

16 Q. Let's use cord. 15:03:01

17 A. -- certainly -- 15:03:02

18 Q. Let's use cord. 15:03:03

19 So in embodiments in which the cord comprises 15:03:04

20 multiple cords, what's that's referring to is the 15:03:08

21 filament in total, the cord in total, can have multiple 15:03:11

22 individual continuous cords; is that correct? 15:03:14

23 A. Yeah, I believe that's how I read it. 15:03:19

24 Q. Okay. And then the next phrase, "each of those 15:03:22

25 multiple continuous cords can have a first end and a 15:03:26

1 second end," what does that mean? 15:03:31

2 A. Well, as it says, each can have a first end and 15:03:33

3 a second end. It goes on to say that the first and 15:03:40

4 second filaments 150-A and 150-B can be coupled to the 15:03:44

5 actuator 142. 15:03:52

6 Q. So let's focus on that. "Each of the multiple 15:03:59

7 filaments," that's each of -- each of the individual 15:04:04

8 cords, single continuous individual cords, correct? 15:04:07

9 MR. STOWELL: Objection. Calls for a 15:04:09

10 legal conclusion. 15:04:12

11 THE WITNESS: Well, what I can say is the 15:04:12

12 figure that's referring to the first and second 15:04:28

13 ends, 700 and 702, which are the left end of Figure 15:04:32

14 7, the left two ends and the right two ends are -- 15:04:41

15 are considered the second end of the combined 15:04:45

16 filament. 15:04:52

17 BY MR. HAMILTON: 15:04:53

18 Q. Okay. So you just referred to Figures 8 and 9; 15:04:56

19 is that right? 15:05:00

20 A. 7, I believe. Figure 7. 15:05:00

21 Q. So Figure 7 -- what's the first end and second 15:05:04

22 end of Figure 7? 15:05:09

23 A. First end is 700 and the second end of 702 of 15:05:14

24 one or more of the multiple filaments of the multiple 15:05:20

25 filaments, and it goes on to say those ends can be 15:05:24

1 coupled to the housing or other portion of the valve. 15:05:30

2 Q. Okay. So look at Figure 7. 15:05:34

3 A. Uh-huh. 15:05:38

4 Q. Each individual single continuous piece has a 15:05:38

5 first end and a second end in that figure, correct? 15:05:43

6 A. They're both labeled 700 as a first end, so I 15:05:46

7 think they're combining them as together they form the 15:05:50

8 filament. When you have more than one filament, it's -- 15:05:53

9 the entire grouping is called filament 150. 15:06:00

10 Q. So what I'm trying to figure out is, this 15:06:05

11 sentence on line 11 -- this phrase starting at line 10, 15:06:08

12 it says "each of the multiple filaments," not together. 15:06:12

13 And each of the multiple filaments can have a first end 15:06:17

14 and second end. Do you see that? 15:06:21

15 A. I see that. 15:06:23

16 Q. And what you're telling me is the figure shows 15:06:25

17 something different from that; is that right? 15:06:28

18 MR. STOWELL: Objection. Misstates 15:06:31

19 testimony. 15:06:32

20 THE WITNESS: I'm saying that the way the 15:06:32

21 patent is written, when there are multiple 15:06:35

22 filaments, they consider the first end 700 and the 15:06:38

23 second end 702 to be the same. They're both 15:06:50

24 labeled 700 on the left side. They're both labeled 15:06:55

25 702 on the right side. 15:06:59

1 BY MR. HAMILTON: 15:07:00

2 Q. So collectively they're the same; is that -- is 15:07:01

3 that -- is that what you mean? 15:07:03

4 A. They are both labeled the same as a first end 15:07:04

5 versus a second end. 15:07:10

6 Q. They are. 15:07:11

7 But this statement says each of the multiple 15:07:12

8 filaments has a first end and second end. That doesn't 15:07:15

9 mean collectively they have a first end and second end; 15:07:19

10 it means each of them does, doesn't it? 15:07:21

11 MR. STOWELL: Objection. Form. Asked 15:07:24

12 and answered. 15:07:25

13 THE WITNESS: Yeah, I don't know. It 15:07:26

14 appears that each one has a first end and a second 15:07:28

15 end. 15:07:31

16 BY MR. HAMILTON: 15:07:32

17 Q. What -- what -- when you say "each one," what 15:07:36

18 are -- what were you looking at there? 15:07:37

19 A. Figure 7 is what we're referring to. 15:07:39

20 Q. So -- so in Figure 7, each one of the individual 15:07:41

21 continuous filaments has a first end and second end, 15:07:46

22 correct? 15:07:49

23 A. They're both labeled the same, as 700. So I 15:07:50

24 believe they're combining them together as part of the 15:07:55

25 multiple filaments. 15:07:58

1 Q. So in Figure 7, each continuous individual 15:08:00
2 filament has a first end and second end, correct? 15:08:05
3 MR. STOWELL: Objection. Asked and 15:08:08
4 answered. 15:08:09
5 THE WITNESS: It has an end labeled 700, 15:08:09
6 each of the individual strands. Together they form 15:08:21
7 the filament 150 when there's multiple filaments, 15:08:26
8 is how I would interpret it. 15:08:30
9 BY MR. HAMILTON: 15:08:32
10 Q. So in Figure 7, each individual filament has a 15:08:32
11 first end and second end, correct? 15:08:35
12 MR. STOWELL: Objection. Asked and 15:08:37
13 answered. 15:08:38
14 THE WITNESS: I think I've answered it. 15:08:38
15 BY MR. HAMILTON: 15:08:39
16 Q. And then collectively together, the first end 15:08:40
17 and second end of each of those filaments is on the same 15:08:42
18 side; is that right? 15:08:45
19 A. The first end is 700 on the left side. The 7 -- 15:08:48
20 the -- the second end is 702 on the right side. 15:08:54
21 Q. And there's two second ends and two first ends 15:08:59
22 in that figure, correct? 15:09:02
23 A. Yes. 15:09:03
24 Q. Okay. Now turn to Figure 8 and 9. 15:09:04
25 A. (Complying.) 15:09:08

1 Q. Figure 8 and 9 is different, isn't it? 15:09:11

2 MR. STOWELL: Objection. Vague. 15:09:14

3 BY MR. HAMILTON: 15:09:19

4 Q. In Figure 8 and 9, each continuous piece has two 15:09:20

5 first ends or two second ends; is that right? Two of 15:09:25

6 the same ends; is that correct? 15:09:31

7 A. Well, the first end is labeled 700, of the 15:09:33

8 composite or -- you know, the composite of multiple 15:09:40

9 filaments, they're labeling the left side as 700 versus 15:09:46

10 the right side of 702. 15:09:51

11 Q. So the composite of multiple filaments -- 15:09:55

12 scratch that. 15:09:59

13 So now let's focus on one of the individual 15:10:00

14 single continuous filaments shown in Figures 8 and 9. 15:10:04

15 You can pick either one. That single continuous 15:10:08

16 filament either has two -- it has -- has two first ends 15:10:18

17 or two second ends? 15:10:23

18 That's an awkwardly worded question. 15:10:27

19 There's two filaments there, so let's just -- 15:10:29

20 let's just pick one. Let's say 150-A. Do you see 15:10:31

21 150-A? 15:10:40

22 A. Yes. 15:10:40

23 Q. So 150-A is a single continuous filament, 15:10:40

24 correct? 15:10:43

25 MR. STOWELL: Objection. Vague. 15:10:44

1	THE WITNESS: It is one single wire or	15:10:46
2	filament material, yes.	15:10:55
3	BY MR. HAMILTON:	15:10:56
4	Q. Okay. So I -- let's just call it a single --	15:10:57
5	single member. A single continuous member. Is that	15:11:00
6	fair?	15:11:05
7	A. Yes.	15:11:05
8	Q. And then 150-B is a single continuous member; is	15:11:06
9	that right?	15:11:13
10	A. Yes.	15:11:13
11	Q. Collectively, those two single continuous	15:11:13
12	members make up the filament in Figure 8, correct?	15:11:17
13	A. Yes. In some embodiments, a filament can	15:11:22
14	comprise multiple filaments, as shown in Figures 7	15:11:27
15	through 9.	15:11:30
16	Q. Okay.	15:11:31
17	A. So collectively they're forming the filament.	15:11:31
18	Q. And each of those single continuous members	15:11:34
19	shown in Figure 8 -- let's -- let's just talk about --	15:11:37
20	let's just focus on one. Member 150-A, that single	15:11:42
21	continuous member, has two first ends in Figure 8,	15:11:47
22	doesn't it?	15:11:50
23	A. It has two ends. They're labeled as 700, the	15:11:51
24	first end.	15:11:56
25	Q. So does it have two first ends?	15:11:59

1 A. It has two ends. And from the standpoint of 15:12:05
2 this patent, they're considered together to comprise a 15:12:09
3 single filament, the left side of which is the first end 15:12:15
4 of the, I'd say, composite filament. 15:12:19
5 Q. I kind of -- I think I see your confusion. It 15:12:23
6 doesn't make any sense to say a single continuous member 15:12:27
7 has two first ends, does it, because they have a first 15:12:30
8 end and a second end; isn't that right? 15:12:33
9 MR. STOWELL: Objection. Misstates the 15:12:36
10 testimony. 15:12:38
11 THE WITNESS: I think the patent language 15:12:38
12 is clear that when they're combined together, 15:12:40
13 they're considering it a first end of the multiple 15:12:43
14 filaments. 15:12:46
15 BY MR. HAMILTON: 15:12:47
16 Q. And when they're not combined together, how does 15:12:47
17 the patent consider the ends? 15:12:49
18 MR. STOWELL: Objection. Outside the 15:12:51
19 scope. 15:12:52
20 THE WITNESS: When it's a single 15:12:56
21 filament? 15:12:58
22 BY MR. HAMILTON: 15:12:58
23 Q. No. When you have two filaments but you're 15:12:59
24 referring to one of the single -- excuse me. Let's 15:13:01
25 stick with our language, members. 15:13:04

1 When you have two members, like 150-A and 150-B 15:13:07
2 how does the patent refer to the ends of -- of each of 15:13:11
3 those members? 15:13:13
4 A. Collectively as the first end. 15:13:15
5 Q. So let's take one of them. How does it refer to 15:13:18
6 the ends of one of those members? 15:13:20
7 MR. STOWELL: Objection. Outside the 15:13:22
8 scope. 15:13:23
9 THE WITNESS: It refers to 700 and 700 15:13:23
10 for each of the two ends of a single member 150-A. 15:13:27
11 BY MR. HAMILTON: 15:13:32
12 Q. As a first end or -- or as a first and second 15:13:32
13 end? 15:13:36
14 A. As a first end, 700 is labeled on each end of 15:13:38
15 150-A member. 15:13:47
16 Q. So each end of 150-A, that single continuous 15:13:49
17 member, is labeled in Figure 8 as a first end; is that 15:13:53
18 right? 15:13:58
19 A. Yes. 15:13:58
20 Q. And each end of the single continuous member 15:13:58
21 150-B in that same figure is -- is labeled as a second 15:14:01
22 end; is that right? 15:14:04
23 A. Yes. 15:14:05
24 Q. Okay. Now let's look back at the language 15:14:06
25 describing that figure that says each -- this is column 15:14:10

1 13, line 10 -- "each of the multiple filaments" -- so 15:14:14
2 we'll say members -- "can have a first end and a second 15:14:18
3 end." 15:14:21
4 This language says that each of the individual 15:14:25
5 members has a first end and second end, not a single 15:14:29
6 member having two first ends. This is different from 15:14:33
7 the figure, isn't it? 15:14:35
8 MR. STOWELL: Objection. Form. 15:14:37
9 THE WITNESS: I think it's just written 15:14:38
10 as when you have multiple filaments, which are 15:14:52
11 going to get connected to a button on one end, that 15:14:55
12 they're considering that the first end. 15:14:59
13 BY MR. HAMILTON: 15:15:02
14 Q. So what does each of the multiple filaments 15:15:02
15 mean? Isn't that referring to a single member, either 15:15:08
16 150-A or 150-B? 15:15:11
17 A. I'm not sure. 15:15:13
18 Q. You don't know? 15:15:15
19 A. I'm not sure. 15:15:16
20 Q. You don't know what that's referring to? 15:15:17
21 A. It's referring to everything we're talking 15:15:19
22 about. 15:15:23
23 Q. Each of the multiple filaments, does that refer 15:15:24
24 to 150-A by itself or 150-B by itself? 15:15:29
25 MR. STOWELL: Objection. Asked and 15:15:34

1	answered. Form.	15:15:36
2	THE WITNESS: Yes, I think so.	15:15:37
3	BY MR. HAMILTON:	15:15:40
4	Q. And then that language says each can have a	15:15:41
5	first end and a second end; is that right?	15:15:44
6	A. That's what it says.	15:15:48
7	Q. And that is not what's shown in Figures 8 and 9,	15:15:49
8	correct?	15:15:53
9	MR. STOWELL: Objection. Asked and	15:15:55
10	answered.	15:15:57
11	THE WITNESS: I believe the figure is	15:15:57
12	really showing when it's a composite, when it's	15:16:00
13	comprised of multiple filaments, and they wanted to	15:16:04
14	make clear to label the first end of the composite	15:16:10
15	such that that end would be attached to one	15:16:13
16	actuating member and the other end attached to the	15:16:17
17	other actuating member.	15:16:19
18	BY MR. HAMILTON:	15:16:21
19	Q. So the figure is different from what's described	15:16:21
20	in this sentence on column 13 starting at line 9, ending	15:16:23
21	at line 11 -- line 12, correct?	15:16:27
22	MR. STOWELL: Objection.	15:16:28
23	THE WITNESS: I'm not sure it's	15:16:29
24	different.	15:16:32
25	BY MR. HAMILTON:	15:16:32

1 Q. What's a loop? 15:16:50

2 MR. STOWELL: Objection. Form. 15:16:55

3 THE WITNESS: As defined by which patent? 15:16:56

4 BY MR. HAMILTON: 15:16:58

5 Q. In the field of the invention of the '011 15:16:59

6 Patent, what does the term "loop" mean? 15:17:02

7 A. Let me see how they define it. 15:17:06

8 Q. I want to withdraw the question. 15:17:47

9 Earlier you discussed the field of the invention 15:17:50

10 as hemostasis valve for intravascular catheters. Do you 15:17:54

11 recall that? 15:18:01

12 Let me -- let me just make sure I get it right. 15:18:03

13 I really -- I don't want -- I don't want to change the 15:18:05

14 field as set forth in your declaration. And that was, I 15:18:07

15 believe, paragraph 26. 15:18:11

16 "Hemostasis valves for use during intravascular 15:18:15

17 procedures." 15:18:21

18 Do you see that? 15:18:26

19 A. Yes. In paragraph 26 of the declaration, my 15:18:26

20 declaration. 15:18:34

21 Q. In that field, what does the term "loop" mean -- 15:18:34

22 withdraw that question. 15:18:38

23 Does the term "loop" have a -- 15:18:39

24 THE VIDEOGRAPHER: Be careful with your 15:18:42

25 microphone. 15:18:44

1 BY MR. HAMILTON: 15:18:44

2 Q. -- a well-understood meaning in that field? 15:18:45

3 A. That's not a term I would have been familiar 15:18:48

4 with before reviewing these patents and these designs. 15:18:59

5 Q. So from the perspective of a person of ordinary 15:19:05

6 skill in the art, that person would not be familiar with 15:19:10

7 a particular definition for the term "loop" in this 15:19:12

8 field; is that -- is that your testimony? 15:19:15

9 A. I'm saying that I had not seen a hemo- -- 15:19:18

10 hemostatic valve that involved a loop mechanism prior to 15:19:22

11 working on this project and reviewing these patents. 15:19:28

12 Q. And you're here to testify today about the 15:19:33

13 understanding from the perspective of a person of 15:19:37

14 ordinary skill in the art; is that correct? 15:19:40

15 A. Yes. 15:19:43

16 Q. What is that person's understanding of the term 15:19:43

17 "loop" in the field hemostasis valves for use during 15:19:46

18 intravascular procedures? 15:19:51

19 MR. STOWELL: Objection. Asked and 15:19:51

20 answered. Form. 15:19:53

21 THE WITNESS: I would need to look at how 15:19:54

22 they define loop in this patent to fully answer the 15:19:56

23 question. 15:20:00

24 BY MR. HAMILTON: 15:20:00

25 Q. So as you sit here today, you're not aware of a 15:20:00

1 specific meaning for the term "loop" in the field of 15:20:04
2 hemostasis valves for use during intravascular 15:20:08
3 procedures; is that correct? 15:20:10
4 A. I'm saying I wasn't familiar with that term 15:20:13
5 because I wasn't familiar with loops being used for 15:20:16
6 hemostatic valves before this time. 15:20:20
7 Q. And you were familiar with the field of 15:20:22
8 hemostasis valves for use during intravascular 15:20:25
9 procedures before this matter, weren't you? 15:20:27
10 A. Yes. 15:20:30
11 Q. So now let's focus on as the term "loop" as used 15:20:31
12 in the '011 Patent. 15:20:36
13 What does the term "loop" mean in the '011 15:20:38
14 Patent? 15:20:41
15 A. So the first reference I see -- it may not be 15:23:31
16 the first reference in here, but the first reference to 15:23:39
17 loop that I can find here is column 13, line 29, "The 15:23:42
18 filament 150 can be arranged in a variety of 15:23:49
19 configurations. In some embodiments, the filament 150 15:23:52
20 can be configured to form a single loop 604 that can 15:23:57
21 extend around the elongate member 132 and/or through 15:24:02
22 which the elongate member 132 can be received as shown 15:24:07
23 in Figure 6." 15:24:11
24 Q. So you just read a sentence from the -- the 15:24:12
25 specification. Do you remember the question? 15:24:35

1 A. Yeah, what's the definition of a loop. 15:24:38

2 Q. So what's a loop? 15:24:41

3 MR. STOWELL: Objection. Asked and 15:24:43

4 answered. 15:24:44

5 THE WITNESS: It's a filament that can 15:24:45

6 extend around an elongate member as shown in Figure 15:24:48

7 6, is one example shown. 15:24:53

8 BY MR. HAMILTON: 15:24:55

9 Q. A loop is a filament? Is that your testimony? 15:24:57

10 A. It says "the filament 150 can be configured to 15:25:04

11 form a single loop." 15:25:07

12 Q. Okay. So form a loop -- 15:25:08

13 A. So for --

14 Q. What shape it is a loop -- I'll withdraw the 15:25:10

15 question. 15:25:15

16 Does loop denote a shape? 15:25:15

17 A. Not necessarily a given shape. 15:25:19

18 Q. That sentence says "form a loop." In that 15:25:24

19 sentence, does loop denote a shape? 15:25:28

20 A. I think what it's -- what it's wrapping around 15:25:32

21 delineates a shape. 15:25:37

22 Q. What it's wrapping around -- what do you mean 15:25:39

23 "it"? What is "it" in that sentence? 15:25:43

24 A. If, theoretically, the elongate member were 15:25:46

25 oval, the loop would loop around an oval shape, so the 15:26:05

1 shape would be ovalized instead of round. So a loop on 15:26:10
2 its own doesn't necessarily have a given shape; it also 15:26:16
3 depends on what it's looping around. 15:26:20
4 Q. And if I understand what you're saying, the loop 15:26:22
5 has to extend around the entire shape, is that right, to 15:26:25
6 be a loop? 15:26:29
7 MR. STOWELL: Objection. Misstates 15:26:30
8 testimony. 15:26:32
9 THE WITNESS: The example they give is 15:26:32
10 Figure 6, which loops around in a circle. 15:26:36
11 BY MR. HAMILTON: 15:26:44
12 Q. So in the example, the loop extends around the 15:26:45
13 entire shape; is that right? 15:26:48
14 A. Yes. 15:26:49
15 Q. So does the term "loop" mean that whatever is 15:26:50
16 forming the loop extends around the entire shape? 15:26:55
17 A. Not necessarily. 15:27:00
18 Q. So a loop doesn't have to extend around a shape? 15:27:04
19 A loop -- a loop, in your opinion, could be a U-shaped 15:27:08
20 member? 15:27:13
21 A. Possibly. 15:27:16
22 Q. Do you see column 13, line 44? 15:27:19
23 Do you see the term "bite"? 15:27:31
24 A. Yes. 15:27:36
25 Q. You see a definition for that term? 15:27:40

1 A. Yes. 15:27:42

2 Q. What's the definition of a bite? 15:27:46

3 A. The bite refers to a U-shaped section between 15:27:49

4 the two ends of the filament 150 as depicted in Figures 15:27:52

5 8 and 9. 15:27:56

6 Q. Is that U-shaped section ever described as a 15:27:56

7 loop in the '011 Patent? 15:28:01

8 A. I don't believe so. 15:28:05

9 Q. So the examples in the '01- -- '011 Patent use 15:28:06

10 the term "loop" -- all the examples for a loop in the 15:28:12

11 '011 Patent, the material forming the loop extends 15:28:16

12 entirely around some object; is that correct? 15:28:21

13 A. I'm not sure if all of the embodiments, but 15:28:25

14 certainly Figure 6 does. 15:28:28

15 Q. And Figure 7? 15:28:31

16 A. Yes, I would consider that a loop. 15:28:34

17 Q. Figures 8 and 9? 15:28:37

18 A. As defined by the patent, they would be a bite. 15:28:41

19 Q. Are they loops? 15:28:48

20 A. I would say together they act as -- could act as 15:28:53

21 a loop, but individually they're defined as a bite. 15:29:00

22 Q. When you say "could act as a loop," are the -- 15:29:04

23 is the form shown in Figures 8 and 9 a loop? 15:29:09

24 A. The form of each member would be considered a 15:29:12

25 bite, based on the description in the patent. Acting 15:29:22

1 together, they could act similar to a loop. 15:29:29

2 Q. Are they a loop? 15:29:32

3 A. They're defined as a bite. 15:29:35

4 Q. Okay. Let's take a look at column 9. 15:29:42

5 MR. STOWELL: We've been going for 15:29:47

6 another over -- over an hour and a half, so when 15:29:50

7 you get a chance, let's take a break. 15:29:53

8 MR. HAMILTON: This -- I'm going to 15:29:55

9 change -- change gears, so why don't we -- why 15:29:56

10 don't -- do you want to take a lunch break? 15:29:57

11 MR. STOWELL: Yeah, that's fine. 15:29:59

12 THE VIDEOGRAPHER: Please stand by. 15:30:00

13 We are going off the record at 12:29. 15:30:03

14 (Recess.) 16:11:47

15 THE VIDEOGRAPHER: We are back on the 16:11:47

16 record at 1312. 16:12:30

17 BY MR. HAMILTON: 16:12:32

18 Q. Mr. Thornton, you -- you understand you're still 16:12:33

19 under oath? 16:12:36

20 A. Yes. 16:12:36

21 Q. Did you discuss your testimony with anybody 16:12:36

22 during the break? 16:12:40

23 A. No. 16:12:41

24 Q. Did you read any documents during the break? 16:12:42

25 A. No. 16:12:44

1	Q.	If you could turn to Exhibit 1003 -- that's your	16:12:44
2		declaration -- page 69, paragraph 94.	16:12:56
3	A.	(Complying.)	16:13:02
4	Q.	Let me know when you're there and I can ask you	16:13:16
5		a question about it.	16:13:20
6	A.	Okay.	16:13:22
7	Q.	So in the first line, paragraph 94, starting at	16:14:37
8		the end of the first line "A" -- "A person of ordinary	16:14:43
9		skill in the art would have recognized that Ellers' wire	16:14:46
10		member may provide more flexibility than Shafer's	16:14:48
11		metallic plastic U-shaped actuating members when	16:14:54
12		constricting the valve lumen."	16:14:55
13		Do you see that?	16:14:58
14	A.	Yes.	16:14:58
15	Q.	How would a person of ordinary skill in the art	16:14:59
16		have recognized that Ellers' wire member may provide	16:15:03
17		more flexibility than Shafer's metallic plastic U-shaped	16:15:04
18		actuating member?	16:15:10
19	A.	I think they would have been motivated in the	16:15:16
20		case -- if -- if it weren't sealing well, if the	16:15:24
21		U-shaped actuating members -- the materials that they	16:15:31
22		happened to chose weren't sealing around a wide enough	16:15:33
23		range of tools, a wire member may provide more	16:15:37
24		flexibility to seal better.	16:15:43
25	Q.	So the question is, how does one skilled in art	16:15:45

1 know that the Ellers' wire member may provide more 16:15:50
2 flexibility than Shafer's U-shaped actuating members? 16:15:55
3 What is it about U -- Shafer's members and Shafer that 16:15:57
4 tells you that those members are less flexible than 16:16:03
5 Ellers' wire member? 16:16:07
6 MR. STOWELL: Objection. Form. 16:16:08
7 THE WITNESS: It may conform better. It 16:16:10
8 just depends on the materials chosen for the 16:16:16
9 sealing member or the U-shaped actuating members, 16:16:19
10 depending on the flexibility of the wire as it 16:16:29
11 compared to the flexibility of the U-shaped 16:16:32
12 actuating members. 16:16:35
13 BY MR. HAMILTON: 16:16:36
14 Q. So is Ellers' wire member more flexible than 16:16:37
15 Shafer's metallic plastic U-shaped actuating members? 16:16:42
16 A. It's not very clear in the patents because they 16:16:46
17 don't talk about material properties of flexibility. 16:16:49
18 Q. So what did you mean by that when you said that? 16:16:54
19 A. I meant that it could be an option that it may 16:16:58
20 provide more flexibility, if -- if needed, to optimize 16:17:02
21 the design. 16:17:06
22 Q. So you -- you -- it's possible that one would 16:17:07
23 not need to optimize the design of Shafer; is that -- is 16:17:09
24 that correct? 16:17:19
25 A. I think it's possible. 16:17:19

1 Q. And that's because Shafer can conform -- can 16:17:21
2 form a complete seal? 16:17:25

3 MR. STOWELL: Objection. Form. 16:17:27

4 THE WITNESS: That is the design intent 16:17:29
5 of the Shafer design, to form a complete seal with 16:17:31
6 nothing inside and with tools inside. 16:17:35

7 BY MR. HAMILTON: 16:17:37

8 Q. So what is it about Shafer's metallic plastic 16:17:38
9 U-shaped actuating members as disclosed in Shafer leads 16:17:42
10 you to believe that they are less flexible than Ellers' 16:17:45
11 wire member? 16:17:48

12 MR. STOWELL: Objection. Misstates 16:17:49
13 testimony. 16:17:54

14 THE WITNESS: Right, it's not clear if 16:17:54
15 they are more flexible or less flexible, but if 16:18:01
16 the, I'll say, metallic U-shaped actuating members 16:18:05
17 were not performing as desired, then the engineers 16:18:11
18 would optimize it with making changes to the design 16:18:17
19 of the actuating members or other components, or 16:18:24
20 could consider using a different material, like 16:18:28
21 Ellers' wire member, to optimize the design. 16:18:31

22 BY MR. HAMILTON: 16:18:35

23 Q. So someone designing the valve, if they had an 16:18:35
24 issue with Shafer's valve, there would be a lot of 16:18:38
25 options to -- to optimize that valve and deal with 16:18:41

1 sealing issues like the gaps we previously discussed in 16:18:45
2 paragraph 81 of your declaration; is that right? 16:18:48
3 A. I think there would be multiple parameters that 16:18:50
4 could be adjusted to optimize any of these designs, but 16:18:54
5 the Shafer design, yes. 16:19:00
6 Q. And are some of those options disclosed in 16:19:02
7 Shafer? 16:19:05
8 A. I'd have to look at Shafer in more detail. 16:19:08
9 Q. Let's -- let's talk about the one we've already 16:19:26
10 discussed, sealing member 165. Including seal member 16:19:29
11 165 in the embodiment that you're discussing here in 16:19:34
12 Shafer would deal with the sealing issue, wouldn't it? 16:19:37
13 MR. STOWELL: Objection. Form. 16:19:40
14 THE WITNESS: It's unclear because the -- 16:19:43
15 you have a range of material properties. They 16:19:46
16 don't give dimensions of the sealing member. It's 16:19:48
17 not clear that it would -- 16:19:52
18 BY MR. HAMILTON: 16:19:55
19 Q. Do you believe -- 16:19:55
20 A. -- work. 16:19:56
21 Q. -- Shafer discloses at least one sealing member 16:19:57
22 165 that would eliminate the gaps formed in the Shafer 16:20:02
23 device as disclosed in paragraph 81 of your declaration? 16:20:06
24 MR. STOWELL: Objection. Asked and 16:20:10
25 answered. 16:20:12

1 THE WITNESS: Yeah, I don't know if it 16:20:12
2 would or not. 16:20:13
3 Excuse me. 16:20:15
4 BY MR. HAMILTON: 16:20:16
5 Q. Okay. If you could just move down a little 16:20:20
6 farther in that same paragraph, 94. 16:20:23
7 A. (Complying.) 16:20:25
8 Q. The line beginning "compliant constricting 16:20:27
9 mechanism," do you see that? 16:20:32
10 A. Yes. 16:20:33
11 Q. So that sentence reads, "However, a more 16:20:39
12 compliant constricting mechanism" -- what does more 16:20:43
13 compliant constricting mechanism mean? 16:20:47
14 A. The filament. 16:20:49
15 Q. More compliant constricting mechanism means 16:20:51
16 filament? 16:21:00
17 A. It could mean the filament plus the 16:21:01
18 spring-actuated buttons in this case. 16:21:06
19 Q. And -- and how is a more compliant constricting 16:21:10
20 mechanism helpful in creating a complete seal? 16:21:15
21 A. It could be helpful as an option if the Shafer 16:21:20
22 U-shaped actuating -- actuating members weren't 16:21:29
23 performing as desired. 16:21:33
24 Q. So if Shafer didn't complete a -- didn't form a 16:21:34
25 complete seal, then Ellers' more compliant constricting 16:21:39

1 mechanism might be useful; is that right? 16:21:45

2 A. It may be able to accommodate a wider range of 16:21:49

3 tools and devices, like I said in that paragraph. 16:21:55

4 Q. What does that mean, could conform to the size 16:22:01

5 and shape of a wider range of tools? 16:22:06

6 A. If the Shafer U-shaped actuating members weren't 16:22:09

7 conforming well to a certain size or shape, then it's 16:22:19

8 possible that a wire member that was more compliant 16:22:23

9 might conform better to those sizes and shapes. 16:22:29

10 Q. So, essentially, Ellers' wire is more flexible 16:22:33

11 than Shafer's actuating members, such that it could 16:22:45

12 conform to the size and shape of a wider range of tools; 16:22:47

13 is that right? Is that your testimony? 16:22:51

14 MR. STOWELL: Objection. Misstates 16:22:53

15 testimony. 16:22:56

16 THE WITNESS: The material properties of 16:22:56

17 the U-shaped actuating members are not clearly 16:22:58

18 defined in the Shafer application. They could be 16:23:01

19 quite flexible. They could be more -- somewhat 16:23:10

20 more rigid, somewhat stiffer, somewhat more 16:23:14

21 flexible. It's not clear. They don't provide 16:23:18

22 material properties for the U-shaped actuating 16:23:22

23 members. 16:23:25

24 BY MR. HAMILTON: 16:23:25

25 Q. So let's take the instance that Shafer's 16:23:27

1 U-shaped actuating members are quite flexible such that 16:23:33
2 a complete seal is formed in the embodiment of Shafer 16:23:37
3 Figures 30 through 34. Okay? Are you with me? If that 16:23:41
4 was the case, there would be no reason to include 16:23:46
5 Ellers' wire member, would there? 16:23:48

6 MR. STOWELL: Objection. Form. 16:23:50

7 THE WITNESS: Well, as I said before, 16:23:53
8 flexibility of the components is one aspect of 16:23:59
9 those. U-shaped components is one aspect. The 16:24:02
10 sealing member, the spring force, the dimensions 16:24:05
11 used for those members all have -- all play in 16:24:12
12 together. So it's certainly possible that Shafer's 16:24:15
13 U-shaped members would form a seal really well 16:24:21
14 around multiple tools. And if it did not, then 16:24:24
15 there could be other options, like Ellers' -- 16:24:28
16 Hartley's string or Ellers' wire member. 16:24:35

17 BY MR. HAMILTON: 16:24:39

18 Q. So if Shafer's U-shaped members formed a 16:24:53
19 complete seal around multiple tools, there would be no 16:24:57
20 reason to include Ellers' wire member or Hartley's 16:24:59
21 string in Shafer; isn't that correct? 16:25:04

22 MR. STOWELL: Objection. Misstates 16:25:07
23 testimony. 16:25:09

24 THE WITNESS: If it worked perfectly for 16:25:09
25 all the range of tools, then there probably 16:25:11

1 wouldn't be a need to make adjustments and move to 16:25:15
2 a string-type member. 16:25:19
3 BY MR. HAMILTON: 16:25:24
4 Q. All right. Let's take a look at Exhibit 1001. 16:25:26
5 And you can put that away. I'm finished with that for 16:25:32
6 now. 16:25:36
7 A. (Complying.) 16:25:36
8 Q. That's the -- that's the patent at issue here, 16:25:38
9 the '011 Patent? 16:25:41
10 A. Yes. 16:25:42
11 Q. And if you could go to column 9, first paragraph 16:25:43
12 in column 9, starting at line 10. 16:25:49
13 A. (Complying.) 16:26:04
14 Q. Let me know when you're ready for some 16:26:16
15 questions. 16:26:36
16 A. Yes. 16:27:09
17 Q. Does the term "filament" have a well-understood 16:27:10
18 meaning to a person of skill in the art in the field of 16:27:28
19 hemostasis valves for use during intravascular 16:27:32
20 procedures? 16:27:35
21 MR. STOWELL: Objection. Outside the 16:27:35
22 scope. 16:27:37
23 THE WITNESS: I would say the term 16:27:39
24 "filament" meaning is explained in the patent. For 16:27:44
25 instance, toward the end it says, "In some 16:27:52

1 embodiments the filament can be" -- "can comprise 16:27:54
2 one or several threads, lines, cords, ropes, 16:27:56
3 ribbon, flat wire, sheet or tape." 16:27:59
4 BY MR. HAMILTON: 16:28:02
5 Q. Okay. So let's talk about, not the patent, but 16:28:03
6 the field of hemostasis valves for use during 16:28:05
7 intravascular procedures. You with me? 16:28:09
8 A. Yes. 16:28:12
9 Q. Does the term "filament" have a well-understood 16:28:12
10 meaning to a person of skill in the art in that field? 16:28:15
11 MR. STOWELL: Objection. Outside the 16:28:18
12 scope. 16:28:19
13 THE WITNESS: I'm not familiar with 16:28:21
14 filaments being used in hemostasis -- hemostasis 16:28:23
15 valves before getting involved with this project. 16:28:28
16 I would say for this -- purposes of this patent, it 16:28:37
17 really is the section I read earlier at the end of 16:28:41
18 this column 9, rows -- the last few rows to row 20. 16:28:45
19 BY MR. HAMILTON: 16:28:58
20 Q. Does the term "filament" have a well-understood 16:28:58
21 meaning to a person of ordinary skill in the art in 16:29:03
22 medical devices in general? 16:29:07
23 A. I certainly use the term "filament" in my 16:29:13
24 experience with pull wires, pull lines for steerable 16:29:18
25 catheters. That was a term that was used for the lines 16:29:25

1 themselves. 16:29:29

2 Q. So you -- you've used the term "filament" in 16:29:32

3 your career in the medical field; is that right? 16:29:35

4 A. Yes. 16:29:38

5 Q. And you've used that to describe different 16:29:38

6 components of -- of devices in the medical field; is 16:29:42

7 that right? 16:29:46

8 A. The example I'm thinking about was for pull 16:29:46

9 lines, pull wires that were used for steerable 16:29:50

10 catheters. 16:29:53

11 Q. What's a pull line? 16:29:55

12 A. So if you want to curve the distal end of a 16:29:58

13 catheter, there would be a lumen in which a filament or 16:30:05

14 cable or flat wire might be used to attach to the distal 16:30:11

15 end. It's then attached to a handle end so that when 16:30:20

16 the doctor actuates and pulls on that filament, then the 16:30:26

17 tip will curve. 16:30:31

18 Q. So in that -- for that filament you just 16:30:33

19 described, that filament runs through a catheter; is 16:30:36

20 that right? 16:30:40

21 A. Yes. It's through a lumen of the catheter. 16:30:40

22 Q. A lumen of the catheter. Sorry. 16:30:44

23 And the catheter is in the vasculature of a 16:30:46

24 patient when it's used; is that right? 16:30:50

25 A. The example I'm thinking about, it is in the 16:30:52

1 patient when it's used. 16:30:55

2 Q. And does it have lots of curves and bends, the 16:30:57

3 catheter -- the lumen of the catheter, in that example? 16:31:01

4 A. The steerable catheters I worked on were going 16:31:05

5 in the venous side, all the way into the heart, which is 16:31:12

6 a fairly straight access, so not a lot of curves in the 16:31:18

7 vasculature to get there. 16:31:22

8 Q. Are there any curves? 16:31:24

9 A. Yes. 16:31:25

10 Q. Would the filament you just described have to be 16:31:26

11 flexible enough to navigate through the lumen of the 16:31:30

12 catheter through those curves? 16:31:33

13 A. It's much more of an issue of the catheter 16:31:37

14 itself in navigating, not the filament itself. It's -- 16:31:42

15 doesn't add a lot of stiffness to the catheters that 16:31:47

16 I've worked on. 16:31:50

17 Q. So the filament in that example is very 16:31:51

18 flexible; is that -- is that a fair characterization? 16:31:54

19 MR. STOWELL: Objection. Vague. 16:31:58

20 THE WITNESS: We use different filaments 16:31:59

21 of different sizes. Some were more flexible than 16:32:01

22 others. 16:32:04

23 BY MR. HAMILTON: 16:32:05

24 Q. Were they -- did they all have some degree of 16:32:05

25 flexibility? 16:32:08

1 MR. STOWELL: Objection. Vague. 16:32:09

2 THE WITNESS: I think every material has 16:32:12

3 some degree of flexibility. 16:32:15

4 BY MR. HAMILTON: 16:32:19

5 Q. Were those filaments machine parts? Were they 16:32:19

6 made by machine -- machining? 16:32:24

7 A. The filaments I'm thinking about were typically 16:32:26

8 braided wire or braided Vectran -- maybe that's the 16:32:32

9 trade name for a polymer that's braided into a strong -- 16:32:37

10 actually strong filament. 16:32:45

11 Q. What do you mean by "actually strong"? 16:32:46

12 A. It had to withstand a fair amount of tension in 16:32:49

13 order to curve the distal end of the catheter. 16:32:52

14 Q. Have you ever use the term "filament" in a 16:32:57

15 publication? 16:33:03

16 A. I don't believe so. 16:33:05

17 Q. What about a patent? Do you have any patents 16:33:06

18 that use the term "filament"? 16:33:09

19 A. I don't recall the term that was used in the 16:33:12

20 steerable guide patents that I've -- that I'm familiar 16:33:15

21 with. 16:33:19

22 Q. So as you sit here today, you don't recall using 16:33:19

23 the term "filament" in any of your patents? 16:33:22

24 A. I don't recall if we used the term "filament" or 16:33:26

25 "pull wire" or some other nomenclature. 16:33:30

1 Q. Would it surprise you to learn that you used the 16:33:34
2 term "filament" in your patents to describe something 16:33:42
3 that is flexible, like a string or a thread? 16:33:44
4 A. I don't understand the question. 16:33:49
5 Q. Would it surprise you to learn that in one of 16:33:50
6 your patents, you equated the term "filament" with a 16:33:54
7 thread-like material? 16:34:00
8 A. Not necessarily. 16:34:02
9 Q. Because that's a common understood meaning of 16:34:04
10 the term "filament," isn't it? 16:34:07
11 MR. STOWELL: Objection. Form. 16:34:09
12 THE WITNESS: I'm not sure what the 16:34:10
13 common understanding is for filament. 16:34:15
14 BY MR. HAMILTON: 16:34:17
15 Q. You don't know what the common meaning of 16:34:18
16 filament is; is that right? Is that your testimony? 16:34:20
17 A. I think the meaning of filament is -- as it 16:34:23
18 relates to that patent is what's important and related 16:34:28
19 to the -- my disclosure. 16:34:33
20 Q. And unrelated to the patent, you don't 16:34:34
21 understand what the term "filament" means; is that 16:34:37
22 right? 16:34:39
23 MR. STOWELL: Objection. Outside the 16:34:39
24 scope. 16:34:42
25 THE WITNESS: I think filament as it 16:34:45

1 relates to this patent is what's important. 16:34:46

2 BY MR. HAMILTON: 16:34:52

3 Q. And outside of this patent, you don't have an 16:34:54

4 understanding of what the term "filament" means; is that 16:34:57

5 correct? 16:35:01

6 MR. STOWELL: Objection. Outside the 16:35:01

7 scope. Asked and answered. 16:35:02

8 THE WITNESS: Well, I just described 16:35:03

9 filaments, pull wires that I've used in the past, 16:35:06

10 so I have some understanding of using that term in 16:35:09

11 my past projects. 16:35:12

12 BY MR. HAMILTON: 16:35:14

13 Q. Okay. Let's look at column 9 of Exhibit 1001, 16:35:20

14 line 10 -- starting at line 10. 16:35:28

15 A. (Complying.) 16:35:34

16 Q. That line explains that the filament of the '011 16:35:35

17 Patent can be made from a variety of materials. Do you 16:35:43

18 see that? 16:35:47

19 A. Yes. 16:35:47

20 Q. Now I'm going to ask you about each of those 16:35:49

21 materials. 16:35:55

22 So the first one is a polymer. Is it possible 16:35:56

23 to make a filament out of a polymer that's sufficiently 16:36:03

24 flexible to loop around, say, a lumen? 16:36:07

25 MR. STOWELL: Objection. Outside the 16:36:11

1 scope. 16:36:15

2 THE WITNESS: It depends on the lumen 16:36:16

3 size, but I have seen and used polymer -- braided 16:36:18

4 polymer filaments in the example I just provided to 16:36:24

5 you. 16:36:27

6 BY MR. HAMILTON: 16:36:27

7 Q. So the fact that the filament's made from a 16:36:28

8 polymer doesn't tell you how rigid or flexible a 16:36:32

9 filament is; isn't that correct? 16:36:37

10 A. One would need to know other aspects of the 16:36:39

11 filament or -- and material properties of the polymer to 16:36:42

12 determine flexibility. 16:36:48

13 Q. What other aspects? 16:36:51

14 A. Dimension, diameter of the individual strands, 16:36:55

15 overall diameter, material properties. 16:37:06

16 Q. Okay. So let's talk about the next one, a 16:37:11

17 synthetic. Do you see that? Do you understand what 16:37:15

18 that is? 16:37:19

19 A. Not completely clear what they're referring to 16:37:19

20 as a synthetic. It seems similar to a polymer to me. 16:37:24

21 Q. So then if synthetic, in your understanding, is 16:37:29

22 similar to a polymer, the fact that a filament is made 16:37:34

23 out of a synthetic doesn't tell you how flexible or 16:37:38

24 rigid the filament is, as well, correct? 16:37:42

25 A. Not without knowing the other aspects of the 16:37:45

1 filament. 16:37:49

2 Q. And then let's look at the last material, metal. 16:37:49

3 The fact that a filament is made out of metal or not -- 16:37:54

4 excuse me -- made out of metal doesn't tell a person of 16:37:58

5 skill in the art how flexible or rigid that filament is; 16:38:02

6 is that correct? 16:38:08

7 A. One would need to know the dimensions and the 16:38:08

8 material properties to determine flexibility. 16:38:13

9 Q. So the fact that the filament is made -- can be 16:38:15

10 made from these three materials doesn't tell you whether 16:38:18

11 the filament is flexible or rigid, correct, or how 16:38:21

12 flexible or how rigid it is, correct? 16:38:26

13 MR. STOWELL: Objection. Form. 16:38:29

14 THE WITNESS: The relative flexibility or 16:38:30

15 the relative stiffness or rigidity is not clear 16:38:31

16 from those three materials without knowing much 16:38:36

17 more information. 16:38:39

18 BY MR. HAMILTON: 16:38:40

19 Q. All right. I'm going to ask the same question, 16:38:42

20 and maybe we can make it a little simpler for the next 16:38:44

21 sentence. There's some more materials listed: Nylon, 16:38:48

22 stainless steel, Nitinol, silicone or the like. 16:38:51

23 Do you see that? 16:38:56

24 A. Yes. 16:38:56

25 Q. The fact that the filament is made from any one 16:38:57

1 of those materials doesn't tell a person of skill in the 16:39:00
2 art how flexible or how rigid the filament is; isn't 16:39:03
3 that correct? 16:39:07
4 A. By just knowing the material, probably not. 16:39:08
5 Q. What does the word "strand" mean to you? 16:39:12
6 A. Well, I'm familiar with it as a -- metal cables, 16:39:20
7 typically they're composed of multiple strands. I think 16:39:33
8 the term is the individual strands that form a filament. 16:39:37
9 Q. Do you see the next line, starting at 13, "In 16:39:45
10 some embodiments the filament can comprise a single 16:39:52
11 strand, such as, for example, a monofilament"? 16:39:56
12 A. Yes. 16:39:59
13 Q. The fact -- the fact that the filament is a 16:40:00
14 single strand, does that tell you whether it's flexible 16:40:02
15 or rigid? 16:40:04
16 A. Not necessarily. 16:40:06
17 Q. Is a strand a long, thin piece? 16:40:09
18 MR. STOWELL: Objection. Form. 16:40:13
19 THE WITNESS: I think that would be a 16:40:15
20 common usage of the term. 16:40:18
21 BY MR. HAMILTON: 16:40:20
22 Q. And would one of skill in the art typically 16:40:21
23 think that strands are flexible, they're on the flexible 16:40:23
24 side of the spectrum? 16:40:28
25 MR. STOWELL: Objection. Outside the 16:40:29

1 scope. 16:40:31

2 THE WITNESS: Rel- -- relative to what, 16:40:31

3 is the -- 16:40:36

4 BY MR. HAMILTON: 16:40:37

5 Q. You just described the strands you're aware of 16:40:37

6 as strands in a metal cable and they're woven into the 16:40:41

7 cable; is that right? Or braided? 16:40:45

8 A. Braided, typically, yes. 16:40:49

9 Q. And wouldn't that mean that they're flexible in 16:40:50

10 that instance? 16:40:52

11 A. It depends on the size. 16:40:53

12 Q. Could you braid something that's not flexible? 16:40:56

13 A. I think the Golden Gate Bridge uses a pretty 16:41:00

14 large braided metal cable to support the bridge, so that 16:41:06

15 gets pretty inflexible, I think. 16:41:11

16 Q. So it depends on the -- the overall dimensions, 16:41:14

17 right? That's the important part; isn't that right? 16:41:17

18 MR. STOWELL: Objection. Form. 16:41:21

19 THE WITNESS: I think it depends on the 16:41:22

20 material, the dimensions, the number of strands 16:41:24

21 that are woven together, all have an impact on 16:41:30

22 whether it's relatively more flexible or relatively 16:41:33

23 less flexible. 16:41:36

24 BY MR. HAMILTON: 16:41:37

25 Q. In the example you gave of the Golden Gate 16:41:38

1 Bridge, the point of having those metal cables is to add 16:41:41
2 flexibility to the bridge; isn't that right? 16:41:44
3 Depends on the application, doesn't it? 16:41:46
4 MR. STOWELL: Objection. Form. 16:41:48
5 THE WITNESS: It depends on the 16:41:49
6 application. 16:41:50
7 BY MR. HAMILTON: 16:42:09
8 Q. If you look at the next line, starting at 15: 16:42:09
9 "The filament can comprise a plurality of strands that 16:42:11
10 can be, for example, twisted, woven, grouped, and/or 16:42:16
11 fused to form the filament." 16:42:19
12 Do you see that? 16:42:20
13 A. Yes. 16:42:23
14 Q. Does the fact that the filament can comprise a 16:42:23
15 plurality of strands that can be twisted, woven, 16:42:31
16 grouped, and/or fused to form a filament tell one of 16:42:34
17 skill in the art whether or not the filament is rigid or 16:42:37
18 flexible? 16:42:41
19 A. It's not clear what rigid or flexible means, but 16:42:47
20 relatively more flexible or relatively more rigid, you 16:42:51
21 would need to know more information than just whether it 16:42:56
22 was twisted, woven, grouped or fused. 16:42:59
23 Q. So let's use flexibility to mean flexible enough 16:43:02
24 to be looped around a lumen; in this application, a 16:43:06
25 hemostasis valve. The fact that the filament can 16:43:10

1 comprise a plurality of strands that can be, for 16:43:15
2 example, twisted, woven, grouped, and/or fused to form a 16:43:19
3 filament doesn't tell you whether or not the filament is 16:43:22
4 flexible enough to be wrapped around a lumen or too 16:43:26
5 rigid to be wrapped around a lumen; is that correct? 16:43:30
6 MR. STOWELL: Objection. Form. Outside 16:43:33
7 the scope. 16:43:34
8 THE WITNESS: I mean, it depends on the 16:43:36
9 material and the processing and the diameter you're 16:43:38
10 trying to wrap around. It also depends on the 16:43:41
11 force you're exerting by the spring mechanism on 16:43:44
12 the buttons. 16:43:49
13 BY MR. HAMILTON: 16:43:50
14 Q. And then let's look at the last sentence: "In 16:44:02
15 some embodiments, the filament can comprise one or 16:44:05
16 several threads, lines, cords, rope, button" -- excuse 16:44:08
17 me -- "rope, ribbon, flat wire, sheet or tape." 16:44:12
18 Do you see that? 16:44:16
19 Can ever -- 16:44:22
20 A. Yes. 16:44:22
21 Q. Yes. Okay. Sorry. 16:44:22
22 Can every one of those forms be constructed in a 16:44:23
23 way such that the filament is flexible enough to be 16:44:33
24 wrapped around a lumen -- looped around a lumen? Excuse 16:44:35
25 me. 16:44:41

1 A. It depends on the materials, the size, the 16:44:41
2 construction of the filament. 16:44:45

3 Q. So depending on those things, every one of those 16:44:48
4 forms of a filament could be sufficiently flexible to be 16:44:52
5 wrapped around a lumen; isn't that right? 16:44:56

6 MR. STOWELL: Objection. Form. 16:44:59

7 THE VIDEOGRAPHER: Counsel, please watch 16:45:02
8 the microphone. 16:45:04

9 THE WITNESS: It could be sufficiently 16:45:06
10 flexible to wrap around the sizes discussed -- the 16:45:08
11 sizes assumed for the hemostasis valve in this 16:45:13
12 patent, depending on the size of the valve itself 16:45:18
13 and the, yeah, size of the rope or ribbon, for 16:45:22
14 instance. 16:45:28

15 BY MR. HAMILTON: 16:45:28

16 Q. And so for any size of any of those things, one 16:45:29
17 of skill in the art could select the proper materials 16:45:31
18 and the proper form of any of those forms to make it 16:45:34
19 sufficiently flexible to be wrapped around a lumen; 16:45:37
20 isn't that right? 16:45:41

21 MR. STOWELL: Objection. Outside the 16:45:42
22 scope. 16:45:44

23 THE WITNESS: Can you ask the question 16:45:45
24 again? 16:45:47

25 BY MR. HAMILTON: 16:45:48

1 Q. So one skilled in the art could select the 16:46:00
2 proper material from any of this list of materials and 16:46:03
3 the proper form from any of these forms identified here 16:46:08
4 in this section on column 9 that we're just discussing 16:46:13
5 and create a filament that is sufficiently flexible to 16:46:17
6 be wrapped around a lumen of any size for a hemostasis 16:46:22
7 valve; isn't that correct? 16:46:26

8 MR. STOWELL: Objection. Form. 16:46:28

9 THE WITNESS: Not lumen of any size. It 16:46:28
10 depends on the size you're trying to wrap around. 16:46:32

11 BY MR. HAMILTON: 16:46:35

12 Q. So I said a size of the hemo- -- to be used in a 16:46:35
13 hemostasis valve. Does that tell you a range of sizes? 16:46:38

14 A. If it's a size in a hemostasis valve as being 16:46:42
15 discussed here, yes. 16:46:46

16 Q. And for those sizes, one skilled in the art 16:46:47
17 could construct a filament out of any of those 16:46:51
18 materials, in any of those forms -- threads, lines, 16:46:53
19 cords, rope, ribbon, flat wire, sheet or tape -- that 16:46:57
20 would be sufficiently flexible to loop around a lumen in 16:47:01
21 a hemostasis valve; isn't that correct? 16:47:05

22 A. As long as other elements, like the tube itself 16:47:12
23 and the springs to actuate the filament, were part of 16:47:17
24 the design process, then, I think, yes. 16:47:25

25 Q. So the fact that the filament is made from any 16:47:29

1 of the materials identified in this section we just 16:47:34
2 discussed in column 9 or any of the forms set forth in 16:47:36
3 this section in column 9 doesn't tell one of skill in 16:47:40
4 the art how flexible or rigid the filament is, does it? 16:47:45
5 MR. STOWELL: Objection. Misstates 16:47:48
6 testimony. 16:47:50
7 THE WITNESS: I think that's what I said 16:47:50
8 earlier, that you would need to know more details 16:47:51
9 about the material and the dimensions and the 16:47:55
10 construction of those materials to be able to 16:47:57
11 quantify or compare relative flexibility of one 16:47:59
12 element versus another. 16:48:04
13 BY MR. HAMILTON: 16:48:06
14 Q. Will you turn to column 11. 16:48:10
15 A. (Complying.) 16:48:16
16 Q. Line 42. If you want to read that paragraph, 16:48:18
17 I'm going to ask you a question about the word "circum-" 16:48:25
18 -- "circumferentially" on line 42. 16:48:33
19 A. Line 42? 16:49:35
20 Q. Yes. 16:49:39
21 A. Column 12? 16:49:44
22 Q. Column 11. 16:49:45
23 A. Column 11. Sorry. 16:49:46
24 Okay. 16:50:26
25 Q. What does the word "circumferentially" mean in 16:50:26

1 that sentence? 16:50:31

2 MR. STOWELL: Objection. Outside the 16:50:32

3 scope. 16:50:33

4 THE WITNESS: Well, they're applying an 16:50:34

5 adhesive to the elongate member to attach it 16:50:47

6 completely around to the reinforcement structure 16:50:50

7 320. 16:50:55

8 BY MR. HAMILTON: 16:50:56

9 Q. So the adhesive is applied circumferentially; is 16:51:01

10 that right? 16:51:08

11 A. That's what I'm reading here. "The adhesive can 16:51:08

12 be applied circumferentially to the reinforcement 16:51:12

13 structure and/or elongate member in an adhesive ring 16:51:15

14 that can have a length of" such and such. 16:51:19

15 Q. So does that mean the term "circumferentially" 16:51:21

16 means completely around? 16:51:24

17 A. That's what it means in this description for 16:51:28

18 applying an adhesive to attach two components together. 16:51:31

19 Q. That's what the word "circumferentially" means 16:51:34

20 in that description; is that right? 16:51:37

21 A. That's what I said. 16:51:39

22 Q. If you could turn to column 2. 16:51:41

23 A. (Complying.) 16:51:52

24 Q. The first line in column 2, "constrict, collapse 16:52:16

25 and/or seal." And what I am going to ask you is, what 16:52:20

1 do those words mean? 16:52:25

2 A. Okay. 16:52:39

3 Q. What does constrict mean in that statement? 16:52:39

4 MR. STOWELL: Objection. Outside the 16:52:43

5 scope. 16:52:45

6 THE WITNESS: Well, as it says, "the 16:52:46

7 filament interacts and the tu-" -- "tubular member 16:52:48

8 to constrict the tubular member via manipulation of 16:52:51

9 the tensioning mechanism." So it's compressing, 16:52:57

10 constricting the sealing member or tubular member. 16:52:59

11 BY MR. HAMILTON: 16:53:02

12 Q. So you said compress, constricting. Is there a 16:53:03

13 difference between compressing and constricting? 16:53:08

14 A. I don't know. 16:53:12

15 Q. Can one compress something without constricting 16:53:12

16 it? 16:53:19

17 MR. STOWELL: Objection. Outside the 16:53:23

18 scope. 16:53:25

19 THE WITNESS: I think in this design you 16:53:25

20 could partially compress it and it doesn't fully 16:53:27

21 constrict in order to fully seal the tubular 16:53:30

22 member. 16:53:36

23 BY MR. HAMILTON: 16:53:36

24 Q. So does constrict mean fully seal? 16:53:47

25 MR. STOWELL: Out- -- objection. Outside 16:53:51

1 the scope. 16:53:52

2 THE WITNESS: I think here they're using 16:53:53

3 it as a verb, to constrict and/or seal the tubular 16:53:55

4 member. 16:54:05

5 BY MR. HAMILTON: 16:54:05

6 Q. So does constrict mean fully seal? 16:54:08

7 MR. STOWELL: Objection. Asked and 16:54:12

8 answered. 16:54:14

9 THE WITNESS: I think you can constrict 16:54:14

10 something, you can compress something without fully 16:54:16

11 sealing. But the purpose of this filament is to 16:54:19

12 seal the tubular member. 16:54:23

13 BY MR. HAMILTON: 16:54:25

14 Q. Does constrict mean to apply -- to apply a force 16:54:28

15 around the outside of something to constrict it? Is 16:54:31

16 that a fair definition of constrict? 16:54:37

17 MR. STOWELL: Objection. Outside the 16:54:39

18 scope. 16:54:41

19 THE WITNESS: I think the way it's 16:54:41

20 written here for this purpose, it's discussing 16:54:46

21 constricting the outside of the tubular member. 16:54:52

22 BY MR. HAMILTON: 16:55:03

23 Q. And when you're constricting the outside of the 16:55:04

24 tubular member, what direction is the force applied? 16:55:08

25 MR. STOWELL: Objection. Outside the 16:55:16

1 scope. 16:55:17

2 THE WITNESS: I haven't really thought 16:55:18

3 about it. 16:55:21

4 BY MR. HAMILTON: 16:55:22

5 Q. Can you think about it now? 16:55:22

6 A. Yes. 16:55:25

7 Q. Will you? 16:55:28

8 MR. STOWELL: Objection. Outside the 16:55:36

9 scope. 16:55:37

10 THE WITNESS: The force is being applied 16:55:39

11 from the outside in order to collapse or constrict 16:55:47

12 the tubular member. 16:55:52

13 BY MR. HAMILTON:

14 Q. So would it be fair to say that to constrict a 16:55:59

15 tubular member, you would apply a force in the direction 16:56:02

16 of the diameter of the tubular member, from the outside, 16:56:05

17 towards the center? 16:56:08

18 MR. STOWELL: Objection. Outside the 16:56:09

19 scope. Form. 16:56:11

20 THE WITNESS: Well, not necessarily. It 16:56:12

21 depends on how it's constricting. 16:56:20

22 BY MR. HAMILTON: 16:56:23

23 Q. What -- what ways can it constrict? 16:56:24

24 A. If the constriction were occurring by Figure 6, 16:56:27

25 then it would be constricting around the circumference, 16:56:43

1 towards the center. 16:56:47

2 Q. So in the example you just gave, Figure 6, that 16:56:48

3 would be the -- the filament is applying a force that is 16:56:52

4 constricting in the direction of the diameter of the 16:56:57

5 lumen, correct, towards -- from the outside, towards the 16:57:01

6 center? 16:57:05

7 MR. STOWELL: Objection. Vague. Outside 16:57:05

8 the scope. 16:57:11

9 THE WITNESS: Well, it's constricting 16:57:11

10 from the outside towards the middle, yeah. 16:57:12

11 BY MR. HAMILTON: 16:57:15

12 Q. So the direction of the force applied is along 16:57:16

13 the diameter of the lumen or whatever is encircled; 16:57:19

14 isn't that correct? 16:57:27

15 MR. STOWELL: Objection. Form. 16:57:28

16 THE WITNESS: Well, in Figure 6 the force 16:57:30

17 is being applied to the first end and second end of 16:57:40

18 the filament. 16:57:44

19 BY MR. HAMILTON: 16:57:45

20 Q. And applying a force to the first end and second 16:57:46

21 end of the filament causes the filament to shrink in 16:57:51

22 diameter, doesn't it? 16:57:57

23 MR. STOWELL: Objection. Form. 16:57:58

24 THE WITNESS: It's changing diameter to 16:57:59

25 collapse the tu- -- the tubular member in order to 16:58:04

1 create a seal. 16:58:07

2 BY MR. HAMILTON: 16:58:08

3 Q. It's not getting a larger diameter, is it? It's 16:58:08
4 getting a smaller diameter and is shrinking in diameter, 16:58:11
5 correct? 16:58:15

6 A. Shrinking in its circumference. I'm not sure it 16:58:16
7 would be a diameter -- a true circle, but... 16:58:22

8 Q. So shrinking in its circumference? 16:58:25

9 A. Yes. 16:58:28

10 Q. So in Figure 6 the force that's being applied by 16:58:29
11 the filament to whatever's -- the filament is looped 16:58:46
12 around -- so we'll say a lumen -- that force is along 16:58:54
13 the diameter of the lumen; isn't that correct? 16:58:59

14 MR. STOWELL: Objection. Asked and 16:59:05
15 answered. Form. 16:59:06

16 THE WITNESS: I think I've said it's 16:59:08
17 constricting the diameter and the forces are 16:59:16
18 applied towards the center. 16:59:19

19 BY MR. HAMILTON: 16:59:21

20 Q. Do the terms "compress" and "constrict" -- 16:59:33
21 withdraw that. 16:59:57

22 Is there a difference between the terms 17:00:00
23 "compress" and "constrict" as used in the '011 Patent? 17:00:01

24 A. I haven't evaluated that in my disclosure. I 17:00:06
25 haven't looked in detail for where the -- those two 17:00:19

1 words are used and if they're used in the same way. 17:00:22

2 Q. In your experience in the medical field, do you 17:00:25

3 have an understanding what those two words mean, if 17:00:28

4 they're different or the same? 17:00:31

5 A. I think in the medical field I could think of 17:00:33

6 examples where you could compress someone's artery, 17:00:57

7 let's say, but not constrict. So I can take my pulse; 17:01:06

8 I'm not necessarily constricting the vein, but I'm 17:01:12

9 compressing it. 17:01:17

10 Q. So the -- when you say you're compressing it, 17:01:18

11 the vein is -- the cross-section of the vein is getting 17:01:21

12 smaller or not? 17:01:27

13 MR. STOWELL: Objection. Form. 17:01:29

14 THE WITNESS: It's flattening. 17:01:30

15 BY MR. HAMILTON: 17:01:38

16 Q. Changing shape? 17:01:39

17 A. Changing shape. 17:01:40

18 Q. So the total area for the cross-section stays 17:01:41

19 the same in that example you just gave? 17:01:44

20 A. I think when you have a circular tube with fluid 17:01:47

21 through it and you compress it to a, let's say, 17:01:58

22 elliptical shape, then the cross-sectional area does 17:02:02

23 change. 17:02:07

24 Q. The total area or just the shape of the 17:02:08

25 cross-sectional area? 17:02:12

1 A. The cross-sectional area of the tube decreases 17:02:13
2 as it's compressed. 17:02:19
3 Q. So the -- the amount of blood that could flow 17:02:20
4 through that tube, would that also decrease, then? 17:02:23
5 A. If I constrict my blood vessel, then it stops 17:02:26
6 the flow. 17:02:31
7 Q. You -- we were just talking about compress, and 17:02:31
8 you said you could compress without constricting. I'm 17:02:34
9 just trying to figure out the difference between those 17:02:38
10 two terms. 17:02:39
11 So would constrict require reducing what -- the 17:02:40
12 amount of something that could flow through a vessel, 17:02:44
13 for example, versus compress would be just changing the 17:02:47
14 shape? Is that -- is that the difference? 17:02:50
15 MR. STOWELL: Objection. Form. Outside 17:02:53
16 the scope. 17:02:55
17 THE WITNESS: In the example I gave, 17:02:55
18 taking my pulse, I think that's true. For fluid 17:03:02
19 flow through pipes, there can be constrictions that 17:03:08
20 change the flow rates but don't completely stop the 17:03:15
21 flow through a pipe, let's say. 17:03:21
22 BY MR. HAMILTON: 17:03:23
23 Q. So a constriction doesn't have to completely 17:03:23
24 stop the flow, it just has to alter the potential flow 17:03:26
25 rate; is that right? 17:03:31

1 A. In a general sense, I think that's true. 17:03:32

2 Q. And maybe a -- maybe a -- if we're not talking 17:03:34

3 in the context of flow rate, there's -- I don't know all 17:03:38

4 the specifics, but there are differences depending on 17:03:41

5 laminar flow, et cetera. But let's just say area that 17:03:45

6 flow -- that flow could go through. It constricts the 17:03:50

7 area of the tube, for example -- or a constriction of 17:03:54

8 the area of the tube would lessen the total area of the 17:03:57

9 tube; is that right? 17:04:00

10 MR. STOWELL: Objection. Form. Outside 17:04:01

11 the scope. 17:04:03

12 THE WITNESS: Changes the -- it would 17:04:03

13 change the cross-sectional area at that point. 17:04:05

14 BY MR. HAMILTON: 17:04:14

15 Q. If you could turn to column 22. 17:04:23

16 A. (Complying.) 17:04:29

17 Q. Let's look at line 24. 17:04:30

18 A. (Complying.) 17:05:02

19 Okay. 17:05:37

20 Q. So is it your position that the term "filament" 17:05:37

21 as recited on line 24 -- so this is within Claim 1 of 17:05:47

22 the '011 Patent -- can include one or more individual 17:05:50

23 single continuous filaments? 17:05:56

24 A. Claim says "at least one filament," so I believe 17:06:04

25 it could include more than one filament. 17:06:06

1 Q. So what does at least one filament mean to you? 17:06:09
2 A. One or more filaments. 17:06:13
3 Q. And that at least one filament -- let me -- let 17:06:15
4 me -- let me -- let me withdraw that question. 17:06:29
5 So the claim recites "a constricting mechanism 17:06:32
6 including at least one filament." You see that? 17:06:36
7 A. Yes. 17:06:38
8 Q. And at least one filament, to you, means one or 17:06:40
9 more filaments; is that right? 17:06:44
10 A. Yes. 17:06:46
11 Q. And then the next line says "and an actuator 17:06:47
12 coupled to the filament." 17:06:53
13 What does "the filament" referring to? 17:06:54
14 A. The at least one filament. 17:06:57
15 Q. So when the claim recites the filament, that 17:07:00
16 refers to one of the one or more single continuous 17:07:03
17 filaments; is that right? 17:07:08
18 MR. STOWELL: Objection. Misstates 17:07:10
19 testimony. Calls for a legal conclusion. 17:07:12
20 THE WITNESS: Not necessarily. 17:07:14
21 BY MR. HAMILTON: 17:07:15
22 Q. It's referring to the at least one filament? 17:07:17
23 A. I believe when they use the term "filament," 17:07:22
24 they are referring to the at least one filament. 17:07:27
25 Q. And does at least one filament mean a single 17:07:29

1 continuous member or does that include multiple single 17:07:34
2 continuous members? 17:07:40
3 MR. STOWELL: Objection. Form. 17:07:42
4 THE WITNESS: I think, as it says, it 17:07:44
5 includes at least one filament. 17:07:47
6 BY MR. HAMILTON: 17:07:48
7 Q. And can that at least one filament be satisfied 17:07:49
8 by multiple single continuous members? 17:07:52
9 MR. STOWELL: Objection. Calls for a 17:07:59
10 legal conclusion. Outside the scope. 17:08:02
11 THE WITNESS: Yeah, I'm not a lawyer. 17:08:04
12 These are the claim terms, so that's -- 17:08:07
13 BY MR. HAMILTON: 17:08:10
14 Q. I -- I don't want to confuse you. Let me see if 17:08:10
15 I can make it easier. 17:08:13
16 So let's look at Figure 8, for example. If you 17:08:14
17 -- if you want to go to Figure 8 and then just keep the 17:08:20
18 claim there, because I want to compare the two. 17:08:25
19 A. I've got Figure 8 on my -- in my disclosure here 17:08:28
20 too. 17:08:34
21 Q. And that -- when you say you're looking at 17:08:34
22 Figure 8 in your disclosure, what page are you looking 17:08:36
23 at? 17:08:39
24 A. Page 48. 17:08:39
25 Q. And there's a -- what you believe is a 17:08:41

1 reproduction of the Figure 8 from the '011 Patent; is 17:08:42
2 that right? 17:08:47
3 A. Yes, with additional labels of first end of 17:08:47
4 filament 700 on the left side, the second end of 17:08:52
5 filament 702 on the right side. 17:08:55
6 Q. So is the -- is the two single individual 17:08:58
7 members shown in Figure 8 -- we already discussed this 17:09:07
8 earlier today -- 150-B and 150-A -- together, do 17:09:10
9 those -- are those at least one filament or are each of 17:09:18
10 those at least one filament? 17:09:22
11 MR. STOWELL: Objection. Form. 17:09:24
12 THE WITNESS: I believe together they 17:09:26
13 form the filament. 17:09:28
14 BY MR. HAMILTON: 17:09:31
15 Q. Okay. And then is 150-A by itself at least one 17:09:31
16 filament? 17:09:36
17 A. It is part of the plurality of filaments that 17:09:38
18 are in this embodiment. 17:09:45
19 Q. Okay. So let's say that that language was 17:09:48
20 interpreted to mean -- the at least one filament was 17:09:55
21 interpreted to mean one single continuous member, so 17:09:58
22 either one of 150-A or 150-B, okay. Are you with me? 17:10:03
23 A. It's a hypothetical. 17:10:11
24 Q. It is. It is a hypothetical. Do you understand 17:10:12
25 the hypothetical? 17:10:15

1 A. I don't think it relates to what we're talking 17:10:16
2 about here. 17:10:23
3 Q. Okay. But do you understand it? 17:10:23
4 A. Rephrase it, please. 17:10:26
5 Q. So the "at least one filament" as recited in 17:10:29
6 Claim 1, let's say the board in this case construes that 17:10:33
7 to mean one continuous member. Okay? 17:10:37
8 A. Hypothetically. 17:10:43
9 Q. Hypothetically, yes. 17:10:44
10 And then do you see "an actuator coupled to the 17:10:49
11 filament" in the next line? 17:10:53
12 A. Yes. 17:10:56
13 Q. In that instance, that one continuous member 17:10:56
14 would have to be coupled to an actuator, right? 17:10:59
15 MR. STOWELL: Objection. Outside the 17:11:04
16 scope. 17:11:05
17 THE WITNESS: I haven't considered this 17:11:05
18 hypothetical in my disclosure, so I really can't 17:11:07
19 answer that. 17:11:10
20 BY MR. HAMILTON: 17:11:11
21 Q. What is "the filament" referring to? 17:11:13
22 MR. STOWELL: Objection. Asked and 17:11:16
23 answered. 17:11:19
24 THE WITNESS: It's referring to the at 17:11:19
25 least one filament in the line above. 17:11:21

1	BY MR. HAMILTON:	17:11:23
2	Q. Okay. And then in our hypothetical, we've said	17:11:23
3	that at least one filament means a single continuous	17:11:25
4	member. So if we substitute that into the filament,	17:11:29
5	which it's referring to, then the actuator must be	17:11:32
6	coupled to the single continuous member; is that right?	17:11:36
7	MR. STOWELL: Objection. Outside the	17:11:39
8	scope.	17:11:41
9	THE WITNESS: I haven't considered that	17:11:41
10	option.	17:11:43
11	BY MR. HAMILTON:	17:11:45
12	Q. What do you mean you haven't considered that	17:11:45
13	option?	17:11:47
14	A. I haven't considered that hypothetical that you	17:11:47
15	proposed.	17:11:50
16	Q. Are you having trouble understanding it?	17:11:50
17	A. I haven't considered it in my deposition.	17:11:53
18	Q. So I'm asking you to consider it now. Can you	17:11:56
19	consider it now?	17:11:59
20	A. I can't consider it now.	17:12:00
21	Q. Okay. Let's -- let's do this maybe a little	17:12:03
22	differently. If you could take a look at either	17:12:16
23	Exhibit 1005 or 1008. Your choice. We're going to look	17:12:26
24	at the figures. And we will just go to Figure 33.	17:12:30
25	A. (Complying.)	17:12:37

1	Figure 33?	17:13:03
2	Q. Yes.	17:13:04
3	Are you ready for the question?	17:13:11
4	A. Yes.	17:13:12
5	Q. So you see the actuating members 55 in Figure	17:13:13
6	33?	17:13:17
7	A. Yes.	17:13:19
8	Q. There's two actuating members, aren't there?	17:13:19
9	A. Yes.	17:13:23
10	Q. And each one of those actuating members is a	17:13:24
11	single continuous piece, correct? A single continuous	17:13:29
12	member; is that right?	17:13:33
13	MR. STOWELL: Objection. Form.	17:13:34
14	THE WITNESS: They are separate, you	17:13:36
15	know, components that together comprise the	17:13:42
16	filament in this case.	17:13:44
17	BY MR. HAMILTON:	17:13:45
18	Q. And each one of them is U-shaped, correct?	17:13:45
19	A. That's how they're described in the patent and	17:13:49
20	shown here.	17:13:52
21	Q. And each one of them -- each one of those	17:13:53
22	U-shaped actuating members has two ends, correct?	17:13:58
23	MR. STOWELL: Objection. Vague.	17:14:05
24	THE WITNESS: Taken on its own, each of	17:14:06
25	the actuator members could be considered to have	17:14:14

1	two ends.	17:14:17
2	BY MR. HAMILTON:	17:14:20
3	Q. Do they have two ends? What do you mean, "could	17:14:20
4	be considered"?	17:14:23
5	A. When it's assembled here, they're acting	17:14:25
6	together as a -- more than one filament -- at least one	17:14:28
7	filament.	17:14:31
8	Q. Okay. So let's take them each individually.	17:14:31
9	Each individual actuating member here has two ends,	17:14:34
10	right?	17:14:38
11	MR. STOWELL: Objection. Outside the	17:14:39
12	scope. And vague.	17:14:47
13	THE WITNESS: They each have a -- they	17:14:47
14	each have two ends if you consider the components	17:14:49
15	separately.	17:14:52
16	BY MR. HAMILTON:	17:14:53
17	Q. Okay. So I'm going to ask you to consider them	17:14:54
18	separately. The two ends of one of those actuating	17:14:56
19	members -- each one has two ends. The two ends of one	17:15:02
20	of them is attached to one actuating button, correct?	17:15:05
21	MR. STOWELL: Objection. Form. Outside	17:15:10
22	the scope.	17:15:14
23	THE WITNESS: They are attached to the	17:15:14
24	actuating button.	17:15:16
25	BY MR. HAMILTON:	17:15:18

1 Q. So both ends of a single actuating member is 17:15:18
2 attached to the same button; is that correct? 17:15:21
3 MR. STOWELL: Objection. Vague. 17:15:24
4 THE WITNESS: Yes. 17:15:25
5 BY MR. HAMILTON: 17:15:27
6 Q. And then for the other actuating member, the two 17:15:28
7 ends of that actuating member attach to a different -- 17:15:31
8 are attached to a different button, correct? 17:15:34
9 A. They are. 17:15:37
10 Q. So this -- these two actuating members in Figure 17:15:41
11 33 -- I'll withdraw the question. Let me start that 17:15:53
12 over. 17:15:55
13 So Figure 33 does not disclose a single 17:15:57
14 one-piece member that attaches to two different buttons, 17:16:05
15 does it? 17:16:10
16 MR. STOWELL: Objection. Vague. 17:16:12
17 THE WITNESS: It shows two actuating 17:16:15
18 members 55 in Figure 33. 17:16:21
19 BY MR. HAMILTON: 17:16:26
20 Q. And each of those are attached to different 17:16:26
21 buttons. We just established that, right? 17:16:28
22 A. Each of them is attached to a different button, 17:16:30
23 yes. 17:16:36
24 Q. Figure 33 does not show a single continuous 17:16:36
25 member attached to both buttons, correct? 17:16:47

1 MR. STOWELL: Objection. Vague. 17:16:51

2 THE WITNESS: It shows two separate 17:16:52

3 members attached to each button. 17:16:53

4 BY MR. HAMILTON: 17:16:57

5 Q. Let's turn to Exhibit 1005. This is the Shafer 17:17:43

6 reference. 17:17:49

7 A. (Complying.) 17:17:52

8 Q. If you look at paragraph 82 on page 27 of 17:18:04

9 Exhibit 1005, you see the sentence, "The actuating 17:18:13

10 member 55 and the actuating button 261 is machined from 17:18:32

11 aluminum." 17:18:37

12 Do you see that? 17:18:38

13 A. I see that it starts out by saying "in one 17:18:40

14 option is made from" -- that the -- "the stasis valve 10 17:18:45

15 in one option is made from machining preexisting amounts 17:18:53

16 of metals and/or plastics." 17:18:57

17 Q. Okay. And then we're focusing on the next line: 17:18:58

18 "The actuating member 55 and the actuating button 261 is 17:19:00

19 machined from aluminum." 17:19:04

20 Do you see that? 17:19:05

21 A. Yes. 17:19:06

22 Q. What does that mean? 17:19:06

23 A. That in an option, those members could be 17:19:08

24 machined from aluminum. 17:19:13

25 Q. What does "machined from aluminum" mean? 17:19:14

1 A. Generally, it would be machined from a piece -- 17:19:20
2 piece of aluminum to create the part that you want. 17:19:26
3 Q. And would that result in a rigid part? 17:19:31
4 MR. STOWELL: Objection. Vague. 17:19:35
5 THE WITNESS: It depends how -- it 17:19:37
6 depends what the dimensions are of the components 17:19:44
7 in question. 17:19:47
8 BY MR. HAMILTON: 17:19:48
9 Q. Are you familiar with machining aluminum? 17:19:57
10 A. Somewhat. I'm not a machinist, but I've had 17:19:58
11 components made out of aluminum. 17:20:01
12 Q. Would a person of skill in the art generally 17:20:03
13 create parts that are meant to be flexible from -- by 17:20:09
14 machining aluminum? 17:20:12
15 A. Depends on how flexible it would need to be. 17:20:14
16 Q. Let's say flexible enough to conform in the 17:20:20
17 Shafer patent to the shape of the lumen around which the 17:20:25
18 U-shaped member is placed. 17:20:30
19 MR. STOWELL: Objection. Vague. 17:20:35
20 THE WITNESS: Can you repeat the 17:20:39
21 question? 17:20:40
22 BY MR. HAMILTON: 17:20:40
23 Q. Let's say flexible enough to conform to the 17:20:40
24 shape of the lumen around which the U-shaped member is 17:20:44
25 placed. 17:20:49

1 MR. STOWELL: Same objection. 17:20:51

2 THE WITNESS: Difficult to say without 17:20:53

3 knowing the dimensions and how it was processed and 17:20:54

4 what type of aluminum it is. Aluminum can be quite 17:20:58

5 flexible. I have aluminum wire in my garage that's 17:21:02

6 quite flexible material. 17:21:12

7 BY MR. HAMILTON: 17:21:13

8 Q. And -- and is it your understanding that 17:21:13

9 aluminum wire can be made by machining aluminum? 17:21:15

10 A. Typically it would not be. 17:21:20

11 Q. I'm going to hand you what's been marked as 17:21:22

12 Exhibit 1011. 17:22:23

13 A. Can I go back and add one thing to my last 17:22:24

14 answer? 17:22:27

15 Q. Sure. 17:22:27

16 A. I wanted to point to paragraph 81 that states 17:22:31

17 the actuating members and/or actuating button 261 in one 17:22:36

18 option includes aluminum, which means other materials 17:22:41

19 could be used, and aluminum is provided as an option. 17:22:46

20 Q. So I'm looking at that statement, "the actuating 17:22:51

21 member 55 and the actuating button 261 is machined from 17:22:59

22 aluminum." I don't see "in one option." Where are you 17:23:03

23 getting "in one option"? 17:23:07

24 A. It's in paragraph 81, the prior page. The first 17:23:08

25 line -- the second line says "in one option includes 17:23:18

1 aluminum." 17:23:24

2 Q. And that line doesn't say how it's manufactured, 17:23:27

3 does it? 17:23:38

4 A. I believe they just talk about material choices 17:23:39

5 here. 17:23:44

6 Q. Material. 17:23:44

7 And then when you look at page 82 -- excuse me 17:23:45

8 -- paragraph 82, how it is manufactured is by machining, 17:23:49

9 correct? 17:23:54

10 MR. STOWELL: Objection. Form. 17:23:55

11 Misstates the document. 17:23:56

12 THE WITNESS: Well, once again, line -- 17:23:57

13 paragraph 82 starts with "the stasis valve in one 17:24:00

14 option is made from machining preexisting amounts 17:24:05

15 of metal and/or plastics." So it's provided as an 17:24:08

16 option. 17:24:12

17 BY MR. HAMILTON: 17:24:15

18 Q. Does it give any other examples? 17:24:15

19 A. Not that I recall. 17:24:17

20 Q. In the next line, does it start with "in another 17:24:27

21 example"? You see that? 17:24:31

22 A. Yes. 17:24:32

23 Q. And in that other example, it's also machining, 17:24:33

24 isn't it? 17:24:37

25 A. Machined from plastic. 17:24:38

1 Q. Yeah. Different material, but machined. Those 17:24:41
2 are the two options set forth in paragraph 82, correct? 17:24:44
3 A. Yes. 17:24:47
4 Q. Are you aware of any other option set forth in 17:24:48
5 Exhibit 1005 for making the actuating members 55? 17:24:53
6 A. I don't believe they provide other options, but 17:25:02
7 a person of ordinary skill in the art would know when 17:25:06
8 there would be multiple ways to manufacture these types 17:25:09
9 of components. 17:25:12
10 Q. Okay. Is your previous answer complete now? 17:25:13
11 A. Yes. 17:25:18
12 Q. Great. 17:25:19
13 Now let's look at Exhibit 1011. 17:25:20
14 A. (Complying.) 17:25:24
15 Q. Do you recognize Exhibit 1011? 17:25:24
16 A. Yes. 17:25:27
17 Q. What is acute ischemic -- ischemic stroke? 17:25:39
18 Did I pronounce that right? 17:25:47
19 A. Acute ischemic stroke is when a blood clot 17:25:50
20 blocks a vessel in the brain. 17:25:59
21 Q. What does "acute" mean to that phrase? 17:26:00
22 A. That it occurs relatively quickly. The symptoms 17:26:03
23 occur relatively quickly. 17:26:11
24 Q. Does that -- does that indicate one way or 17:26:12
25 another whether treatment is required quickly or not? 17:26:16

1 A. I think every stroke is probably considered 17:26:19
2 important to treat as quickly as possible. 17:26:25
3 Q. What does "ischemic" mean in that statement? 17:26:28
4 A. I'm not a doctor, but I believe it means causing 17:26:35
5 ischemia or lack of blood flow to certain tissues. 17:26:45
6 Q. What -- any particular tissues? 17:26:48
7 A. With regard to stroke, it's related to brain 17:26:50
8 tissue. 17:26:55
9 Q. So ischemia could be lack of blood flow to any 17:26:57
10 tissue, and stroke tells you that it -- that -- that 17:27:02
11 this statement is referring to brain tissue; is that 17:27:04
12 right? 17:27:07
13 A. Yes. You can have ischemia in your legs and 17:27:07
14 other places. 17:27:12
15 Q. If you could take a look at paragraph 7. And 17:27:31
16 that's on page 38 of the document. 17:27:34
17 A. (Complying.) 17:27:38
18 Q. And if you want to look at it for a minute, take 17:27:56
19 your time. My question is going to be, what does -- 17:27:59
20 what -- what does cerebral and intracranial art- -- 17:28:02
21 arteries mean? 17:28:07
22 A. Refers to arteries that provide blood flow to 17:28:09
23 the brain. 17:28:45
24 Q. What does relatively short transcortoid -- 17:28:48
25 excuse me -- transcarotid -- 17:28:58

1 A. Carotid. Carotid. 17:29:00

2 Q. Carotid. Thank you. 17:29:01

3 A. Sorry to interrupt. 17:29:01

4 Q. Access to the -- what does relatively short 17:29:03

5 transcarotid access mean? 17:29:06

6 MR. STOWELL: Objection. Outside the 17:29:10

7 scope.

8 THE WITNESS: So it's not -- this is not 17:29:26

9 related to things I covered in the disclosure, so 17:29:27

10 I'm not sure I can talk about this in great detail. 17:29:30

11 BY MR. HAMILTON: 17:29:33

12 Q. You reviewed this Garrison reference in relation 17:29:33

13 to your declaration, didn't you? 17:29:37

14 A. I have. 17:29:40

15 Q. Do you have an understanding of what that term 17:29:41

16 means as you sit here today? 17:29:43

17 A. Transcarotid access means putting an access 17:29:46

18 sheath in the carotid artery. 17:29:52

19 Q. What does -- what does the "relatively short" 17:29:53

20 part of it mean? 17:29:56

21 A. You're not very far from the brain. 17:29:57

22 Q. If you could take a look at -- well, no. 17:30:00

23 Actually, before we do that, let's look at Figure -- 17:30:24

24 Figures 2 and 3 on page 3. 17:30:30

25 A. (Complying.) 17:30:33

1 Q. Do you understand what's depicted in Figures 2 17:30:45
2 and 3? 17:30:49
3 A. Yes. 17:30:49
4 Q. Is that depicting transcarotid access into a 17:30:50
5 patient? 17:31:17
6 A. Yes. It appears to be access into the common 17:31:17
7 carotid artery, labeled CCA. 17:31:26
8 Q. And then do you see item 10 in those two 17:31:29
9 figures? It's up at the top. 17:31:36
10 A. Yes. 17:31:40
11 Q. What is item 10? Do you have an understanding 17:31:41
12 of what that is? 17:31:44
13 A. I'd have to look in more detail how they 17:31:45
14 describe it, but in my own words, I believe it's the 17:32:06
15 thrombotic material that is attempted to be treated, 17:32:09
16 removed. 17:32:14
17 Q. Would -- would that be an occlusion? 17:32:15
18 A. Occlusion to me implies complete occlusion. 17:32:24
19 Sometimes that could be a partial occlusion and cause 17:32:31
20 symptoms. 17:32:35
21 Q. And where is that item 10 located in those 17:32:41
22 Figures 1 and 2 -- excuse me -- 2 and 3? 17:32:44
23 MR. STOWELL: Objection. Outside the 17:33:02
24 scope. 17:33:03
25 THE WITNESS: One of the arteries in the 17:33:03

1 brain. 17:33:05

2 BY MR. HAMILTON: 17:33:05

3 Q. Would that be a part of the cerebral 17:33:06

4 vasculature? 17:33:08

5 A. Cerebral or intracranial. 17:33:18

6 Q. Okay. So that item 10 is -- is in the cerebral 17:33:24

7 or intracranial vasculature; is that right? 17:33:29

8 A. I'd have to look at the patent in more detail if 17:33:35

9 we want to go into detail of the nomenclature that is 17:33:37

10 used in the location of the -- for Figure 3. 17:33:42

11 Q. Is -- is that somewhere near the brain? Is that 17:33:45

12 what that is? Is that reasonable? 17:33:48

13 A. Within the brain. 17:33:50

14 Q. Within the brain. Okay. 17:33:51

15 And -- and your -- your issue in not answering 17:33:55

16 the previous question is what does cerebral or 17:33:58

17 intracranial vasculature mean -- vasculature mean? Was 17:34:01

18 that -- was that the problem with my previous question? 17:34:04

19 MR. STOWELL: Objection. Form. 17:34:09

20 THE WITNESS: Yeah. I'm just not sure of 17:34:10

21 the anatomy that they're showing here. 17:34:14

22 BY MR. HAMILTON: 17:34:18

23 Q. But you are sure it's somewhere in the brain? 17:34:18

24 A. Occlusions can occur before it gets to the 17:34:21

25 brain, but I think this depiction is in the brain. 17:34:27

1 Q. If you could take a look at page 39, paragraph 17:34:33
2 42. 17:34:45
3 A. (Complying.) 17:34:47
4 Q. First line of paragraph 42: "Interventions in 17:34:57
5 the cerebral or intracranial vasculature often have 17:35:04
6 special access challenges." 17:35:08
7 Do you understand what that means? 17:35:10
8 A. Yes. 17:35:11
9 Q. And what does that mean? 17:35:14
10 A. That it can be difficult to access the more 17:35:17
11 distal vessels because of tortuosity and small diameters 17:35:29
12 of the vessels in those locations. 17:35:36
13 Q. Do you have an understanding for what size 17:35:41
14 catheter would be used for interventions in cerebral or 17:36:19
15 intracranial vasculature? 17:36:23
16 A. I'd have to look through the patent to see what 17:36:28
17 they -- what they describe. 17:36:31
18 Q. Would you use a 24 French catheter? 17:36:36
19 MR. STOWELL: Objection. Outside the 17:36:40
20 scope. 17:36:42
21 THE WITNESS: To get to the cerebral or 17:36:42
22 intracranial vascular, no. That's much too big. 17:36:49
23 BY MR. HAMILTON: 17:36:56
24 Q. I'll just point you to paragraph 63. This might 17:36:57
25 be helpful. In paragraph 63 they mention 6 French and 8 17:37:00

1 French. Is that consistent with your understanding of 17:37:05
2 what size catheters would be used in interventions in 17:37:39
3 the cerebral or intracranial vasculature? 17:37:42
4 A. Because it does not relate to the hemostasis 17:37:49
5 valve, I haven't looked at it in great detail. It seems 17:37:58
6 like a reasonable size for the vessel size, in my 17:38:01
7 opinion. 17:38:04
8 Q. And we can go to the -- the paragraph just above 17:38:04
9 that, 62. And I'm going to want to ask you about -- 17:38:07
10 about middle of the page, there's a sentence that begins 17:38:19
11 "the hemostasis valve 226 can be," and it lists a couple 17:38:22
12 things. And I want to ask you what those things are. 17:38:26
13 A. Yes. 17:39:10
14 Q. What's a static seal-type passive valve? 17:39:11
15 And to be clear, the sentence begins "the 17:39:23
16 hemostasis valve can be," and then it describes this. 17:39:25
17 So in the context of a hemostasis valve, what's a static 17:39:27
18 seal-type passive valve? 17:39:31
19 MR. STOWELL: Objection. Outside the 17:39:34
20 scope. 17:39:36
21 THE WITNESS: I would say a static 17:39:36
22 seal-type passive valve is a very commonly used, 17:39:45
23 readily available valve that's used on many 17:39:49
24 introducer sheaths. It has a rubber material or 17:39:54
25 other elastomeric material, possibly with a slit 17:40:05

1 through it, so that seals around the devices, but 17:40:11
2 through it with or without a device in it. 17:40:15
3 BY MR. HAMILTON: 17:40:18
4 Q. And is that your understanding, that it's called 17:40:24
5 static because it seals without intervention by a user, 17:40:28
6 as we discussed the term "static" earlier today? 17:40:31
7 A. Yes. There is no rotating or pinching required 17:40:35
8 to open or close the valve. 17:40:40
9 Q. Sorry. I said static. I meant passive. It's a 17:40:42
10 passive valve, no opening and closing? 17:40:45
11 A. Yeah, passive valve wouldn't require any 17:40:49
12 movement by the operator to open or close the valve. 17:40:55
13 Q. What does the static part mean? Do you know? 17:40:58
14 A. I think it's just description of a passive 17:41:01
15 sealing valve. 17:41:21
16 Q. Okay. Let's talk about the next one, 17:41:22
17 "adjustable opening valve, such as a Tuohy Borst valve." 17:41:26
18 What's a Tuohy Borst valve? 17:41:31
19 A. It's a rotating hemostatic valve where the 17:41:35
20 physician would rotate counterclockwise to open the seal 17:41:38
21 and insert or remove devices, and then rotate clockwise 17:41:44
22 to reseal against the devices or close the valve, 17:41:48
23 whether there was a device inside or not. 17:41:54
24 Q. And then what about rotating hemostasis valve, 17:41:56
25 RHV; what is that? 17:42:05

1 A. In my experience, that's the same as a Tuohy 17:42:07
2 Borst valve. Tuohy Borst was just a trade name for one 17:42:14
3 of the companies. 17:42:18
4 Q. So then that would be a Tuohy Borst valve made 17:42:18
5 by somebody else; is that -- I'll withdraw the question. 17:42:23
6 A. To me, they're the same thing. 17:42:33
7 Q. Okay. I don't want you to say that someone is 17:42:34
8 infringing somebody else's something. 17:42:37
9 If you could turn to paragraph 45. 17:43:03
10 A. (Complying.) 17:43:07
11 Exhibit 1101 still? 17:43:14
12 Q. Yes. 17:43:16
13 And what I'm going to want to ask you is the 17:43:23
14 last sentence, unfortunately. And I want to understand 17:43:26
15 what delicate anatomy and access challenges mean, and 17:43:32
16 the need for rapid intervention means. 17:43:36
17 MR. STOWELL: Objection. There is not a 17:43:59
18 question pending. Objection. Outside the scope. 17:44:02
19 THE WITNESS: Okay. 17:44:40
20 BY MR. HAMILTON: 17:44:40
21 Q. Why don't we start -- 17:44:41
22 A. Okay.
23 Q. Why don't we start with delicate anatomy. What 17:44:42
24 does that mean with respect to treatment of acute 17:44:45
25 ischemic stroke? 17:44:47

1	MR. STOWELL: Objection. Outside the	17:44:51
2	scope.	17:44:52
3	THE WITNESS: I haven't really considered	17:44:52
4	that for this declaration.	17:44:53
5	BY MR. HAMILTON:	17:44:56
6	Q. Do you understand what it means?	17:44:57
7	A. I have an understanding.	17:45:00
8	Q. And what is that understanding?	17:45:02
9	A. As you get farther and farther into the	17:45:04
10	vasculature, the vessels become thinner and smaller and	17:45:12
11	more difficult to access and more prone to injury.	17:45:15
12	Q. So would it be fair to say the -- it's more	17:45:30
13	delicate and prone to perforation?	17:45:33
14	A. I think perforation could occur, among other	17:45:39
15	complications, I believe.	17:45:45
16	Q. And other complications meaning other injuries,	17:45:47
17	not necessarily perforation but -- is that right?	17:45:50
18	A. Dissection, I think, can occur.	17:45:53
19	Q. Okay. The next phrase, "access challenges," do	17:46:01
20	you have an understanding what that means with respect	17:46:07
21	to treatment of acute ischemic stroke?	17:46:09
22	MR. STOWELL: Objection. Outside the	17:46:12
23	scope.	17:46:14
24	THE WITNESS: Yeah, I haven't considered	17:46:14
25	that in the declaration because it's not relevant	17:46:16

1 to the hemostasis valve in the declaration. 17:46:25

2 BY MR. HAMILTON: 17:46:29

3 Q. Do you have an understanding of what that means 17:46:30

4 in that sentence? "Access challenges." 17:46:31

5 MR. STOWELL: Same objection. 17:46:33

6 THE WITNESS: As I said earlier, the 17:46:35

7 vasculature gets small in diameter and can be quite 17:46:37

8 tortuous as you get farther and deeper into the 17:46:45

9 anatomy, which -- which would provide challenges to 17:46:48

10 access. 17:46:54

11 BY MR. HAMILTON: 17:46:54

12 Q. And then what about the need for rapid 17:46:55

13 intervention? What does that mean with respect to 17:46:58

14 treatment of acute ischemic stroke? 17:47:01

15 MR. STOWELL: Objection. Outside the 17:47:05

16 scope. 17:47:07

17 THE WITNESS: What this whole paragraph 17:47:07

18 is saying is that there are cerebral protection 17:47:13

19 devices -- filters, let's say -- that are used for 17:47:18

20 carotid artery surgery, but in cases of stroke, 17:47:24

21 they typically do not use those types of systems. 17:47:29

22 BY MR. HAMILTON: 17:47:33

23 Q. And then this last sentence, unfortunately, 17:47:37

24 explains some of the reasons why those aren't used, 17:47:40

25 correct? 17:47:44

1 A. Right. Partly for the delicate anatomy and need 17:47:44
2 to go quickly, they may not take the time or have the 17:47:50
3 right filter devices to use. 17:47:56
4 Q. And so need to go quick quickly, that's need for 17:48:00
5 rapid intervention; is that right? 17:48:05
6 A. Yes. 17:48:07
7 Q. And why is there a need for rapid intervention 17:48:07
8 in treatment of acute ischemic stroke? 17:48:10
9 A. I think the neurointerventional radiologists say 17:48:14
10 time is brain. 17:48:21
11 Q. Does that mean the longer you wait to -- to 17:48:26
12 provide intervention, the more brain injury can occur? 17:48:32
13 A. The higher risk for complications from the 17:48:36
14 stroke. 17:48:39
15 Q. So for treatment of acute ischemic stroke, you 17:48:40
16 want to do it as quickly as possible; is that right? 17:48:43
17 MR. STOWELL: Objection. Form. 17:48:47
18 THE WITNESS: My understanding is that 17:48:48
19 most treatment is still drug delivery to the site, 17:48:53
20 but that too should start as quickly as possible. 17:49:01
21 Whether it's drug delivery or they use an 17:49:05
22 interventional procedure as disclosed in this 17:49:08
23 patent, it's certainly good to do things quickly. 17:49:11
24 BY MR. HAMILTON: 17:49:18
25 Q. Okay. If you could -- have I given you Exhibit 17:49:19

1 1006? Do you have that over there? That is Hartley. 17:49:35
2 A. I don't believe so. 17:49:39
3 Q. If you can find that. 17:49:42
4 MR. HAMILTON: How long have we been
5 going?
6 THE WITNESS: I could use a break if
7 you're switching -- 17:49:45
8 MR. HAMILTON: We're switching. That 17:49:45
9 would be -- that would be just fine. 17:49:55
10 THE VIDEOGRAPHER: We're going off the 17:49:55
11 record at 1449. 17:49:56
12 (Recess.) 17:59:13
13 THE VIDEOGRAPHER: We are back on the 17:59:13
14 record at 1459. 17:59:25
15 BY MR. HAMILTON: 17:59:27
16 Q. Do you understand you're still under oath? 17:59:28
17 A. Yes. 17:59:29
18 Q. Did you discuss your testimony today with 17:59:30
19 anybody during the break? 17:59:34
20 A. No. 17:59:35
21 Q. Look at any documents? 17:59:35
22 A. No. 17:59:37
23 Q. So I know I had said I was going to move to 17:59:37
24 something else, but let's just go back. A couple more 17:59:42
25 questions on 1011. That's the Garrison reference. And 17:59:46

1 if we could look at paragraph 62, the sentence that 17:59:51
2 identified the valves, the hemostasis valves. 17:59:59
3 A. Yes. 18:00:05
4 Q. So this first static seal-type passive valve, 18:00:06
5 are there any advantages to using that type of valve in 18:00:15
6 treating acute ischemic stroke? 18:00:24
7 MR. STOWELL: Objection. Outside the 18:00:29
8 scope. 18:00:32
9 THE WITNESS: Yeah, I don't know. I 18:00:32
10 haven't considered that. 18:00:36
11 BY MR. HAMILTON: 18:00:37
12 Q. What about a Tuohy Borst valve? Any advantages 18:00:45
13 or disadvantages in using that valve to treat acute 18:00:51
14 ischemic stroke? 18:00:55
15 MR. STOWELL: Same objection. 18:00:57
16 THE WITNESS: I haven't considered that 18:00:59
17 question for the deposition -- or the declaration. 18:01:01
18 BY MR. HAMILTON: 18:01:05
19 Q. Are you able to answer the question? 18:01:05
20 A. I haven't really thought about it. No. 18:01:10
21 Q. Does that mean, as you sit here today, you can't 18:01:14
22 answer the question? 18:01:17
23 A. It's not obvious to me that there are any 18:01:18
24 advantages or disadvantages because they work very 18:01:28
25 similarly, with a simple one-handed operation. 18:01:33

1	Q.	Okay. You can set that aside.	18:01:45
2	A.	(Complying.)	18:01:51
3	Q.	I had promised Hartley, 1006.	18:02:08
4	A.	Thank you.	18:02:13
5	Q.	Do you recognize Exhibit 1006?	18:02:13
6	A.	Yes.	18:02:17
7	Q.	Is this the Hartley referred to in your	18:02:20
8		declaration?	18:02:22
9	A.	Yes.	18:02:26
10	Q.	If you could turn to Figure 1.	18:02:35
11	A.	(Complying.)	18:02:46
12	Q.	Do you understand what's depicted in Figure 1?	18:02:46
13	A.	Yes.	18:02:59
14	Q.	What is item 4 in that figure?	18:02:59
15	A.	"Catheter body" is how they describe it in the	18:03:03
16		patent.	18:04:23
17	Q.	So would that be the end of the catheter?	18:04:23
18	A.	Yes.	18:04:28
19	Q.	And does that connect to the valve shown in	18:04:28
20		Figure 1?	18:04:32
21	A.	Yes.	18:04:35
22	Q.	How is it connected?	18:04:35
23		MR. STOWELL: Objection. Vague.	18:04:39
24		THE WITNESS: I'm not sure without	18:04:41
25		looking in more detail at the patent, but there are	18:04:42

1 many ways to connect a catheter tube, catheter 18:04:48
2 body, to a valve. 18:04:51
3 BY MR. HAMILTON: 18:04:52
4 Q. Does the -- the image in Figure 1 depict any 18:04:52
5 particular way to connect a catheter to a valve? Do you 18:04:56
6 recognize it? 18:05:03
7 A. It appears to be an outwardly extending radial 18:05:05
8 flange which is clamped against the end of the catheter 18:05:45
9 by means of the cylindrical housing 6. 18:05:48
10 Q. Is that a common way to connect catheters in the 18:05:51
11 field? 18:05:57
12 MR. STOWELL: Objection. Vague. 18:05:57
13 THE WITNESS: I think it's one of many 18:06:07
14 ways to connect catheters to other components. 18:06:09
15 BY MR. HAMILTON: 18:06:11
16 Q. Is there -- is there a common way to connect 18:06:11
17 catheters to other components? And by "other 18:06:13
18 components," let's just -- let's not say other 18:06:15
19 components. Let's just say hemostasis valves. 18:06:18
20 A. It depends on the designs. I think they are 18:06:21
21 frequently built in together, and I've also worked on 18:06:27
22 designs where we purchased a hemostasis valve with a 18:06:34
23 luer connection that attached to the component we were 18:06:38
24 designing. 18:06:43
25 Q. What's a luer connection? 18:06:43

1 A. It's a standard medical connection to connect 18:06:46
2 plastic parts usually -- plastic or metal parts. 18:06:57
3 Q. And is it -- is it a well-understood type of 18:07:06
4 connection with respect to, for example, catheters and 18:07:08
5 hemostasis valves? 18:07:13
6 A. I would say it's very well understood and very 18:07:14
7 commonly used for syringes, all types of components that 18:07:17
8 are being connected by the physician. 18:07:23
9 Q. And that Figure 1 we just discussed, does that 18:07:27
10 appear to be a luer connection? 18:07:33
11 A. In Figure 1? 18:07:36
12 Q. Uh-huh. 18:07:37
13 A. No, I don't think it was described as a luer 18:07:39
14 connection. 18:07:43
15 Q. Okay. If you could turn over to Figures 3 and 18:07:43
16 4. 18:07:49
17 A. (Complying.) 18:07:52
18 Q. And let's -- let's focus on Figure 3 first. Do 18:08:12
19 you see item 36 in Figure 3? 18:08:15
20 A. Yes. 18:08:24
21 Q. What is -- what is -- what is 36? 18:08:25
22 A. I believe they call it a detent. 18:08:29
23 Q. And what is the purpose of the detents in Figure 18:08:37
24 3 -- let's say the purpose -- purpose of item 36 -- the 18:08:43
25 two item 36s in Figure 3? 18:08:46

1 A. Paragraph 33 at the end says "the rotary 18:08:51
2 actuator may be rotated in either direction to cause 18:09:18
3 constriction of the constriction valve, and the detents 18:09:21
4 provide tactile feel, the action of the valve." 18:09:26
5 Q. So what does that mean, "provide tactile feel, 18:09:32
6 the action of the valve"? 18:09:36
7 A. I believe that's so the physician knows whether 18:09:40
8 he's going one click in the open direction or one click 18:09:44
9 in the closed direction in that example, because there 18:09:49
10 are two detents. 18:09:53
11 Q. And let's -- let's -- if you compare Figures 3 18:09:56
12 and 4, there's actually three detents. It's just you 18:10:03
13 can't see one in Figure 3, but you can see it in Figure 18:10:06
14 4; isn't that right? 18:10:09
15 A. Yes. In Figure 3 the detent is not labeled 18:10:15
16 because the component 28 is within the detent. 18:10:21
17 Q. And you said the detents provide tactile feel, 18:10:28
18 the action of the valve? 18:10:44
19 A. That's how it's written here. Written poorly, 18:10:46
20 but that's how it's written. 18:10:49
21 Q. Probably meant tactile feel for the action of 18:10:50
22 the valve; is that fair? 18:10:54
23 A. Yes. 18:10:55
24 Q. Or of the action of the valve? 18:10:56
25 A. Yes. 18:10:58

1 Q. And does that mean how far the valve is closed 18:10:58
2 in one direction or open in the other direction? 18:11:01
3 A. That's how I understand the patent. 18:11:05
4 Q. Can the detents be used to hold the valve in a 18:11:08
5 particular configuration; so a particular size opening, 18:11:28
6 for example? 18:11:34
7 A. So I do think the detents could provide stops 18:11:55
8 and hold it in position, depending on the size of the 18:12:33
9 detents, the strength of the spring, the amount of 18:12:37
10 resistance that it is trying to overcome. 18:12:42
11 Q. Excuse me. 18:12:48
12 Does Hartley include a single rotary actuator? 18:12:59
13 A. Yes. They discuss a rotary actuator 12. It's a 18:13:29
14 -- one component. 18:13:51
15 Q. Did you do any preparation for your depo today? 18:14:15
16 A. Today, no. 18:14:29
17 Q. Did you do any prepara- -- preparation at any 18:14:31
18 time for the deposition that is occurring today? 18:14:35
19 A. Yes. 18:14:38
20 Q. And when did you prepare? 18:14:39
21 A. Yesterday and the day before. 18:14:42
22 Q. And what did you do in that preparation? 18:14:47
23 A. I reviewed documents on my own. I met with 18:14:50
24 counsel part of yesterday. 18:14:57
25 Q. Other than part of yesterday, did you meet with 18:14:59

1 anybody else? 18:15:02

2 A. I did not. 18:15:03

3 Q. And part of yesterday, you said you met with 18:15:04

4 counsel. Who did you meet with? 18:15:07

5 A. Josh. And Lizzie was there too. 18:15:11

6 Q. Anybody else? 18:15:13

7 A. No. 18:15:14

8 Q. Other than those two days, did you do any other 18:15:15

9 preparation for this deposition? 18:15:18

10 A. I'd have to look back at my time sheet. There 18:15:21

11 might have been a couple hours before that, earlier in 18:15:29

12 the week. 18:15:32

13 Q. And you said you reviewed documents in 18:15:33

14 preparation for your deposition today? 18:15:36

15 A. I did not review them today. 18:15:39

16 Q. Let me rephrase it. 18:15:43

17 You said you reviewed documents in preparation 18:15:45

18 for your deposition; is that correct? 18:15:47

19 A. I did. 18:15:49

20 Q. What documents did you review? 18:15:49

21 A. My declaration, some of the other exhibits. 18:15:52

22 Q. Do you recall any specific exhibits? 18:16:00

23 A. Probably most of them on the exhibit list. 18:16:08

24 Q. Did you review anything that's not on the 18:16:26

25 exhibit list in preparation for your deposition? 18:16:29

1 A. No. 18:16:32

2 Q. Do you consider yourself a professional expert? 18:16:32

3 A. I'm not sure what the definition would be of 18:16:43

4 professional expert. 18:16:46

5 Q. What does professional expert mean to you? 18:16:47

6 A. I don't know. 18:16:50

7 Q. It doesn't have any meaning to you? 18:16:50

8 MR. STOWELL: Objection. Asked and 18:16:53

9 answered. 18:16:55

10 THE WITNESS: I don't know if there's a 18:16:55

11 legal generally accepted term. I'm not familiar 18:16:57

12 with professional expert. 18:17:03

13 BY MR. HAMILTON: 18:17:04

14 Q. Do you derive money acting as an expert? 18:17:04

15 A. This is my first experience as an expert 18:17:10

16 witness. 18:17:17

17 Q. And when you say "this," you mean this IPR? 18:17:17

18 A. I think this was the first IPR, and there was 18:17:21

19 some work after that with Knobbe Martens. 18:17:26

20 Q. So you've been retained in connection with this 18:17:30

21 IPR and related IPRs and related litigation; is that 18:17:36

22 correct? 18:17:41

23 A. Yes. 18:17:41

24 Q. And that's the only matter in which you've acted 18:17:41

25 as an expert; is that correct? 18:17:44

1	A.	Yes.	18:17:46
2	Q.	Have you ever act -- acted as an expert for any	18:17:47
3		other litigation?	18:17:51
4	A.	No.	18:17:52
5	Q.	Who first contacted you to be an expert in this	18:17:52
6		matter?	18:17:55
7	A.	I'm not sure.	18:17:55
8	Q.	Was it a lawyer?	18:18:11
9	A.	It was a lawyer for Knobbe Martens.	18:18:14
10	Q.	Have you ever been retained by Knobbe prior to	18:18:19
11		this, let's say, collection of matters that are all	18:18:24
12		related?	18:18:26
13	A.	No.	18:18:26
14	Q.	Does Knobbe pay you for your work on this	18:18:27
15		matter?	18:18:40
16	A.	I am reimbursed for my time, yes.	18:18:40
17	Q.	And who writes those checks?	18:18:44
18	A.	Knobbe Martens.	18:18:46
19	Q.	Do you ever receive any payment from Imperative?	18:18:51
20	A.	I have not.	18:18:58
21	Q.	Have you ever consulted for Imperative?	18:18:59
22	A.	I have not.	18:19:04
23	Q.	When did you first hear of Imperative?	18:19:05
24	A.	Many years ago.	18:19:10
25	Q.	And how did you come to hear of Imperative?	18:19:12

1 A. I know some people that work there. 18:19:15

2 Q. Did you ever work with Imperative or those 18:19:18

3 people? 18:19:24

4 A. I never worked with Imperative. 18:19:25

5 Q. But you've worked with those people who went to 18:19:27

6 Imperative after you worked with them or before? 18:19:30

7 MR. STOWELL: Objection. Form. 18:19:32

8 THE WITNESS: There are a couple of 18:19:33

9 people at or that were at Imperative that I used to 18:19:38

10 work with at former companies. 18:19:43

11 BY MR. HAMILTON: 18:19:45

12 Q. Are you friends with those individuals? 18:19:47

13 A. Not particularly. 18:19:49

14 Q. Have you stayed in touch with those individuals 18:19:51

15 since working with them? 18:19:54

16 A. Not closely. 18:19:56

17 Q. And when you say "not closely," what does that 18:20:00

18 mean? Not on an annual basis? 18:20:03

19 A. Not annually either. 18:20:06

20 Q. When did you first hear of Inari Medical? 18:20:08

21 A. Some years ago. 18:20:22

22 Q. And how did you first hear about Inari Medical? 18:20:23

23 A. When I was working for Abbott Ventures, the 18:20:28

24 venture capital part of Abbott Vascular, we met with 18:20:34

25 some of the folks at the incubator company that started 18:20:43

1 Inari. 18:20:47

2 Q. Do you recall what year that was? 18:20:49

3 A. I don't. 18:20:51

4 Q. Do you know or have -- have you ever met any 18:20:51

5 inventor of the '011 Patent? That's the patent at issue 18:21:00

6 for Inari in this case. 18:21:04

7 A. Paul Lubock, I have met. 18:21:06

8 Q. And how do you meet Paul Lubock? 18:21:13

9 A. During the meetings with -- when I was with 18:21:16

10 Abbott Ventures. 18:21:21

11 Q. And about what year was that? 18:21:23

12 MR. STOWELL: Objection. Asked and 18:21:26

13 answered. 18:21:29

14 THE WITNESS: I can look at my resume to 18:21:29

15 confirm. Oh, it's in -- it's an attachment. It's 18:21:35

16 an exhibit there. 18:21:44

17 BY MR. HAMILTON: 18:21:48

18 Q. It may be. 18:21:48

19 A. Exhibit 1004. 18:21:49

20 Q. So I'm going to hand you what's been previously 18:21:53

21 marked Exhibit 1004. 18:22:02

22 (Tendered.) 18:22:04

23 A. So between June 2012 and December 2014, I was 18:22:15

24 working as a program director at Abbott Ventures, so it 18:22:18

25 probably would have been during that time when I met 18:22:24

1 with Paul's incubator company, whose name escapes me. 18:22:28

2 Q. And that name -- that company was not Inari; 18:22:40

3 it's a different company? 18:22:44

4 A. It's a different company. I believe they spun 18:22:45

5 off Inari as its own company. 18:22:50

6 Q. Did you meet Benjamin Merritt or John Thress? 18:22:51

7 A. I don't remember meeting those people, no. 18:22:56

8 Q. Have you ever worked with, for or against Inari 18:23:00

9 Medical in any capacity? 18:23:09

10 A. I have not. 18:23:10

11 Q. When were you first retained in this collection 18:23:11

12 of matters? 18:23:16

13 A. I don't recall exactly. 18:23:17

14 Q. Do you recall roughly? 18:23:22

15 A. This was executed -- "this" meaning the 18:23:31

16 declaration -- on July 8, 2024, so it was likely a 18:23:37

17 number of months before that date. 18:23:43

18 Q. Six months? 18:23:45

19 A. Could have been around that time frame. I don't 18:23:49

20 remember. 18:23:53

21 Q. Do you know how many hours you have spent on 18:23:53

22 this particular IPR? 18:24:00

23 A. I do not. 18:24:03

24 Q. Do you have a rough estimate? 18:24:04

25 A. I do not. This was nine or ten months ago now. 18:24:09

1	I don't remember.	18:24:20
2	Q. Do you recall how many hours you spent preparing	18:24:20
3	your declaration?	18:24:24
4	A. That's what I was referring to.	18:24:25
5	Q. So you don't recall how many hours you spent	18:24:29
6	preparing your declaration. Was it more than 100?	18:24:33
7	A. Less.	18:24:38
8	Q. More than 50?	18:24:41
9	A. Less.	18:24:45
10	Q. More than 25?	18:24:55
11	A. Probably.	18:24:59
12	Q. Did you write the declaration?	18:25:10
13	A. I worked with counsel to write, edit, and modify	18:25:13
14	it over the period we were working on it.	18:25:19
15	Q. In preparation of your declaration, did you meet	18:25:22
16	with, speak with, or otherwise communicate with anybody	18:25:36
17	at Imperative?	18:25:39
18	A. I did not.	18:25:41
19	Q. Did you meet with, speak with, or otherwise	18:25:42
20	communicate with anybody other than lawyers at Knobbe	18:25:46
21	Martens?	18:25:50
22	A. No.	18:25:50
23	Q. If you want to grab your declaration, let's go	18:25:58
24	back to -- I believe it's paragraph 35.	18:26:04
25	A. (Complying.)	18:26:29

1	Q.	And this paragraph identifies the qualifications	18:26:30
2		of someone of ordinary skill in the art, correct? Do	18:26:33
3		you remember discussing that this morning?	18:26:37
4	A.	Yes.	18:26:38
5	Q.	What I want to understand is, what does two to	18:26:39
6		four years of product design or engineering experience	18:26:43
7		mean?	18:26:46
8	A.	Two to four years of designing products or	18:26:49
9		working as an engineer in some other capacity.	18:27:00
10	Q.	Is that designing any products?	18:27:09
11	A.	I've certainly hired engineers that came from	18:27:14
12		other fields besides medical devices.	18:27:22
13	Q.	Would you consider a person of ordinary skill in	18:27:25
14		the art to be someone who has no experience designing	18:27:27
15		hemostasis valves?	18:27:31
16	A.	Yes. I don't think you would have to have	18:27:32
17		experience designing hemostasis valves in order to	18:27:38
18		design one, if you had mechanical engineering or related	18:27:43
19		engineering experience.	18:27:48
20	Q.	What about medical experience at all; not just	18:27:49
21		hemostasis valves, but any experience designing medical	18:27:53
22		devices? Would a person of ordinary skill in the art	18:27:57
23		need to have some sort of experience designing medical	18:28:00
24		devices?	18:28:04
25	A.	Not necessarily.	18:28:05

1 Q. If you can go to paragraph 21 of your 18:28:06
2 declaration. 18:28:42
3 A. (Complying.) 18:28:44
4 Q. And in that first sentence, you say someone may 18:28:45
5 redefine a claim term. What do you mean by "redefine"? 18:28:59
6 A. Meaning to define a claim term to have a meaning 18:29:05
7 that is different from the plain and ordinary meaning. 18:29:10
8 Q. And when you say "plain and ordinary meaning" in 18:29:13
9 that sentence you just used, what did you mean? 18:29:16
10 A. I meant the plain and ordinary meaning that 18:29:20
11 would be generally understood. 18:29:25
12 Q. And generally understood by a person of ordinary 18:29:27
13 skill in the art or anybody? 18:29:32
14 A. Yeah, I'm not sure. 18:29:35
15 Q. And let's go to the 1001 exhibit. That's the 18:29:43
16 '011 Patent. 18:30:08
17 A. Uh-huh. 18:30:09
18 Q. And I want you to turn to column 22. That's on 18:30:12
19 the second-to-last page. 18:30:23
20 I want to talk about Claim 1 a little bit. 18:30:29
21 A. (Complying.) 18:30:33
22 Column 17? 18:30:41
23 Q. Column 22. 18:30:42
24 A. Claim 1? Oh. 18:30:44
25 Q. In preparing your declaration, you came to an 18:30:54

1 understanding of what Claim 1 means, didn't you? 18:30:59

2 A. Yes. 18:31:03

3 Q. You see a couple lines down from the beginning 18:31:03

4 of Claim 1, so line 24, "an actuator"? 18:31:10

5 A. Yes. 18:31:15

6 Q. Do you understand what an actuator is? 18:31:15

7 A. As it applies to this '011 Patent, I believe so. 18:31:18

8 Q. When you see the term "actuator" in the claim, 18:31:27

9 does that make you think of any particular structures? 18:31:30

10 A. It makes me think of the structures that are 18:31:37

11 defined and delineated in the patent. 18:31:43

12 Q. Any other structures? 18:31:46

13 A. No. 18:31:48

14 Q. Earlier we talked about the rotating actuary in 18:31:50

15 -- actuator in Hartley. Do you recall that? 18:31:54

16 A. Yes. 18:31:57

17 Q. Is that a common type of actuator in hemostasis 18:32:00

18 valves? 18:32:05

19 MR. STOWELL: Objection. Form. Outside 18:32:05

20 the scope. 18:32:08

21 THE WITNESS: I think it's one type of 18:32:08

22 actuator for a rotating hemostasis valve. 18:32:16

23 BY MR. HAMILTON: 18:32:18

24 Q. When you think of actuators in hemostasis 18:32:19

25 valves, what other type of actuators are there? 18:32:22

1 MR. STOWELL: Objection. Vague. Outside 18:32:25
2 the scope. 18:32:31
3 BY MR. HAMILTON: 18:32:31
4 Q. Let me -- let me rephrase that. 18:32:32
5 What other types of actuators immediately come 18:32:33
6 to mind? 18:32:35
7 MR. STOWELL: Objection. Vague. Outside 18:32:36
8 the scope. 18:32:38
9 THE WITNESS: The type of actuators that 18:32:38
10 we're discussing in '011. 18:32:49
11 BY MR. HAMILTON: 18:32:53
12 Q. You had experience with hemostasis valves prior 18:32:54
13 to seeing the '011 Patent, correct? 18:32:57
14 A. Yes. 18:33:00
15 Q. And do those -- did those hemostasis valves -- 18:33:01
16 any of those hemostasis valves have actuators? 18:33:05
17 MR. STOWELL: Objection. Calls for a 18:33:08
18 legal conclusion. Form. 18:33:11
19 THE WITNESS: I think one can call the 18:33:13
20 rotating hemostatic valve an actuator, as they did 18:33:16
21 in Hartley. There's also a pinch valve I -- that 18:33:19
22 we prototyped that would have been considered an 18:33:26
23 active pinch mechanism. 18:33:32
24 BY MR. HAMILTON: 18:33:34
25 Q. So prior to seeing the '011 Patent, you were -- 18:33:34

1 he were aware of many actuators in the field of 18:33:37
2 hemostasis valves, correct? 18:33:40
3 MR. STOWELL: Objection. 18:33:41
4 BY MR. HAMILTON: 18:33:42
5 Q. Although least those two? 18:33:42
6 MR. STOWELL: Objection. Misstates 18:33:43
7 testimony. Calls for legal conclusions. 18:33:45
8 THE WITNESS: I was familiar with a pinch 18:33:47
9 valve and the rotating hemostatic valve as a means 18:33:50
10 to actuate the valve. 18:33:53
11 BY MR. HAMILTON: 18:33:55
12 Q. Any other actuators with respect to hemostasis 18:33:55
13 valves? 18:33:58
14 MR. STOWELL: Objection. Misstates 18:33:58
15 testimony. Calls for a legal conclusion. 18:34:01
16 THE WITNESS: None that I can think of at 18:34:03
17 this moment. 18:34:05
18 BY MR. HAMILTON: 18:34:07
19 Q. If you go down to line 38, same column, 22. 18:34:12
20 A. (Complying.) 18:34:26
21 Q. You see the phrase "a biasing system configured 18:34:27
22 to bias," et cetera? 18:34:32
23 A. "And a biasing system configured to bias the 18:34:48
24 first member and the second member to the first 18:34:51
25 position." 18:34:53

1 Q. Do you understand what a bias -- biasing system 18:34:56
2 is? 18:34:59
3 A. In the patent, it was the spring attached to the 18:35:00
4 actuator. 18:35:05
5 Q. Would one of skill in the art understand that 18:35:05
6 other structures could be a biasing system in the field 18:35:09
7 of hemostasis valves? 18:35:13
8 MR. STOWELL: Objection. Outside the 18:35:14
9 scope. 18:35:15
10 THE WITNESS: I think in this patent 18:35:15
11 that's the only type of biasing system they 18:35:18
12 disclose. 18:35:23
13 BY MR. HAMILTON: 18:35:23
14 Q. Are you aware of any other biasing systems with 18:35:24
15 respect to hemostasis valves? 18:35:27
16 MR. STOWELL: Objection. Outside the 18:35:31
17 scope. Calls for a legal conclusion. 18:35:34
18 THE WITNESS: The one I can think of is 18:35:36
19 Ellers had a -- they disclosed a torsion spring 18:35:52
20 that was bias the -- their actuator to a closed 18:35:57
21 position. 18:36:01
22 BY MR. HAMILTON: 18:36:02
23 Q. So it might sound silly: Is a torsion spring a 18:36:04
24 spring? 18:36:09
25 A. It's a type of spring. 18:36:09

1 Q. What other types of springs are there? 18:36:11

2 A. Many types of springs: Leaf spring, compression 18:36:13

3 spring, opposite of compression -- sorry -- extension 18:36:19

4 spring would be opposite of a compression spring. 18:36:36

5 Probably several others I'm not recalling. 18:36:39

6 Q. So all those types of springs you just 18:36:41

7 mentioned, those are all springs; is that right? 18:36:44

8 A. I consider them springs. 18:36:48

9 Q. If you could take a look at Exhibit 1005. 18:36:51

10 That's Shafer. 18:38:25

11 A. (Complying.) 18:38:28

12 Q. And then turn to page 21, paragraph 7. 18:38:51

13 A. (Complying.) 18:38:56

14 Q. And let me know when you're ready for a 18:39:10

15 question. 18:39:27

16 A. Okay. 18:39:32

17 Q. So you see the first sentence: "Thus, the 18:40:23

18 problems are complex and involve a balance between 18:40:26

19 closing force, opening force, friction, compression and 18:40:30

20 durability." 18:40:33

21 Do you see that? 18:40:34

22 A. Yes. 18:40:35

23 Q. So earlier today we were talking about design 18:40:35

24 considerations that a person of skill in the art would 18:40:39

25 take into account when designing a hemostasis valve. 18:40:42

1 And the way I read that, the problem is essentially -- 18:40:45
2 those are essentially design considerations. Is that -- 18:40:49
3 is that a fair understanding? 18:40:54
4 A. Those are some of the design considerations that 18:40:55
5 -- some of which I mentioned earlier. 18:40:57
6 Q. Okay. So we talked about some design 18:40:59
7 considerations earlier, and then this lists some that 18:41:01
8 might be overlapping or related, but it lists a couple 18:41:05
9 design considerations for design -- for designing a 18:41:08
10 hemostasis valve; is that correct? 18:41:11
11 A. Yes, these are design considerations. 18:41:14
12 Q. What does that mean, "balance between closing 18:41:17
13 force, opening force" -- let's -- actually, let's -- let 18:41:21
14 me withdraw that. 18:41:26
15 What does closing force mean in that statement? 18:41:27
16 A. Could mean a couple different things. One is 18:41:30
17 the action of the doctor to close the valve. It could 18:41:37
18 also mean force that closes down on the -- how much 18:41:40
19 force is exerted on the catheter that's inside the 18:41:45
20 valve. 18:41:48
21 Q. And why is the amount of force exerted on the 18:41:48
22 catheter inside the valve a problem or a design 18:41:52
23 consideration? 18:41:58
24 MR. STOWELL: Objection. Form. 18:41:58
25 THE WITNESS: Well, I think as the -- as 18:42:00

1 this patent says, if the valve is too tight, soft, 18:42:17
2 flexible instrumentation such as a flat-tip guide 18:42:31
3 wire and others it lists could be damaged by 18:42:35
4 excessive compression or insertion force. 18:42:38
5 BY MR. HAMILTON: 18:42:48
6 Q. And what about opening force? Why is that a 18:43:01
7 design consideration? 18:43:06
8 A. I think that's more related to user, the 18:43:09
9 difficulty -- the force required for the user to open 18:43:19
10 the valve, whether it's pinching two actuator buttons or 18:43:22
11 rotating a hemostasis valve. It's probably a 18:43:28
12 user-related design requirement. 18:43:33
13 Q. So that kind of goes towards making the -- the 18:43:35
14 device easy for the user to use? 18:43:38
15 A. Yes. 18:43:41
16 Q. Or even more control for the user? Be a balance 18:43:46
17 of those two things? 18:43:50
18 A. Possibly. 18:43:52
19 Q. And what about friction; why is that a problem 18:43:55
20 or a design consideration? 18:44:00
21 A. For many procedures, the doctor wants to be able 18:44:02
22 to feel, have tactile feedback to the catheter in his 18:44:10
23 hand, and in that case you don't want too much friction 18:44:14
24 for the portion that's -- might be sliding through the 18:44:18
25 valve. 18:44:23

1 Q. And what about compression; why is that a design 18:44:38
2 consideration? 18:44:45

3 A. This patent is not so clear on these terms, but 18:44:45
4 my understanding in general, it is probably talking 18:44:57
5 about a design requirement for a compression on the 18:45:02
6 device that's inside. So a thin-walled catheter could 18:45:06
7 collapse if there's too much compression from the valve. 18:45:14

8 Q. Okay. And I think a minute ago, when we talked 18:45:22
9 about closing force, you said that was similar, that 18:45:27
10 would -- that could damage, maybe crush a catheter 18:45:30
11 that's going through the valve. And, really, it's 18:45:33
12 because there's too much compression force; is that -- 18:45:37
13 is that the issue? 18:45:40

14 And what I'm getting at is, maybe closing force 18:45:43
15 means the effort or the force needed to -- to close the 18:45:46
16 valve in the first place, as opposed to how much 18:45:49
17 compression force is applied. Or they might be related. 18:45:53

18 MR. STOWELL: Objection. Form. 18:45:59

19 THE WITNESS: Yeah, I think closing force 18:46:02
20 and opening -- I think opening force is most likely 18:46:06
21 a design requirement related to physician use. 18:46:10

22 Closing force, I think, is probably most related to 18:46:14
23 having enough force to seal around the members but 18:46:21
24 not too much force to damage the catheter inside. 18:46:24

25 BY MR. HAMILTON: 18:46:27

1 Q. So -- so very similar to compression, the 18:46:27
2 compression design consideration; is that -- is that 18:46:33
3 fair? 18:46:36
4 A. I think it's similar to compression requirement. 18:46:37
5 Q. And then durability; why is that a design 18:46:40
6 requirement or problem when designing a hemostasis 18:46:43
7 valve? 18:46:47
8 A. Well, it would be a design requirement such that 18:46:47
9 it could be opened and closed multiple times during the 18:46:52
10 procedure and still function adequately. 18:46:55
11 Q. If you could look at the first page of 18:47:00
12 Exhibit 1005. That's Shafer that you have in front of 18:47:54
13 you. 18:47:57
14 A. (Complying.) 18:47:58
15 Q. Are you familiar with the assignee listed on 18:47:58
16 that page, Medamicus? 18:48:11
17 A. I'm not. 18:48:15
18 Q. You've never heard that name before? 18:48:17
19 A. I have not. 18:48:19
20 Q. Are you familiar with any of the inventors 18:48:20
21 listed: David Shafer, Michael Shafer or Brian Fisher? 18:48:23
22 A. I am not. 18:48:27
23 Q. We talked about this generally, but specifically 18:48:29
24 with respect to Shafer, did you find Shafer in 18:48:40
25 connection with your work on this matter or was Shafer 18:48:44

1 provided to you by Knobbe? 18:48:47

2 A. I believe Shafer was provided by Knobbe. 18:48:52

3 Q. If you could turn back to Exhibit 1006. 18:49:11

4 A. (Complying.) 18:49:25

5 Hartley? 18:49:30

6 Q. Yes. And I want to point you to the first page, 18:49:32

7 the title, "Access Valve." 18:49:36

8 Do you understand what access valve means in 18:49:38

9 that title? 18:49:40

10 A. On the abstract, they state "an access valve for 18:49:50

11 laparoscopic device or an intraluminal deployment 18:49:55

12 device." 18:49:59

13 Q. Does access valve mean hemostasis valve? 18:50:04

14 A. I believe this is focused on hemostasis. 18:50:09

15 Q. Could access valve mean anything other than a 18:50:16

16 hemostasis valve? 18:50:19

17 A. Laparoscopic procedures would also use an access 18:50:20

18 device like this. 18:50:28

19 Q. And why wouldn't an access device like this for 18:50:29

20 a laparoscopic procedure not be considered a hemostasis 18:50:32

21 valve? 18:50:38

22 MR. STOWELL: Objection. Form. 18:50:38

23 THE WITNESS: Can you repeat the 18:50:41

24 question? 18:50:43

25 BY MR. HAMILTON: 18:50:43

1 Q. Why would an access valve for use with a 18:50:44
2 laparoscopic procedure not be considered a hemostasis 18:50:48
3 valve? 18:50:54
4 A. "Hemo" implies blood, and "intraluminal" in 18:50:54
5 their abstract implies to me to be in the lumen of a 18:50:59
6 blood vessel. 18:51:04
7 Q. So Hartley discloses valves that are more broad 18:51:05
8 than hemostasis valves; is that correct? 18:51:13
9 MR. STOWELL: Objection. Form. 18:51:17
10 THE WITNESS: I don't know if it's more 18:51:18
11 broad, but laparoscopic procedures can and do use 18:51:20
12 valves on the proximal end of their access devices. 18:51:26
13 BY MR. HAMILTON: 18:51:29
14 Q. What's the purpose of a valve in a laparoscopic 18:51:30
15 procedure? 18:51:32
16 A. Well, it wasn't the focus of my disclosure. I'm 18:51:34
17 not that familiar with laparoscopic procedures. And my 18:51:42
18 understanding is that they frequently inflate the 18:51:51
19 abdomen. For certain procedures they use CO2, I 18:51:55
20 believe, to expand the abdominal cavity to perform some 18:52:01
21 of these laparoscopic procedures. So in that case, they 18:52:07
22 want to keep the air that they're injecting in the 18:52:12
23 patient. 18:52:17
24 Q. So that would be to -- to prevent something 18:52:18
25 other than blood from flowing out of the patient; and in 18:52:29

1 the example you just gave, it's air? 18:52:33

2 A. I think it's CO2 or another gas that they're 18:52:35

3 injecting. 18:52:41

4 Q. Are you aware of any other use of an access -- 18:52:41

5 or other reason to use an access valve for a 18:52:49

6 laparoscopic procedure, other than to prevent the escape 18:52:52

7 of CO2? 18:52:56

8 A. I'm sure there are many other laparoscopic 18:52:58

9 procedures I'm not familiar with. I'm not really an 18:53:01

10 expert in laparoscopic procedures. 18:53:04

11 Q. And so in those procedures, the -- the valve 18:53:06

12 would be used to prevent the escape of some sort of 18:53:09

13 fluid, whether it be liquid or air, or the introduction 18:53:13

14 of some fluid, whether it be liquid or -- or air; is 18:53:18

15 that fair to say? 18:53:22

16 A. I think I answered it before. So whatever I 18:53:23

17 said before, I think, answers the question. 18:53:26

18 Q. I think you're probably right. 18:53:33

19 Let me ask you this: Are there reasons a person 18:54:04

20 of skill in the art would select -- and let's -- let's 18:54:10

21 use your -- the way you had termed it, speccking out a 18:54:13

22 hemostasis valve -- would -- would select the valve of 18:54:17

23 Hartley versus the valve of Shafer in a certain 18:54:19

24 application? 18:54:23

25 MR. STOWELL: Objection. Outside the 18:54:25

1 scope. 18:54:26

2 THE WITNESS: Yeah, I'm not -- I'm not 18:54:26

3 sure. 18:54:31

4 BY MR. HAMILTON: 18:54:32

5 Q. What are the advantages of using the valve of 18:54:32

6 Hartley? 18:54:34

7 A. I'm not sure. 18:54:44

8 Q. So as you sit here today, if you were speccking 18:54:49

9 out a hemostasis valve for a particular procedure, is 18:54:56

10 there any reason you would choose the valve of Shafer or 18:55:00

11 the valve of Hartley? 18:55:03

12 MR. STOWELL: Objection. Incomplete 18:55:05

13 hypothetical. Form. 18:55:07

14 THE WITNESS: There could be, but I have 18:55:08

15 not really considered those options in my 18:55:10

16 declaration. 18:55:13

17 BY MR. HAMILTON: 18:55:13

18 Q. Would it depend on the particular procedure? 18:55:14

19 A. It would depend on the procedure and the devices 18:55:18

20 going through the procedure -- through the valve, and 18:55:30

21 several of the other aspects that I think I discussed 18:55:36

22 earlier. 18:55:40

23 Q. Fair enough. 18:55:41

24 If we could go to your declaration, Exhibit 18:56:09

25 1003. And if you -- if you need to, you can use 18:56:17

1 Exhibit 1004, as well. That's the -- the resume. And 18:56:23
2 what I want to figure out is in which matter listed 18:56:29
3 either in your declaration or the resume is the matter 18:56:32
4 that you described earlier where you had an engineer and 18:56:36
5 worked with an engineer to design a hemostasis valve. 18:56:39
6 Is that matter listed either -- 18:56:45
7 A. Yes. 18:56:47
8 Q. -- on your resume -- it is? 18:56:47
9 Okay. Which matter is it on your resume? 18:56:50
10 A. For the 2000 to 2012, I was vice president of 18:56:53
11 R&D at Evalve, and that is the time when we developed 18:57:04
12 the MitraClip device, which had -- we utilized four 18:57:09
13 different hemostasis valves on that product. 18:57:17
14 At Prograft, the company before that, I recall 18:57:26
15 at least two hemostasis valves that we used on the 18:57:32
16 devices there. 18:57:40
17 Q. So for Prograft, that would be the -- the 18:57:41
18 devices that you referred to earlier today as where you 18:57:45
19 specced them out for a particular application; is that 18:57:48
20 right? 18:57:53
21 A. I believe one of those was a custom sheath with 18:57:53
22 a hemostasis valve on that we worked with the vendor to 18:58:00
23 develop a custom sheath for us. So I guess we specced 18:58:05
24 it out, worked with the vendor to develop that sheath. 18:58:09
25 Q. So earlier today -- I'm going to put it in kind 18:58:12

1 of two big -- two broad categories. One is a project 18:58:16
2 where you had an engineer design some valves and then a 18:58:22
3 project where you specced out valves. The design is -- 18:58:25
4 in your declaration that happened with respect to number 18:58:28
5 -- paragraph 9 in your declaration your work at Evalve; 18:58:31
6 is that fair? 18:58:35
7 A. Evalve was the one that we -- the one valve I 18:58:36
8 can recall that we really designed from scratch 18:58:41
9 internally. 18:58:46
10 Q. Is Evalve a -- a hemostasis valve? 18:58:47
11 A. No. That was the name of the company that 18:58:51
12 developed the MitraClip device that was acquired by 18:58:54
13 Abbott. 18:58:57
14 Q. And the MitraClip device included a hemostasis 18:58:58
15 valve; is that correct? 18:59:03
16 A. A little confusing -- the MitraClip device is 18:59:03
17 the actual implant that's implanted on the leaflets of 18:59:10
18 the mitral valve. The MitraClip system consisted of 18:59:14
19 three different catheters and a dilator. All three of 18:59:19
20 those catheters and the dilator had a hemostasis valve, 18:59:28
21 one of which was designed from scratch -- I would say at 18:59:31
22 least one of which was designed from scratch. I can't 18:59:39
23 remember if the other one was also an internal design or 18:59:42
24 not. 18:59:46
25 Q. Okay. Other than those two instances you just 18:59:46

1 identified -- so that's in figure -- excuse me -- 19:00:04
2 paragraph 9 at Evalve and paragraph 10 at Prograft, is 19:00:06
3 it fair to say you have not been involved in the design 19:00:11
4 of any other hemostasis valves? 19:00:14
5 A. During my time at Guidant, '89 to '95 -- 19:00:17
6 Advanced Cardiovascular Systems, later Guidant -- I 19:00:27
7 worked on catheters that also had a hemostasis valve, 19:00:30
8 but my recollection is that those devices used 19:00:34
9 off-the-shelf components, typically a rotating 19:00:38
10 hemostatic valve. 19:00:42
11 Q. Were you involved in the selection of the 19:00:52
12 rotating hemostatic valve in that project? 19:00:55
13 A. I believe so. 19:00:58
14 Q. And do you recall why you selected a rotating 19:00:59
15 hemostatic valve in that project? 19:01:02
16 A. They were readily available. They were being 19:01:04
17 used on other similar devices to seal around the guide 19:01:08
18 wire of the size that we were using at the time. 19:01:11
19 Q. Do you recall the size you were using at the 19:01:16
20 time? 19:01:20
21 A. I was usually working on 018 -- 0 -- 0.018-inch 19:01:20
22 guide-wire-type devices. 19:01:29
23 Q. Good memory. 19:01:32
24 A. Pretty standard still. 19:01:39
25 MR. HAMILTON: Okay. Why don't we take a 19:01:52

1 break. Let's see if I've got anything else. I 19:01:54
2 think I'm getting close.

3 THE WITNESS: Okay. 19:01:59

4 THE VIDEOGRAPHER: We are going off the 19:02:00
5 record at 1601. 19:02:02

6 (Recess.) 19:16:51

7 THE VIDEOGRAPHER: We are back on the 19:16:51
8 record at 1617. 19:17:22

9 BY MR. HAMILTON: 19:17:27

10 Q. Do you understand you're still under oath? 19:17:29

11 A. Yes. 19:17:30

12 Q. Did you discuss your deposition with anybody 19:17:31
13 during the last break? 19:17:33

14 A. No. 19:17:34

15 Q. Review any documents during the last break? 19:17:35

16 A. No. 19:17:37

17 Q. Okay. If you could -- you have your declaration 19:17:38
18 in front of you, Exhibit 1003. If you could turn to 19:17:41
19 page 1, paragraph 4. 19:17:45

20 A. (Complying.) 19:17:48

21 Q. It says you're being compensated at your 19:17:49
22 customary hourly rate. At what rate are you can 19:18:00
23 compensated for this matter? 19:18:03

24 A. \$500 per hour. 19:18:04

25 Q. And has that been since the inception of the 19:18:06

1 matter? 19:18:09

2 A. Yes. 19:18:09

3 Q. Okay. If you could, I am going to hand you a 19:18:09

4 new exhibit. I've affixed 2006 to it. 19:18:25

5 (Tendered.) 19:18:37

6 (Exhibit 2006, US Patent Number 7,682,380 19:18:38

7 82, dated March 23,2010 (s4) KTNK-RESISTANT

8 BIFURCATED, was marked for identification.) 19:18:38

9 BY MR. HAMILTON: 19:18:38

10 Q. Do you recognize Exhibit 2006? 19:18:48

11 A. I've certainly have seen it before, but I have 19:18:52

12 not reviewed this in a long time. 19:19:01

13 Q. Where have you seen it before? 19:19:07

14 A. Well, I'm an inventor on this patent. 19:19:09

15 Q. So -- 19:19:12

16 A. So I would have reviewed it during its 19:19:14

17 prosecution. 19:19:23

18 Q. When you say you would have reviewed it, do you 19:19:24

19 recall reviewing it during its prosecution? 19:19:27

20 A. Yes. It looks familiar. 19:19:30

21 Q. Do you recall signing an oath or a declaration 19:19:57

22 during prosecution that the statements in the disclosure 19:20:01

23 are true and correct? 19:20:07

24 A. I probably did. I don't really recall that 19:20:12

25 specific document. 19:20:17

1 Q. Would you put something in your own patent that 19:20:18
2 you thought wasn't true or correct? 19:20:21
3 A. I would not. 19:20:23
4 Q. Do you have any reason to doubt that this is a 19:20:24
5 true and correct copy of a patent in which you're an 19:20:32
6 inventor? 19:20:39
7 A. I haven't looked at it to confirm all the pages 19:20:40
8 are there, but certainly it would appear that it is the 19:20:45
9 full patent. 19:20:49
10 Q. And, generally, what's the invention disclosed 19:20:52
11 in this patent -- let me -- let me rephrase that. I 19:21:00
12 don't want to trip you up on saying what invention you 19:21:02
13 have or what you don't. 19:21:05
14 So what's -- what's the general subject matter 19:21:06
15 of this patent? 19:21:07
16 A. It's an endoluminal prosthesis for placement at 19:21:08
17 a bifurcation site within the body. 19:21:16
18 Q. Would you consider this a medical device? 19:21:17
19 A. It is a stent graft for treating abdominal 19:21:20
20 aortic aneurysms. 19:21:30
21 Q. Okay. You can set that aside. 19:21:35
22 A. (Complying.) 19:21:38
23 Q. And if you would pull up Exhibit 1005. 19:21:40
24 A. (Complying.) 19:21:45
25 Q. And if we could go to Figure 27. 19:21:52

1 A. (Complying.) 19:21:57

2 Q. It's going to be page 14 of the exhibit. And if 19:22:03

3 you want, we can use the other figures if something is 19:22:08

4 not clear in that figure that you don't understand. 19:22:10

5 A. No, this figure is probably fine. 19:22:14

6 Q. Do you see any items in this figure that would 19:22:16

7 apply compressive or constrictive force to the lumen 19:22:30

8 shown in this figure? 19:22:37

9 MR. STOWELL: Objection. Form. Outside 19:22:39

10 the scope. 19:22:53

11 THE WITNESS: The description of Figure 19:22:53

12 27 illustrates a perspective view of a stasis valve 19:23:44

13 and external mechan- -- mechanism assembly in 19:23:50

14 accordance with one embodiment. 19:23:53

15 BY MR. HAMILTON: 19:23:55

16 Q. For the record can you identify what paragraph 19:23:56

17 you're reading there? 19:23:58

18 A. Paragraph 37. 19:24:00

19 Q. Are there any items in Figure 27 that apply a 19:24:03

20 compressive or constricting force to the lumen shown in 19:24:29

21 27? 19:24:33

22 A. Looking in the patent to see how they -- what 19:24:34

23 they call the different components here. 19:24:40

24 Q. If it's helpful, I'll point you to paragraph 74. 19:25:23

25 A. So item 300 shown in Figure 27, they're 19:25:44

1 referring to it as a separate tool or device, such as a 19:26:06
2 clamp, forceps, hemostat or combination thereof. 19:26:15
3 Q. And is there anything in that item 300 that 19:26:31
4 applies a compressive force -- 19:26:35
5 A. Yes, I -- 19:26:39
6 Q. -- to item 100? 19:26:40
7 A. Yes. I believe the components above and below 19:26:42
8 the member 110, the seal module 100 act to compress that 19:26:55
9 seal module. 19:27:04
10 Q. Are those members that act to compress the seal 19:27:09
11 module filaments? 19:27:23
12 A. I wouldn't call them filaments. They are a 19:27:25
13 separate tool or device, such as a clamp, forceps or 19:27:34
14 hemostat. 19:27:37
15 Q. And why wouldn't you call those filaments? 19:27:39
16 A. Because it's represented as a clamp or a forceps 19:27:43
17 or a hemostat. 19:27:51
18 Q. And would the two arms of the clamp be rigid 19:27:53
19 relative to the item in -- that those two arms are 19:27:58
20 applying a compressive force to? 19:28:02
21 MR. STOWELL: Objection. Form. 19:28:04
22 THE WITNESS: For this type of valve -- a 19:28:07
23 pinch valve is what I might call it -- the members 19:28:09
24 doing the pinching or squeezing would typically be 19:28:15
25 a forceps or hemostat, which would have a fair 19:28:18

1 amount of rigidity relative to the tube that it's 19:28:22
2 compressing. 19:28:26
3 BY MR. HAMILTON: 19:28:27
4 Q. And is that one of the reasons you wouldn't call 19:28:27
5 those two items that do the compressing a filament? 19:28:29
6 MR. STOWELL: Objection. Form. 19:28:33
7 THE WITNESS: I would call it a clamp, 19:28:36
8 not a filament. 19:28:44
9 BY MR. HAMILTON: 19:28:46
10 Q. Okay. If you could turn to Figures 16 through 19:28:47
11 19 on page 11. 19:28:55
12 A. (Complying.) 19:29:01
13 Q. Do you understand what's depicted in Figures 16 19:29:08
14 through 19? 19:29:12
15 A. I'll have to confirm that these are related to 19:29:14
16 Figures 12 through 15. 19:29:23
17 Q. If you want to look at paragraph 60, that might 19:29:29
18 help. 19:29:35
19 A. (Complying.) 12. 19:29:48
20 Can you repeat the question? 19:31:57
21 Q. Do you understand what's depicted in Figures 16 19:32:00
22 through 19? 19:32:03
23 A. Yes. 19:32:04
24 Q. Do Figures 16 through 19 show what happens to a 19:32:04
25 sealing member when a compressive force is applied to a 19:32:21

1 lumen, including the sealing member? 19:32:25

2 And let me just be clear: Sealing member 165. 19:32:28

3 A. Well, as the patent says in Section 60, 19:32:33

4 paragraph 60, with reference to Figures 10-A, 10-B, 16 19:33:05

5 through 19, "highly compliant third central seal member 19:33:12

6 165 seals around a variety of profile shapes 192 and 19:33:16

7 diameters 194 of the lumen 193 when at least one side of 19:33:25

8 compressive force 67 is exerted upon the central region 19:33:32

9 195 with respect to the central portion 110 of the 19:33:38

10 containment structure." 19:33:44

11 Q. So does Figures 16 through 19 show what happens 19:33:44

12 to a sealing member within a lumen -- let's say sealing 19:33:48

13 member supposition 165 because that's the sealing member 19:33:53

14 shown in those figures -- when a compressive force is 19:33:56

15 applied to the lumen? 19:33:59

16 MR. STOWELL: Objection. Form. 19:34:01

17 THE WITNESS: When a compression force is 19:34:04

18 applied -- sorry. Back up. 19:34:07

19 When at least one side of compressive 19:34:09

20 force is exerted upon the central region, that's 19:34:11

21 what it's depicting in 16 through 19. 19:34:16

22 BY MR. HAMILTON: 19:34:21

23 Q. So does Figures 16 through 19 show how sealing 19:34:21

24 member 165 completely seals a lumen when a compressive 19:34:26

25 force is applied to the outside of the lumen? 19:34:33

1 MR. STOWELL: Objection. Asked and 19:34:36
2 answered. Form. 19:34:38

3 THE WITNESS: The figures aren't that 19:34:40
4 clear, but Figure 17 would appear to be completely 19:34:44
5 closed, with no instrument inside. 19:34:50

6 BY MR. HAMILTON: 19:34:53

7 Q. Then what about Figure 18? 19:34:54

8 A. I think they're trying to show a variety of 19:34:59
9 different profile shapes 192. So in Figure 18 it's a 19:35:08
10 somewhat triangular lumen remaining. 19:35:14

11 Q. And -- and it's a somewhat triangular lumen 19:35:21
12 because the tool inserted in Figure 18 is somewhat 19:35:26
13 triangular? Is that the -- is that what Figure 18 is 19:35:29
14 trying to show? 19:35:32

15 MR. STOWELL: Objection. Misstates the 19:35:32
16 document. 19:35:34

17 THE WITNESS: Well, it's a bit unclear to 19:35:39
18 me because 190 in Figure 16 is said to be the 19:36:20
19 lumen, not an instrument placed inside. 19:36:23

20 BY MR. HAMILTON: 19:36:35

21 Q. So what about 192 in Figure 18? 19:36:35

22 A. It shows sealing around a variety of pro- -- 19:36:41
23 profile shapes 192. 19:36:51

24 Q. So what would cause that profile shape 192 in 19:37:01
25 Figure 18? Would that be a tool of that shape within 19:37:08

1 the lumen? 19:37:11

2 MR. STOWELL: Objection. Form. 19:37:14

3 THE WITNESS: Potentially. 19:37:15

4 BY MR. HAMILTON: 19:37:16

5 Q. It could be anything in the lumen, couldn't it? 19:37:18

6 A. Could be a tool in the lumen. It's not well 19:37:21

7 described in the patent, I would say. 19:37:27

8 Q. Okay. So with that understanding, if you look 19:37:29

9 at Figures 19, 18 and 16, you have a variety of sizes, 19:37:32

10 19 being small, 16 being larger, and you have a shape -- 19:37:38

11 different shape, 18. So do those three figures show how 19:37:44

12 the sealing member seals around a variety of sizes and 19:37:53

13 shapes when a compression force is applied to the lumen? 19:37:58

14 A. Yes, that's what it's showing. 19:38:01

15 Q. And then 17 is when nothing is in -- inside the 19:38:03

16 lumen, it completely seals the lumen; is that right? 19:38:06

17 A. That's my assumption. 19:38:09

18 Q. If you could look at -- we better use the other 19:38:13

19 figures. Let me start with these. Let's look at Figure 19:38:44

20 33. 19:38:51

21 A. (Complying.) 19:38:53

22 Q. And if you need to and Figure 33 doesn't show 19:38:54

23 much -- you have the other figure already. Okay. 19:39:00

24 Is the actuator shown in Figure 33 a movable 19:39:21

25 actuator? 19:39:28

1 A. Yes. The two U-shaped actuators move relative 19:39:31
2 to the seal module. 19:40:07
3 Q. And let's -- let's just make sure we're clear 19:40:10
4 here. I've got my other figures. Don't see it in that. 19:40:19
5 So the U-shaped items are actuating members, 19:40:28
6 aren't they? 19:40:36
7 A. I believe those are considered the actuators. 19:40:41
8 Q. I'll just point you to paragraph 76, which 19:40:45
9 refers to two circular actuators 50 in this figure. 19:40:56
10 What are the two circular actuators 50 in this figure? 19:41:12
11 A. I don't see 50 denoted on Figure 33. 19:41:19
12 Q. Do you want to look at Figure 32? Well, 19:41:55
13 actually, Figure 33 -- 50 - 50 is the top right, just 19:42:04
14 above what I believe is a button. 19:42:09
15 A. Oh. 19:42:12
16 Q. Is that -- does that tell you what circulator -- 19:42:15
17 circular actuator 50 is? 19:42:19
18 A. Yes. 19:42:21
19 Q. What is circular actuator 50 in Figure 33? 19:42:21
20 A. It's referring to the assembly of the circular 19:42:27
21 actuator 50 together with the U-shaped actuator members 19:42:33
22 55. 19:42:40
23 Q. And is that actuator 50 movable in this 19:42:40
24 embodiment? 19:42:44
25 A. Yes. They're compressed inward to release 19:42:47

1 tension on the valve. 19:42:54

2 Q. And is the way those actuators move in this 19:42:55

3 embodiment by sliding? 19:42:59

4 A. They're pushed inward manually, so they are 19:43:03

5 sliding within the housing. 19:43:09

6 MR. HAMILTON: All right. Why don't we 19:43:35

7 take another quick break? I think I might be done. 19:43:37

8 THE VIDEOGRAPHER: We are going off the 19:43:40

9 record at 1643. 19:43:41

10 (Recess.) 19:47:53

11 THE VIDEOGRAPHER: We are back on the 19:47:53

12 record at 1648. 19:48:02

13 BY MR. HAMILTON: 19:48:04

14 Q. Are you aware that patent owner Inari submitted 19:48:07

15 a declaration by Paul Zalesky in this matter? 19:48:11

16 A. Yes. 19:48:15

17 Q. Have you read that declaration? 19:48:15

18 A. Did review it briefly last night. 19:48:19

19 Q. Was that the first time you've seen that 19:48:22

20 declaration? 19:48:25

21 A. Yes. 19:48:25

22 Q. Have you -- in reviewing it, did you see 19:48:26

23 Mr. Zalesky's credentials or background and experience? 19:48:31

24 A. I breezed through that portion, but I saw some 19:48:36

25 of it. 19:48:44

1 Q. Did you see any reason to doubt that Mr. Zalesky 19:48:44
2 should be qualified as an expert in this matter? 19:48:47
3 A. No. 19:48:52
4 Q. Do you believe Mr. Zalesky is an expert in this 19:48:54
5 matter? 19:48:59
6 A. I don't have an opinion on that. 19:49:00
7 MR. HAMILTON: All right. I have no 19:49:05
8 further questions. 19:49:06
9 MR. STOWELL: I have no questions for 19:49:08
10 Mr. Thornton either. 19:49:10
11 THE VIDEOGRAPHER: All right. Please 19:49:11
12 stand by. 19:49:13
13 This marks the end of the deposition of 19:49:13
14 Troy Thornton. We are going off the record at 19:49:16
15 1649. 19:49:20
16 (The deposition was concluded at 4:49
17 p.m.)
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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
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7 the arrangements made for the reporting services of
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11 party to the litigation, counsel to the parties, or
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14 disclosure: I am a Georgia Certified Court
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17 Planet Depos, was
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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 *Susan DiFilippantonio*

14 Susan DiFilippantonio, Notary Public
15 and Registered Professional Reporter
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CAPTION

The Deposition of TROY THORNTON, taken in the matter, on the date, and at the time and place set out on the title page hereof.

It was requested that the deposition be taken by the reporter and that same be reduced to typewritten form.

It was agreed by and between counsel and the parties that the Deponent will read and sign the transcript of said deposition.

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CERTIFICATE OF REPORTER

STATE OF GEORGIA

COUNTY OF FULTON

Before me, this day, personally appeared, TROY THORNTON, who, being duly sworn, states that the foregoing transcript of his deposition, taken in the matter, on the date, and at the time and place set out on the title page hereof, constitutes a true and accurate transcript of said deposition.

If no changes need to be made on the following two pages, place a check here , and return only this signed page.

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DEPOSITION ERRATA SHEET

Assignment No.: 575710

Case Caption: IMPERATIVE CARE, INC. -vs- INARI MEDICAL,
INC.

Witness: TROY THORNTON

DECLARATION UNDER PENALTY OF PERJURY I declare
under penalty of perjury that I have read the entire
transcript of my deposition taken in the captioned
matter or the same has been read to me, and the same is
true and accurate, save and except for changes and/or
corrections, if any, as indicated by me on the
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that I offer these changes as if still under oath.

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7 SIGNATURE OF DEPONENT

8 _____
TROY THORNTON

9 Sworn to and subscribed before me
10 this ___ day of _____, _____.

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

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