

1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD
3

4 IMPERATIVE CARE, INC.,)

5 Petitioner,)

6 VS.)

7 INARI MEDICAL, INC.,)

8 Patent Owner.)
9 _____)

Case No. IPR2024-01157
Patent No. 11,697,011 B2

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12
13 IN-PERSON VIDEOTAPED DEPOSITION OF
14 TROY L. THORNTON
15 FRIDAY, AUGUST 15, 2025
16
17
18
19
20
21
22

23 STENOGRAPHIC REPORTER: CHRISTA YAN, CSR NO. 14316, RPR
24 _____
25

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E X H I B I T S

EXHIBIT FOR IDENTIFICATION

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No Exhibits Marked.

--oOo--

Transcript of Troy L. Thornton
Conducted on August 15, 2025

4

1 BE IT REMEMBERED that on FRIDAY, the 15TH DAY OF
2 AUGUST, 2025, at the hour of 9:01 A.M., of said day, at
3 333 Bush Street, San Francisco, California 94104, before
4 me personally, CHRISTA YAN, a Certified Shorthand
5 Reporter, State of California, personally appeared TROY L.
6 THORNTON, who was examined as a witness in said cause;
7 that said transcript format was prepared in accordance
8 with California Code of Regulations Section 2473.

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Transcript of Troy L. Thornton
Conducted on August 15, 2025

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1 THE VIDEOGRAPHER: Here begins Media Number 1 in the
2 videotaped deposition of Troy L. Thornton in the matter of
3 Imperative Care, Inc., versus Inari Medical, Inc., in the
4 United States Patent and Trademark Office before the
5 Patent Trial and Appeal Board. Case Number IPR
6 2024-01157.

7 Today's date is August 15th, 2025. The time on
8 the video monitor is 9:01 a.m. The videographer today is
9 Gary Garcia, representing Planet Depos. This video
10 deposition is taking place at 333 Bush Street, San
11 Francisco, California.

12 Would counsel please voice identify themselves
13 and state whom they represent starting with the taking
14 attorney.

15 MR. HAMILTON: This is Joseph Hamilton from Perkins
16 Coie representing Patent Owner.

17 MR. STOWELL: Joshua Stowell of Knobbe Martens,
18 representing Petitioner, Imperative Care, as well as the
19 witness.

20 THE VIDEOGRAPHER: The court reporter today is Christa
21 Yan representing Planet Depos. The witness will now be
22 sworn.

23 TROY L. THORNTON,
24 the Witness, called on behalf of the Patent Owner, being
25 duly sworn to state the truth, the whole truth, and

09:01:22
09:01:25
09:01:31
09:01:39
09:01:43
09:01:54
09:01:55
09:01:58
09:02:02
09:02:05
09:02:10
09:02:11
09:02:13
09:02:16
09:02:16
09:02:25
09:02:25
09:02:28
09:02:32
09:02:33
09:02:35
09:02:38
09:02:38
09:02:38
09:02:38
09:02:38

1	nothing but the truth, testified on oath as follows:	09:02:38
2	EXAMINATION	09:02:46
3	BY MR. HAMILTON:	09:02:46
4	Q Good morning, Mr. Thornton. Thank you for coming	09:02:49
5	back.	09:02:52
6	Do you understand you're under oath?	09:02:52
7	A Yes.	09:02:56
8	Q Is there any reason you can't give your full,	09:02:57
9	complete, and truthful testimony today?	09:03:02
10	A No.	09:03:04
11	Q Are you on any medications that might prevent you	09:03:05
12	from giving your full, complete, and truthful testimony	09:03:08
13	today?	09:03:11
14	A No.	09:03:11
15	Q I'm going to hand you a couple things. We'll	09:03:12
16	start first with Exhibit 1001.	09:03:29
17	Do you recognize Exhibit 1001?	09:03:47
18	A Yes.	09:03:50
19	Q And is this the '011 patent?	09:03:50
20	A Yes. U.S. 11,697,011 B2.	09:03:57
21	Q If I refer to that Exhibit 001 as the '011	09:04:04
22	patent, can we both agree that's the same patent	09:04:15
23	Exhibit 1001?	09:04:19
24	A Yes.	09:04:20
25	Q All right. I'm going to hand you another	09:04:22

1	exhibit. This exhibit's been previously marked as	09:04:26
2	Exhibit 1014. Do you recognize this exhibit?	09:04:40
3	A Yes.	09:04:42
4	Q And what is it?	09:04:43
5	A Supplemental Declaration of Troy L. Thornton in	09:04:45
6	Support of Petitioner's reply for Inter Partes Review of	09:04:50
7	U.S. Patent Number 11,697,011.	09:04:54
8	Q Do you recall submitting an earlier declaration	09:05:03
9	in this matter?	09:05:09
10	A Yes.	09:05:10
11	Q So to keep the two separate, when we refer to	09:05:13
12	them, I'm going to refer to Exhibit 1014 as your	09:05:20
13	supplemental declaration. And the other exhibit, which is	09:05:24
14	Exhibit 1003, I'm going to refer to as your declaration.	09:05:28
15	A Okay.	09:05:32
16	Q Is that okay? Great.	09:05:33
17	Is there anything you want to change in your	09:05:36
18	first declaration, Exhibit 1003?	09:05:47
19	A No.	09:05:50
20	Q Are there any mistakes in your first declaration,	09:05:51
21	Exhibit 1003, that you're aware of?	09:06:03
22	A Not that I'm aware of.	09:06:05
23	Q And then what about for your supplemental	09:06:06
24	declaration?	09:06:09
25	A I'm not aware of any mistakes.	09:06:10

1	THE VIDEOGRAPHER: One moment, Counsel. I just want	09:06:33
2	to adjust your mic because it keeps brushing against your	09:06:35
3	shirt. (Indicating.) There you go.	09:06:41
4	BY MR. HAMILTON:	09:06:43
5	Q If you could open your supplemental declaration	09:06:44
6	to page 21.	09:06:48
7	A Yes.	09:07:30
8	Q Do you see the figure on page 21?	09:07:30
9	A Yes.	09:07:33
10	Q I got a couple questions about that figure. Do	09:07:34
11	you understand what's depicted in the figure?	09:07:36
12	A Yes.	09:07:38
13	Q And what is depicted in the figure on page 21?	09:07:40
14	A It's an illustration provided by the patent owner	09:07:43
15	showing two instruments in red with a Hartley string or	09:08:11
16	Eller's wire member encircling them in yellow, and green	09:08:23
17	is identified as Schaffer's seal module component.	09:08:30
18	Q If you look at the sentence underneath the figure	09:08:36
19	beginning with, Patent owner's illustration.	09:08:41
20	A Yes.	09:08:48
21	Q What is the compliant sealing member you're	09:08:48
22	referencing there?	09:08:52
23	A The sealing member that's described in Schaffer's	09:08:53
24	paragraph 68.	09:09:27
25	Q Is this figure an accurate depiction of your	09:09:34

1	proposed combination of Schaffer with Hartley or Eller?	09:09:38
2	MR. STOWELL: Objection. Incomplete hypothetical.	09:09:45
3	THE WITNESS: It's not my depiction. It's from patent	09:09:47
4	owner's illustration that was provided, I think, by	09:09:57
5	Zalesky.	09:10:02
6	BY MR. HAMILTON:	09:10:02
7	Q And is it an accurate depiction of your proposed	09:10:04
8	combination of Schaffer with Hartley or Eller?	09:10:07
9	MR. STOWELL: Same objection.	09:10:19
10	THE WITNESS: Yeah, I'm not sure that it is an	09:10:20
11	accurate depiction.	09:10:28
12	BY MR. HAMILTON:	09:10:29
13	Q And why not, what's not accurate about it?	09:10:29
14	MR. STOWELL: Objection. Outside the scope.	09:10:38
15	THE WITNESS: As I state in paragraph 35, they're	09:10:39
16	depicting a noncompliant sealing member in the	09:10:57
17	illustration showing large gaps whereas if they would have	09:11:01
18	used the very compliant material as described in Schaffer	09:11:07
19	as... as a very compliant sealing member as described in	09:11:14
20	Schaffer which would fill in those gaps.	09:11:44
21	BY MR. HAMILTON:	09:11:46
22	Q So in your proposed combination of Schaffer with	09:11:53
23	Hartley or Eller, that proposed combination would include	09:11:55
24	the highly compliant sealing member; is that correct?	09:11:58
25	MR. STOWELL: Objection. Misstates testimony.	09:12:00

1 THE WITNESS: In the Schaffer embodiments where the
2 U-shape actuating members are replaced with a wire member
3 or string, the seal module wouldn't be extremely
4 compliant, gel-like sticky as is described this Schaffer
5 paragraph 68.

09:12:01

09:12:23

09:12:27

09:12:39

09:12:51

6 BY MR. HAMILTON:

09:12:51

7 Q But you would include a highly compliant sealing
8 member; is that correct?

09:12:59

09:13:04

9 MR. STOWELL: Objection. Misstates testimony. Asked
10 and answered.

09:13:06

09:13:09

11 THE WITNESS: It would include a seal member. It
12 would not be the extremely sticky self-sealing seal member
13 which is one of the options provided in Schaffer.

09:13:09

09:13:16

09:13:23

14 BY MR. HAMILTON:

09:13:26

15 Q But it would be compliant enough to fill in the
16 gaps in the figure on page 21, correct, that's your
17 testimony?

09:13:27

09:13:29

09:13:33

18 MR. STOWELL: Objection. Misstates testimony. Asked
19 and answered.

09:13:34

09:13:36

20 THE WITNESS: No. I think the seal member to be used
21 with Schaffer would need to reopen when force is
22 released -- when the circumferential force is released so
23 that an extremely compliant sticky seal member would not
24 be the appropriate material choice.

09:13:36

09:13:46

09:13:54

09:14:01

09:14:05

25

1	BY MR. HAMILTON:	09:14:07
2	Q What about just a compliant seal member, would it	09:14:08
3	include a compliant seal member?	09:14:11
4	MR. STOWELL: Objection; vague.	09:14:13
5	THE WITNESS: It's not clear what you mean by	09:14:14
6	compliant. How compliant is compliant?	09:14:19
7	BY MR. HAMILTON:	09:14:21
8	Q I'm looking at your statement on page 21 where	09:14:23
9	you say, Patent owner's illustration does not depict the	09:14:25
10	compliant sealing member, and you refer to a specific	09:14:29
11	paragraph in Schaffer. Do you see that?	09:14:34
12	A Yes.	09:14:35
13	Q How compliant is that sealing member?	09:14:35
14	MR. STOWELL: Objection. Vague.	09:14:40
15	THE WITNESS: I'd have to look at Schaffer's paragraph	09:14:41
16	to refresh my recollection.	09:14:44
17	BY MR. HAMILTON:	09:14:49
18	Q Would that sealing member be compliant enough to	09:14:49
19	fill in the gaps on the -- in the figure on page 21?	09:14:52
20	A I'd have to look at Schaffer to confirm that.	09:14:58
21	Q If the sealing member was not compliant enough to	09:15:00
22	fill in the gaps, your proposed combination of a string or	09:15:10
23	a wire as in Hartley or Eller in the device of Schaffer	09:15:19
24	would leak if two (indiscernible utterance) instruments	09:15:25
25	were inserted as shown on page 21, correct?	09:15:29

1	THE STENOGRAPHIC REPORTER: I'm sorry, Counsel. You	09:15:29
2	said would leak if two what?	09:15:32
3	MR. HAMILTON: I'll withdraw the question and restate	09:15:49
4	it.	09:15:51
5	THE VIDEOGRAPHER: Counsel, please be mindful of your	09:15:53
6	mic. Thank you.	09:15:55
7	BY MR. HAMILTON:	09:15:57
8	Q In your proposed combination of Schaffer with	09:16:00
9	Hartley and Eller, would gaps form when two instruments	09:16:03
10	are inserted as shown on page 21 of your declaration?	09:16:08
11	MR. STOWELL: Objection. Outside the scope. Vague.	09:16:14
12	THE WITNESS: That's not something I've considered in	09:16:16
13	this particular supplemental declaration.	09:16:29
14	BY MR. HAMILTON:	09:16:33
15	Q You don't know if gaps would form as shown in	09:16:37
16	this figure on 21. Is that your testimony?	09:16:40
17	MR. STOWELL: Objection. Asked and answered.	09:16:42
18	THE WITNESS: Repeat the prior question.	09:16:43
19	BY MR. HAMILTON:	09:16:55
20	Q In your proposed combination of Schaffer with	09:17:01
21	Hartley and Eller, would gaps form when two instruments	09:17:03
22	are inserted as shown on page 21 of your declaration?	09:17:06
23	MR. STOWELL: Objection. Outside the scope and vague.	09:17:11
24	THE WITNESS: It would depend on the size of the	09:17:13
25	instruments, the shape of the instruments, the seal module	09:17:36

1 material, the seal module thickness and many other

09:17:40

2 variables, material properties of the seal module. So it

09:17:43

3 would depend on lots of different variables.

09:17:50

4 BY MR. HAMILTON:

09:17:52

5 Q Okay. So let's apply the shape, thickness, and

09:17:53

6 other variables shown on page 21. Would a gap form?

09:17:58

7 MR. STOWELL: Objection. Incomplete hypothetical.

09:18:04

8 THE WITNESS: I don't know. I haven't considered
9 that.

09:18:05

09:18:10

10 BY MR. HAMILTON:

09:18:10

11 Q If you look at the sentence that begins on the
12 bottom of page 21 starting with, The sealing and goes over
13 to the next page. What does that mean, Compliant that it
14 forms a seal around the instruments 260 even if the
15 instruments 260 are irregularly shaped. What does that
16 mean?

09:18:59

09:19:03

09:19:07

09:19:22

09:19:25

09:19:29

17 A That's a statement from the Schaffer patent
18 application so I need to look at Schaffer to fully
19 understand that sentence.

09:19:29

09:19:37

09:19:41

20 Q I'm going to hand you what's been previously
21 marked as Exhibit 1005. Is that the Schaffer that you're
22 referring to?

09:19:42

09:20:07

09:20:14

23 A Yes.

09:20:14

24 Q What do you need to look at to determine what
25 that sentence means from Schaffer that you quoted in your

09:20:15

09:20:22

1 declaration?

09:20:24

2 A So in paragraph 68 it's discussing another
3 embodiment, and the last sentence says, The material 166
4 of the third seal member third central seal member 165 is
5 so compliant that it forms a seal around the instruments
6 260 even if the instruments 260 are irregularly shaped.

09:20:24

09:21:47

09:21:59

09:22:07

09:22:10

7 Q And how does that third central seal member form
8 that seal around an irregularly shaped instrument?

09:22:19

09:22:23

9 A Well, it states it is so compliant, and earlier
10 sections discuss ranges of material properties, including
11 some very compliant soft gelatinous-type materials that
12 they show in paragraph 59.

09:22:27

09:22:44

09:22:50

09:22:58

13 At the end of paragraph 59 Schaffer states, The
14 material 166 exhibits a self-closing nature in that it
15 sticks occlusively to itself forming a nearly fluid
16 gas-tight seal under very light compression.

09:23:20

09:23:22

09:23:28

09:23:32

17 Q So the third central seal member forms a seal by
18 filling in the gaps; is that correct?

09:23:42

09:23:47

19 MR. STOWELL: Objection. Vague.

09:23:50

20 THE WITNESS: It states it can seal around the
21 instruments even if the instruments are irregularly
22 shaped.

09:23:57

09:23:58

09:24:00

23 BY MR. HAMILTON:

09:24:01

24 Q And does that mean it will fill in the gaps
25 around the irregularly shaped instrument?

09:24:01

09:24:03

1	MR. STOWELL: Objection. Vague.	09:24:08
2	THE WITNESS: I would say once again, it depends on	09:24:09
3	the size, the shape, the thickness of the seal member, the	09:24:12
4	compliance of the seal member, the tension applied. Many	09:24:17
5	different variables would make a difference.	09:24:20
6	BY MR. HAMILTON:	09:24:23
7	Q Is the goal of the compliant seal member to fill	09:24:24
8	in those gaps?	09:24:27
9	MR. STOWELL: Objection. Vague.	09:24:27
10	THE WITNESS: Schaffer certainly states that it is so	09:24:28
11	compliant that it forms a seal around instruments even if	09:24:44
12	the instruments are irregularly shaped.	09:24:49
13	BY MR. HAMILTON:	09:24:52
14	Q Does that mean it would fill in the gaps around	09:24:52
15	the irregularly shaped instrument?	09:24:55
16	MR. STOWELL: Objection. Asked and answered. Vague.	09:24:57
17	THE WITNESS: I think it depends on the instruments,	09:24:59
18	the size, the materials, the tension applied and possibly	09:25:00
19	other variables.	09:25:05
20	BY MR. HAMILTON:	09:25:06
21	Q Is the highly compliant material intended to fill	09:25:06
22	in gaps around an irregularly shaped instrument, is that	09:25:08
23	how it seals?	09:25:11
24	MR. STOWELL: Objection. Vague. Asked and answered.	09:25:12
25	THE WITNESS: It's certainly how it's described in	09:25:21

1 Schaffer, is that it would seal around irregularly shaped
2 instruments.

3 BY MR. HAMILTON:

4 Q And could it also fill in the gaps shown on
5 page 21 of your declaration in the figure?

6 MR. STOWELL: Objection. Incomplete hypothetical.

7 THE WITNESS: It would depend on the material, the
8 thickness, material properties, tension applied, the size
9 of the two instruments, and potentially other variables.

10 BY MR. HAMILTON:

11 Q And a person -- could a person of ordinary skill
12 in the art figure out all those variables so that the gaps
13 are filled in by the highly compliant material?

14 A I don't know.

15 Q If you look at the sentence beginning after the
16 quote on the top of page 22 in your declaration, In
17 addition, what did you mean by that sentence?

18 A Well, as I said the patent owner did not explain
19 how the illustration of the two instruments would be any
20 different if the string or wire member were replaced with
21 two U-shaped actuating members. Because of the
22 noncompliant seal that's depicted in illustration, some
23 gaps it would exist with U-shaped actuating members also.

24 Q Okay. So let's stop there. So whether you use a
25 string or U-shaped actuating members, these gaps would be

1	formed unless you use the compliant -- a compliant seal;	09:28:55
2	is that right?	09:29:03
3	MR. STOWELL: Objection.	09:29:03
4	THE WITNESS: I'm just saying that the illustration	09:29:03
5	apparently shows a relatively less compliant material.	09:29:05
6	BY MR. HAMILTON:	09:29:10
7	Q So one skilled in the art would actually use a	09:29:11
8	more compliant material to fill in those gaps; is that	09:29:14
9	right?	09:29:18
10	MR. STOWELL: Objection. Outside the scope.	09:29:18
11	THE WITNESS: I think the illustration is showing a	09:29:19
12	relatively noncompliant material as confirmed by the fact	09:29:25
13	that it is the same thickness all the way around. If a	09:29:29
14	more compliant material were used, it still would be	09:29:37
15	unclear whether some gaps would still form because of the	09:29:41
16	other variables I mentioned before.	09:29:45
17	BY MR. HAMILTON:	09:29:47
18	Q And that would be the same whether it's a string	09:29:47
19	or wire or two U-shaped members; is that right?	09:29:52
20	A Well, as I said, if the string were replaced by	09:29:55
21	two U-shaped actuating members, and one were to use a	09:30:08
22	relatively noncompliant seal member, some gaps would exist	09:30:15
23	between either design.	09:30:21
24	Q So could one use a more compliant seal member and	09:30:22
25	fill in those gaps?	09:30:28

1 A As I said before, I'm not sure. It would depend
2 on the size of the instruments, the thickness of the
3 material, the compliance of the material, the tension
4 applied, the flexibility of the U-shaped members, et
5 cetera.

6 Q So both the U-shaped members and the string would
7 form the gaps; is that right?

8 MR. STOWELL: Objection. Misstates testimony.

9 THE WITNESS: Gaps could form depending on the
10 multiple variables that I've mentioned several times.

11 BY MR. HAMILTON:

12 Q You say here on page 22, the same gaps would
13 exist. You're comparing the gaps with a string or a wire
14 and U-shaped members, correct?

15 A And with use of a relatively less compliant seal
16 member.

17 Q So using a string or a wire in place of the
18 U-shaped members doesn't improve sealing if all other
19 things are equal; is that right?

20 MR. STOWELL: Objection. Incomplete hypothetical.
21 Vague.

22 THE WITNESS: It's certainly possible that a string or
23 a wire could improve sealing. Once again, it depends on
24 the size and shape of the instruments inside, material
25 properties of the seal module, tension applied, the

1 flexibility of the string, wire, or U-shaped members and
2 potentially other variables.

3 BY MR. HAMILTON:

4 Q So here on page 22 you say, The same gaps would
5 exist.

6 A In this illustration that was provided by the
7 patent owner, given the way it's drawn, if the same
8 materials were used, it would appear that the similar gaps
9 would exist.

10 Q Now you just said similar. It would be the same
11 gaps, wouldn't it?

12 A It might depend on the material properties, the
13 tension applied, how tension can be applied to U-shaped
14 members, may be different than how tension is applied to a
15 suture.

16 Q So do you want to change this then, do you want
17 to change your testimony on page 22, you said the same
18 gaps. Is that not true?

19 A No, I don't want to change it.

20 Q So the same gaps would exist with U-shaped
21 members and a string or a wire, correct?

22 A If a relatively noncompliant seal member, as is
23 depicted in the illustration, it would be the same or very
24 similar gaps would exist if U-shaped members were used.

25 Q And how would a more compliant seal member

1 address that issue of the gaps?

09:33:26

2 A If a thicker, more compliant seal member were
3 used, it may be able to fill in some or all of the gaps.

09:33:28

09:33:34

4 Q And that would be the case whether or not a
5 string or a wire is used or U-shaped members as in
6 Schaffer's used, correct?

09:33:41

09:33:48

09:33:53

7 MR. STOWELL: Objection. Compound.

09:33:56

8 THE WITNESS: I think it's unclear without knowing the
9 exact materials, material properties, thicknesses, et
10 cetera, how different designs would perform.

09:33:56

09:34:05

09:34:08

11 BY MR. HAMILTON:

09:34:14

12 Q Would you need to know how compliant the member
13 is in order to assess that?

09:34:26

09:34:28

14 A I think one would need -- a person skilled in the
15 art would need to know many different aspects of the
16 different components of the design.

09:34:29

09:34:36

09:34:40

17 Q Is that one of the aspects?

09:34:41

18 A That would be one of the aspects.

09:34:43

19 Q Would you also need to know if the U-shaped
20 members were rigid or flexible to determine if the gaps
21 would be filled in?

09:34:45

09:34:59

09:35:04

22 A I think it would be important to know the
23 material properties of U-shaped members, the size and
24 shape of material properties, and obviously, flexibility
25 and rigidity exist along a wide range.

09:35:05

09:35:20

09:35:24

09:35:29

1 Q So you would need to know how much force is 09:35:34
2 necessary to cause the more compliant material to fill in 09:35:39
3 the gaps; is that right? 09:35:44

4 MR. STOWELL: Objection. Vague. Misstates testimony. 09:35:46

5 THE WITNESS: I think as I've said before, I think we 09:35:47
6 need to know -- a person of skill in the art would need to 09:35:53
7 know material properties for all the different components, 09:35:58
8 dimensions for the different components to be able to 09:36:05
9 judge that. 09:36:08

10 BY MR. HAMILTON: 09:36:09

11 Q And those properties and different components, 09:36:09
12 one of those properties is how compliant the seal member 09:36:12
13 is, right? 09:36:15

14 A That would be one aspect -- 09:36:17

15 Q Sorry. 09:36:22

16 A -- of one component. 09:36:23

17 Q And another one would be how rigid the member 09:36:24
18 applying (indiscernible utterance) the compression is, 09:36:38
19 right? 09:36:38

20 THE STENOGRAPHIC REPORTER: As a member of compliant 09:36:38
21 pressure? Is that what you said? 09:36:38

22 MR. HAMILTON: How rigid the member applying the 09:36:39
23 compression is. 09:36:42

24 THE STENOGRAPHIC REPORTER: Thank you. 09:36:42

25 THE WITNESS: I think it would be important to know 09:36:49

1 the dimensions, the material properties. Material
2 properties include, flexibility or rigidity, among other
3 properties and dimensions for the tools that are inside,
4 the tension applied and potentially other properties.

5 BY MR. HAMILTON:

6 Q For -- if you look at the first sentence on
7 page 22, starting with the quote, So compliant that it
8 forms a seal. Do you see that?

9 A Yes.

10 Q I want you to assume a seal member meets that
11 requirement. It's so compliant that it forms a seal.
12 Okay? Can you do that?

13 MR. STOWELL: Objection. Vague. Incomplete
14 hypothetical.

15 THE WITNESS: I don't know. It depends on the
16 dimensions, the material properties, the size of the
17 instrument. There's many variables to consider.

18 BY MR. HAMILTON:

19 Q So is it your testimony that you -- withdraw the
20 question.

21 And the way this functions would be a -- some
22 member, U-shaped member or string would cause the
23 compliant member however compliant it is, to deform to
24 form the seal; is that correct, that's how this operates?

25 MR. STOWELL: Objection -- objection. Vague.

1 THE WITNESS: The mechanism of action in the '011
2 patent and in Schaffer are the same in that they
3 circumferentially constrict the tube in order to create a
4 seal around the members that are inside.

5 BY MR. HAMILTON:

6 Q So right now, we're talking about some sealing
7 member that's so compliant that it forms a seal as you've
8 stated on page 22. And the way Schaffer forms the seal
9 with that sealing member that is so compliant that it
10 forms a seal is to apply some kind of compression to that
11 sealing member, correct?

12 MR. STOWELL: Objection. Misstates testimony.
13 Incomplete hypothetical.

14 THE WITNESS: In Schaffer, when they are showing
15 embodiments that are described as being this extremely
16 compliant, gelatinous, sticky material, they're referring
17 to earlier embodiments, not the embodiments in 30 through
18 34 -- Schaffer 30 through 34, which have the same
19 mechanism of action as the '011 patent.

20 BY MR. HAMILTON:

21 Q So but is it your testimony the embodiment in
22 Schaffer Figures 30 through 34, does not include a
23 compliant seal member; is that right?

24 MR. STOWELL: Objection. Vague.

25 THE WITNESS: In Schaffer, they use the term highly

1 compliant third seal member, and they use that seal member
2 to describe embodiments shown as 10A, 10B. And the way
3 that those embodiments work is by passive blood pressure,
4 not by an outside constraining force that constricts a
5 lumen.

6 BY MR. HAMILTON:

7 Q And so is it your testimony that that sealing
8 member that you just referred to is not found and could
9 not be used in Figures 30 through 34 in that embodiment;
10 is that right?

11 A I certainly don't believe that a gelatinous
12 substance that sticks to itself as they describe in
13 paragraph 59 is the type of material which could be used
14 for the Figures 30 through 34.

15 Q What about a material that's so compliant that it
16 forms a seal around instruments as you quoted on page 22,
17 could that material be used in the embodiment of Figures
18 30 through 34?

19 MR. STOWELL: Objection. Vague.

20 THE WITNESS: Once again, that sentence comes from the
21 end of paragraph 68 in Schaffer. And as it says, it's so
22 compliant which implies that it is the sticky, super-soft
23 material, gelatinous material, and I do not believe that
24 that would be -- a person skilled in the art would choose
25 that material to be used with the figures in 30

1 through 34, Schaffer.

09:42:51

2 BY MR. HAMILTON:

09:42:53

3 Q And when you say that material, let's just make
4 sure we're clear on what material you're referring to.
5 What paragraph are you referencing for the material?

09:42:53

09:42:59

09:43:06

6 A Paragraph 59, Schaffer.

09:43:07

7 Q So is it your testimony that the description of
8 the materials, for example, C-flex or Kraton, wouldn't be
9 used in the embodiment of Figures 30 through 34, is that
10 your understanding?

09:43:10

09:43:19

09:43:25

09:43:28

11 MR. STOWELL: Objection. Misstates testimony.

09:43:29

12 THE WITNESS: In paragraph 59 they say the shore
13 hardness of the material 166 is in another option between
14 15 and 20 on the shore 00 scale. This provides a material
15 166 that is extremely soft and compliant and intrinsically
16 sticky. They go on to compare it to a gelatinous
17 substance.

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09:44:06

18 So I believe that material, that type of
19 description of material is not the material that would be
20 able to be used for designs in Figures 30 through 34
21 wherein when the tension is released on the actuating
22 members, the tubing needs to recover, reopen on its own,
23 in order to open the valve.

09:44:06

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24 BY MR. HAMILTON:

09:44:33

25 Q So it's this sentence in paragraph 59 that begins

09:44:33

1 with, The shore hardness and ends with, 00 scale. That's 09:44:37
2 the material you're referring to, something with those 09:44:40
3 properties couldn't be used in Figures 30 through 34; is 09:44:42
4 that correct? 09:44:45

5 A I think a person skilled in the art would not 09:44:45
6 choose materials that were that soft, gelatinous, or 09:44:51
7 sticky to be used in designs that need -- where the 09:44:53
8 sealing member needs to reopen on its own once tension is 09:45:01
9 released from its circumference. 09:45:06

10 Q And when you say that soft, gelatinous, or 09:45:10
11 sticky, you're referring to the shore hardness properties, 09:45:14
12 correct? 09:45:18

13 A Hardness is one measure. I think there are 09:45:18
14 others. But they describe it as intrinsically sticky, 09:45:21
15 extremely soft, extremely low shore hardness. It can be 09:45:30
16 easily compressed upon itself or upon inserted an 09:45:35
17 instrument, can be compared to a gelatinous substance. 09:45:41

18 Q And that material -- withdraw the question. 09:45:55

19 If you could turn to paragraph 75 of Schaffer. 09:46:12
20 Do you see the last sentence in paragraph 75? 09:46:42

21 A Yes. It reads, In another option, the seal 09:46:44
22 module 100 and/or any of its respective seal members can 09:46:52
23 be formed of one or more materials, including their 09:46:56
24 relative properties as discussed above. 09:47:00

25 Q And that would include the materials and 09:47:02

1 properties of paragraph 59, wouldn't it, that's discussed
2 above that paragraph, isn't it?

3 A That's at least one area above that discusses
4 material properties.

5 Q So Schaffer says you can use that material,
6 doesn't it?

7 MR. STOWELL: Objection. Misstates the document.

8 THE WITNESS: Schaffer says that the seal members
9 could be formed of one or more materials and they have a
10 wide range of materials shown in paragraph 59 including
11 ones that are not so soft and sticky and gelatinous in
12 their nature.

13 BY MR. HAMILTON:

14 Q So how compliant is the seal module in this
15 embodiment 30 through 34?

16 MR. STOWELL: Objection. Vague. Outside the scope.

17 THE WITNESS: The description in Schaffer toward the
18 end of paragraph 77 says, The seal module 100 is able to
19 retract to an unsealed configuration. So that it has to
20 be resilient enough to retract to its open configuration
21 or unsealed configuration. That's the guidance that they
22 provided.

23 BY MR. HAMILTON:

24 Q Does it also have to be compliant enough to seal
25 around irregularly shaped instruments?

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09:49:32

09:49:35

1 A I'm sure the goal of the design is to be able to
2 seal well. It also has to unseal and reopen.

3 Q So the goal of the design is to be able to seal
4 around irregularly shaped instruments, correct?

5 MR. STOWELL: Objection. Misstates testimony. Asked
6 and answered.

7 THE WITNESS: I think the goal is to be able to seal
8 around various instruments. It is a hemostatic valve. So
9 it's designed to seal around a variety of instruments, I'm
10 sure.

11 BY MR. HAMILTON:

12 Q And the seal members must be compliant enough to
13 seal around irregularly shaped instruments, correct, for
14 this embodiment of Figures 30 through 34, correct?

15 MR. STOWELL: Objection. Vague. Misstates the
16 document.

17 THE WITNESS: In order to seal adequately, there are a
18 number of variables, including the spring tension, the
19 actuating members, material properties, the seal member
20 material properties and thickness, the tension applied,
21 and probably others that all impact the ability to seal
22 appropriately.

23 BY MR. HAMILTON:

24 Q So let's focus on the seal member material
25 properties and thickness. And one of those properties is

1	how compliant the seal member is, right?	09:51:27
2	A Yes.	09:51:28
3	Q And a more compliant seal member is more likely	09:51:31
4	to fill in gaps or seal around an irregularly shaped	09:51:35
5	instrument, correct?	09:51:39
6	MR. STOWELL: Objection. Vague.	09:51:41
7	THE WITNESS: Depends on the thickness and the	09:51:42
8	material properties, tension applied, et cetera.	09:51:46
9	BY MR. HAMILTON:	09:51:51
10	Q Does it also again on what's applying the	09:51:53
11	compression?	09:51:55
12	MR. STOWELL: Objection. Vague.	09:51:57
13	THE WITNESS: Yeah, I don't know. I haven't	09:51:57
14	considered that.	09:52:10
15	BY MR. HAMILTON:	09:52:10
16	Q So let's go back to page 21, paragraph 35 of your	09:56:08
17	supplemental declaration. You're right there on it. Do	09:56:15
18	you see the figure?	09:56:19
19	A Yeah.	09:56:19
20	Q You say, Patent owner's illustration does not	09:56:20
21	depict the compliant seal member described in Schaffer's	09:56:33
22	paragraph 68. Do you see that, right underneath the	09:56:35
23	picture?	09:56:38
24	A Yes.	09:56:38
25	Q If the compliant seal member described in	09:56:39

1	Schaffer's paragraph 68 was included in the figure on	09:56:45
2	page 21, how would that figure differ?	09:56:50
3	A If it were extremely compliant and soft material,	09:56:52
4	it would probably show some filling of the gaps, some	09:57:17
5	thinning out on the sides where it's in contact with the	09:57:24
6	instruments.	09:57:28
7	Q So when you say it would probably show some	09:57:28
8	filling in of the gaps and thinning out on the sides, you	09:58:18
9	mean it would deform?	09:58:24
10	A Once again, it depends on how gelatinous, how	09:58:25
11	soft, how much pressure's being applied. But if a seal	09:58:33
12	module were significantly more compliant than what's shown	09:58:42
13	here, it would have a different geometry shown.	09:58:48
14	Q And it would have a different geometry because	09:59:01
15	the material had deformed, its shape had deformed; is that	09:59:04
16	right?	09:59:12
17	A Extremely soft, compliant, gelatinous material	09:59:12
18	would thin out in certain areas and potentially fill in	09:59:15
19	other areas depending on all the material properties I've	09:59:23
20	mentioned before.	09:59:28
21	Q Thin out in certain areas and potentially fill in	09:59:29
22	other areas, that's the material deforming, correct?	09:59:36
23	A I don't know if I'd characterize it that way.	09:59:40
24	But... it's... changing its geometry if you look at it in	09:59:46
25	cross-section.	09:59:52

1	Q	And that changing of geometry is caused by an	09:59:53
2		external compression force, right?	10:00:05
3	MR. STOWELL:	Objection. Vague. Incomplete	10:00:09
4		hypothetical.	10:00:11
5	THE WITNESS:	It's caused by exerting force around the	10:00:11
6		seal module. Circumferential force around the seal	10:00:18
7		module.	10:00:26
8	BY MR. HAMILTON:		10:00:26
9	Q	Let's turn to page 17 of your declaration --	10:01:02
10		supplemental declaration, excuse me. Does this image show	10:01:08
11		a compliant seal member?	10:01:56
12	MR. STOWELL:	Objection. Vague.	10:01:59
13	THE WITNESS:	What's showing is potential gaps that	10:01:59
14		could form between the tool and the valve lumen with tools	10:02:24
15		that do not match the size and shape of the U-shaped	10:02:31
16		actuating members or if the members don't conform	10:02:33
17		sufficiently to the size of the tool inserted. That's	10:02:36
18		what the graphic is showing.	10:02:39
19	BY MR. HAMILTON:		10:02:41
20	Q	And you depict a seal module in that graphic,	10:02:41
21		correct?	10:02:46
22	A	Yes.	10:02:46
23	Q	Does that seal module include a compliant sealing	10:02:46
24		member?	10:02:53
25	MR. STOWELL:	Objection. Vague.	10:02:54

1 THE WITNESS: It's showing a seal module that can 10:02:54
2 collapse upon circumferential force and seal module, which 10:03:06
3 can expand when that force is released. So it has the 10:03:12
4 appropriate properties to perform those functions. I 10:03:18
5 can't say the level of compliance that it would have. 10:03:22

6 BY MR. HAMILTON: 10:03:32

7 Q Could a person of ordinary skill in the art have 10:03:37
8 figured out a level of compliance for a sealing member 10:03:39
9 that would fill in the gaps shown in that figure? 10:03:43

10 MR. STOWELL: Objection. Vague. 10:03:47

11 THE WITNESS: I think a person of skill in the art 10:03:48
12 would have many variables to consider, including the 10:03:53
13 actuating members themselves, mechanical properties of the 10:03:57
14 actuating members, mechanical properties of the spring 10:04:01
15 force applied, the polymer seal module materials. And 10:04:05
16 depending on the tools inserted, they may be able to 10:04:17
17 design one that works well in many cases. 10:04:20

18 BY MR. HAMILTON: 10:04:23

19 Q So let's take the tool that you're depicting on 10:04:24
20 page 17. With that tool inserted, could one of skill in 10:04:27
21 the art select a seal module material that's compliant 10:04:35
22 enough to fill in these gaps? 10:04:37

23 MR. STOWELL: Objection. Asked and answered. 10:04:40

24 THE WITNESS: I don't know. What I'm depicting is 10:04:40
25 that there may be cases where it doesn't seal perfectly 10:04:49

1 depending on the material properties of the components I 10:04:56
2 just mentioned. 10:04:59

3 BY MR. HAMILTON: 10:04:59

4 Q And the material -- one of those material 10:05:04
5 properties is how compliant that seal module is, correct? 10:05:06

6 A Well, material property, among many others, would 10:05:08
7 be material properties of that tube, the seal module, the 10:05:16
8 thickness of the seal module, the resilience, how much it 10:05:21
9 can recover when force is released, and of course, the 10:05:24
10 actuator or U-shaped members' properties also. 10:05:29

11 Q So could a person of ordinary skill in the art 10:05:33
12 select material properties of the seal member such that 10:05:36
13 those gaps would be filled in? 10:05:39

14 A I think it would depend on the size of the tool 10:05:40
15 inserted, the shape of the tool inserted, the geometry of 10:05:46
16 the actuating members as to whether that would be possible 10:05:54
17 or not. 10:05:58

18 Q So let's take the size of the tool, the shape of 10:05:58
19 the tool, and the geometry of the actuating members shown 10:06:01
20 in this figure. Is it possible? 10:06:05

21 MR. STOWELL: Objection. Vague. 10:06:08

22 THE WITNESS: This is just a graphic illustration that 10:06:09
23 it may not be possible in some cases. 10:06:14

24 BY MR. HAMILTON: 10:06:17

25 Q But in some cases it is possible, correct? 10:06:19

1	A	That would certainly be the goal of the engineer,	10:06:22
2		the person of skill in the art, to be able to make it seal	10:06:25
3		well and not have gaps.	10:06:30
4	Q	And a person of ordinary skill in the art could	10:06:32
5		take that goal and make this seal well by adjusting the	10:06:34
6		seal module's compliance, correct?	10:06:37
7	MR. STOWELL:	Objection. Vague. Asked and answered.	10:06:39
8	THE WITNESS:	I think it's not just a seal module.	10:06:42
9		There are many other components, and their properties are	10:06:44
10		important. And this is just illustrating a case in which	10:06:47
11		it isn't -- everything is not perfectly optimized to	10:06:52
12		create a seal around the size of tool.	10:06:56
13	BY MR. HAMILTON:		10:06:58
14	Q	And one of those things is the -- how compliant	10:06:59
15		the seal module is, correct?	10:07:01
16	A	One aspect of many would be the seal module	10:07:02
17		properties.	10:07:07
18	Q	And Schaffer discloses a seal module having a	10:07:08
19		level of -- that is compliant enough to fill in these	10:07:14
20		gaps, correct?	10:07:18
21	A	I don't know. Schaffer provides a wide range of	10:07:18
22		material properties, some of which probably would not work	10:07:31
23		for this type of design because they would be too soft and	10:07:36
24		sticky and gelatinous.	10:07:39
25	Q	And would a person of ordinary skill in the art	10:07:40

1 be able to figure out which ones would work and which ones
2 wouldn't?

3 A That would be the goal of the engineer to
4 optimize a design to pick the right materials and
5 properties.

6 Q And would that engineer be able to do that, pick
7 the right materials and properties?

8 MR. STOWELL: Objection. Asked and answered.

9 THE WITNESS: Depends on the range of tools that are
10 going to be inserted and the other properties for the
11 other components that we've been discussing.

12 BY MR. HAMILTON:

13 Q To deform a compliant material, is it easier to
14 deform with a hard or rigid material or a soft flexible
15 material?

16 MR. STOWELL: Objection. Incomplete hypothetical.

17 THE WITNESS: Can you clarify what components we're
18 talking about here?

19 BY MR. HAMILTON:

20 Q If you have a -- let's say you've got a ball of
21 the highly compliant material disclosed in Schaffer, and
22 you want to deform it. Is it easier to deform with a hard
23 material or a softer material, which one would be easier?

24 MR. STOWELL: Objection. Incomplete hypothetical.

25 THE WITNESS: Depends on how hard the hard material

1 is, but extremely soft, gel-like material can be 10:10:58
2 deflected -- what's the term you used? -- compressed with 10:11:10
3 the material that's at least as hard as the gel material 10:11:19
4 itself. 10:11:22

5 BY MR. HAMILTON: 10:11:22

6 Q And when you say at least as hard, so it would be 10:11:22
7 at least as hard as the gel material, first of all, right, 10:11:26
8 and the harder it is, the more predictable that 10:11:31
9 deformation would be, wouldn't it? 10:11:34

10 MR. STOWELL: Objection. Incomplete hypothetical. 10:11:37

11 THE WITNESS: Theoretically, a harder material would 10:11:38
12 be able to deform a softer material more readily. 10:11:45

13 BY MR. HAMILTON: 10:11:50

14 Q And if that harder material was, say, for 10:11:51
15 example, steel that doesn't deform, so let's just say a 10:11:53
16 block of steel that wouldn't deform in any meaningful 10:11:59
17 sense relative to the softer material, you could predict 10:12:03
18 with pretty good accuracy exactly how much the soft 10:12:11
19 material would deform based on how much pressure you 10:12:14
20 applied to the other material, correct? 10:12:18

21 MR. STOWELL: Objection. Vague. Incomplete 10:12:20
22 hypothetical. 10:12:22

23 THE WITNESS: If an engineer knew the material 10:12:22
24 properties of the two materials in question, I think it 10:12:32
25 could be modeled, how much force would cause -- how much, 10:12:35

1	certain amount of deformation.	10:12:44
2	BY MR. HAMILTON:	10:12:46
3	Q And that modeling is pretty simple when one	10:12:46
4	material, the material applying compression, is much	10:12:49
5	harder than the other material, correct?	10:12:53
6	MR. STOWELL: Objection. Vague.	10:12:54
7	THE WITNESS: I don't know, haven't considered that.	10:12:55
8	BY MR. HAMILTON:	10:13:00
9	Q So as you sit here now, you can't tell me what's	10:13:01
10	easier to predict in terms of the amount of deformation	10:13:05
11	between applying a compression force with a hard material	10:13:08
12	or a softer material; is that right?	10:13:10
13	MR. STOWELL: Objection. Vague. Misstates testimony.	10:13:14
14	THE WITNESS: Can you repeat the question?	10:13:16
15	BY MR. HAMILTON:	10:13:20
16	Q As you sit here now, can you tell me what --	10:13:34
17	whether it's easier to predict the amount of deformation	10:13:37
18	between applying compression force with a harder material	10:13:40
19	or a softer material?	10:13:43
20	A I haven't considered how hard it might be to	10:13:44
21	predict material compression in this supplemental	10:13:55
22	declaration, so I can't really answer that.	10:14:00
23	MR. STOWELL: We've been going for about an hour and	10:15:19
24	15 minutes. So when you reach a good spot to take a	10:15:22
25	break, let's take one.	10:15:25

1	BY MR. HAMILTON:	10:15:30
2	Q Are you okay to go for a couple more questions?	10:15:30
3	A Sure.	10:15:33
4	Q All right. Let's take a look at page 19 of your	10:15:33
5	declaration. Do you see the figure on page 19?	10:15:36
6	A Yes.	10:15:53
7	Q Do you see the U-shaped actuating members	10:16:04
8	depicted in that figure?	10:16:16
9	A Yes.	10:16:17
10	Q Do those U-shaped actuating members have a	10:16:18
11	cross-section that's rectangular?	10:16:34
12	A Yeah, Schaffer's Figure 32, it shows a	10:16:39
13	cross-section, and they would show the U-shaped portion as	10:16:58
14	having a rectangular cross-section.	10:17:02
15	Q So Figure 32's a better depiction of that	10:17:04
16	cross-section; is that right?	10:17:08
17	A Yes.	10:17:09
18	Q Does that U-shaped member provide a compression	10:17:09
19	force against the seal module along the length, the	10:17:59
20	longest distance of that rectangular cross-section?	10:18:05
21	MR. STOWELL: Objection. Vague.	10:18:09
22	THE WITNESS: I'm not sure what you mean by length.	10:18:09
23	BY MR. HAMILTON:	10:18:16
24	Q So if you look at the cross-section, you see it's	10:18:17
25	a rectangle, right?	10:18:19

1	A	In Figure 32?	10:18:21
2	Q	Yes.	10:18:23
3	A	Yes.	10:18:23
4	Q	And it's got four sides, right?	10:18:23
5	A	Yes.	10:18:26
6	Q	Two sides are shorter than the -- you have two	10:18:27
7		short sides and two long sides, right?	10:18:32
8	A	Yeah.	10:18:33
9	Q	And the compression force is applied along the	10:18:34
10		length of the longest side, correct?	10:18:39
11	A	Yes. That's the portion that's in contact with	10:18:41
12		the seal member.	10:18:46
13	Q	And so that compression force is spread across a	10:18:47
14		distance that's the same length as the longest side of the	10:18:52
15		rectangle, correct?	10:18:58
16	MR. STOWELL:	Objection. Vague.	10:19:00
17	THE WITNESS:	That's the portion that's in contact	10:19:01
18		with the seal member as it wraps around the seal member.	10:19:10
19	BY MR. HAMILTON:		10:19:14
20	Q	And the portion that's in contact with the seal	10:19:22
21		member, that's the portion that applies compression to the	10:19:25
22		seal member, correct?	10:19:27
23	A	It applies compression to the seal member by the	10:19:29
24		springs that are attached on either end of it.	10:19:40
25	Q	And it applies that compression along that entire	10:19:42

1 length of the cross-section, the longest side of the 10:19:46
2 cross-section, correct? 10:19:49

3 MR. STOWELL: Objection. Vague. 10:19:51

4 THE WITNESS: That's the part that's in contact. So 10:19:52
5 that's how it would apply the force. 10:19:57

6 BY MR. HAMILTON: 10:19:59

7 Q And as depicted in figure -- let's look at 10:20:14
8 Figure 34. Do you see the two U-shaped members are 10:20:26
9 side-by-side, parallel to each other, do you see that? 10:20:50

10 A Yes. 10:20:52

11 Q So for the two members, the force applied is 10:20:56
12 along the length of one member, the longest side of the 10:21:04
13 rectangle, and the other one along the length of the other 10:21:06
14 member, longest side of that rectangle. 10:21:10

15 A That's how the force is applied to the seal 10:21:13
16 module, yes. 10:21:17

17 Q And when that force is applied, the seal module 10:21:18
18 will deform from the farthest end of one U-shaped member 10:21:34
19 to the farthest end of the length of the other U-shaped 10:21:42
20 member, correct? 10:21:46

21 MR. STOWELL: Objection. Vague. 10:21:47

22 THE WITNESS: I'm not sure exactly what you mean by 10:21:48
23 farthest end. 10:21:51

24 BY MR. HAMILTON: 10:21:52

25 Q So if you look at Figure 34, and you have one 10:21:52

1 U-shaped member with the cross-section in the length and 10:21:56
2 another U-shaped member with the cross-section in the 10:21:59
3 length, do you see that? 10:22:01

4 A Length meaning the total length of the U-shaped 10:22:06
5 member to where it attaches to the button? 10:22:09

6 Q No. 10:22:11

7 The length of the cross-section, the rectangular 10:22:11
8 cross-section, the longest dimension we were just 10:22:15
9 discussing. 10:22:18

10 A Okay. 10:22:18

11 Q So twice that length, when the two U-shaped 10:22:18
12 members apply compression -- withdraw the question. 10:22:24

13 The two U-shaped members apply -- withdraw that 10:22:27
14 question. 10:22:33

15 The two U-shaped members deform the seal module 10:22:34
16 along that entire length, correct? 10:22:38

17 MR. STOWELL: Objection. Vague. 10:22:45

18 THE WITNESS: U-shaped members deform the seal module 10:22:46
19 in areas that it's in contact with the seal module. 10:22:52

20 BY MR. HAMILTON: 10:22:55

21 Q And it's in contact along the longest side of 10:22:55
22 each of those cross-sectional rectangles, correct? 10:22:57

23 A Yes. That's the part that's in contact with the 10:23:01
24 seal module. 10:23:05

25 Q And that -- would that be the same if Schaffer's 10:23:05

1 U-shaped members were replaced with a string, the 10:23:46
2 deformation of the seal module would occur at the place 10:23:49
3 where the string contacts the seal module? 10:23:52

4 MR. STOWELL: Objection. Outside the scope. 10:23:56

5 THE WITNESS: I haven't really considered how it 10:23:57
6 deforms in cross-section. I haven't shown that in my 10:24:05
7 declaration. 10:24:08

8 BY MR. HAMILTON: 10:24:09

9 Q Can you answer the question? 10:24:11

10 A I'm not sure I can. It's not something I've 10:24:11
11 considered how the module deforms, with the string. 10:24:16

12 Q You don't know what would happen if a string was 10:24:20
13 put into, in place of Schaffer's U-shaped members. Is 10:24:23
14 that your testimony? 10:24:28

15 MR. STOWELL: Objection. Misstates testimony. 10:24:28

16 THE WITNESS: I said I haven't considered in my 10:24:29
17 declaration how a cross-section might look if a string 10:24:34
18 were wrapped around the U-shaped member. 10:24:37

19 BY MR. HAMILTON: 10:24:40

20 Q Do you understand what would deform in the module 10:24:41
21 if a string was used in place of the U-shaped members? 10:24:46

22 MR. STOWELL: Objection. Vague. 10:24:50

23 THE WITNESS: Well, the seal module would compress, 10:24:51
24 circumferentially. 10:24:58
25

1 BY MR. HAMILTON:

10:25:00

2 Q And it would compress where the string contacts a
3 seal module, just like you testified for the U-shaped
4 members, correct?

10:25:00

10:25:02

10:25:05

5 A That's the area in contact. That's where you're
6 trying to compress the seal module. So it would compress
7 the seal module in areas that are in contact with the
8 string or wire or filament.

10:25:06

10:25:11

10:25:18

10:25:21

9 MR. HAMILTON: Okay. Why don't we take a break.

10:25:29

10 THE VIDEOGRAPHER: We are going off the record. The
11 time is 10:25 a.m.

10:25:31

10:25:33

12 (Recess taken.)

10:35:05

13 THE VIDEOGRAPHER: We are back on the record. The
14 time is 10:35 a.m.

10:35:05

10:35:13

15 BY MR. HAMILTON:

10:35:15

16 Q Do you understand you're still under oath,
17 Mr. Thornton?

10:35:17

10:35:18

18 A Yes.

10:35:19

19 Q Did you communicate with anybody regarding the
20 substance of your testimony during the break?

10:35:19

10:35:31

21 A No.

10:35:33

22 Q Did you review any documents during the break?

10:35:34

23 A No.

10:35:36

24 Q If you could turn to page 20 of Exhibit 1014,
25 your supplemental declaration. Do you see two figures on

10:35:36

10:35:45

1	page 20?	10:35:55
2	A Yes.	10:35:56
3	Q Did you create those figures?	10:35:56
4	A Working with counsel, I had input into the	10:35:58
5	figures.	10:36:07
6	Q Did you suggest those two figures to counsel?	10:36:07
7	A I don't recall.	10:36:11
8	Q Do you understand what's depicted in the two	10:36:14
9	figures?	10:36:19
10	A Yes.	10:36:19
11	Q Is this a depiction of Schaffer from these two	10:36:21
12	figures?	10:36:46
13	MR. STOWELL: Objection. Vague.	10:36:53
14	THE WITNESS: It's a depiction of the U-shaped	10:36:54
15	actuating members in Schaffer showing the deformation that	10:37:12
16	might happen with the somewhat flexible U-shaped members	10:37:21
17	or bights, with tool diameters that are smaller. One is	10:37:25
18	smaller than the other.	10:37:33
19	BY MR. HAMILTON:	10:37:34
20	Q Both figures show gaps, correct?	10:37:38
21	A I've illustrated an example where gaps are formed	10:37:41
22	because of a mismatch between sizes or shapes or	10:37:50
23	compliance or flexibility.	10:37:59
24	Q And this is your understanding of Schaffer's	10:38:03
25	disclosure, this is what Schaffer discloses?	10:38:10

1	MR. STOWELL: Objection. Vague.	10:38:12
2	THE WITNESS: It's depicting a case where small gaps	10:38:13
3	are formed and even larger gaps might form if an even	10:38:23
4	smaller tool is inserted, if the distance between the	10:38:29
5	attachment points is a fixed dimension as is depicted in	10:38:34
6	Schaffer's Figures 30 through 34.	10:38:40
7	BY MR. HAMILTON:	10:38:43
8	Q And those gaps would cause a poor seal in	10:38:44
9	Schaffer, correct?	10:38:49
10	MR. STOWELL: Objection. Vague.	10:38:51
11	THE WITNESS: Gaps are not desired in order to create	10:38:51
12	a seal in a hemostatic valve.	10:38:58
13	BY MR. HAMILTON:	10:39:01
14	Q So these gaps would be created in Schaffer	10:39:02
15	whether or not the U-shaped member was flexible or rigid,	10:39:05
16	correct?	10:39:09
17	A Well, this is depicting U-shaped members that	10:39:09
18	are -- that have some flexibility as shown, especially in	10:39:22
19	the lower image where they're deforming more so around a	10:39:27
20	smaller tool.	10:39:32
21	Q So if Schaffer's U-shaped members are flexible,	10:39:33
22	gaps would still be formed in Schaffer; is that correct,	10:39:40
23	is that your testimony?	10:39:43
24	MR. STOWELL: Objection. Vague. Misstates the	10:39:44
25	document.	10:39:46

1 THE WITNESS: Depending on the material properties of
2 the actuators, the U-shaped actuating members, the seal
3 module, the size of the tool, the force exerted, I think
4 it's possible that gaps could form. That is even more so
5 true as the tools get smaller as depicted in the lower
6 figure on page 20.

7 BY MR. HAMILTON:

8 Q And that would occur whether or not Schaffer's
9 U-shaped members are rigid or flexible, correct?

10 MR. STOWELL: Objection. Asked and answered.

11 THE WITNESS: I think a person of ordinary skill in
12 the art would have understood that Schaffer's actuating
13 members have some flexibility, that they're not entirely
14 rigid. They're not entirely inflexible. And that's what
15 we're depicting here, especially on the lower image on
16 page 20.

17 BY MR. HAMILTON:

18 Q Are the flexible U-shaped actuating members in
19 the bottom of the two pictures, would that be a string,
20 for example? Are you depicting what would happen if a
21 string was used in Schaffer?

22 A I'm depicting the U-shaped actuating members that
23 are described in Schaffer as being a metal or polymer.

24 Q And what if this U-shaped member was a metal
25 wire, is this -- would -- a flexible metal wire, is this

10:39:46
10:39:52
10:39:59
10:40:03
10:40:13
10:40:16
10:40:17
10:40:17
10:40:20
10:40:25
10:40:27
10:40:35
10:40:39
10:40:43
10:40:49
10:40:53
10:40:54
10:41:18
10:41:22
10:41:28
10:41:31
10:41:33
10:41:43
10:41:57
10:42:01

1 what would happen in the embodiment Figures 30 through 34
2 of Schaffer?

3 MR. STOWELL: Objection. Vague. Outside the scope.

4 THE WITNESS: Well, it's depicting a metal U-shaped
5 actuator, which in -- which is depicted in the Figures 30
6 through 34 as a metal or plastic, flat wire is how it's
7 depicted in those figures.

8 BY MR. HAMILTON:

9 Q And if the flexible U-shaped member in the bottom
10 figure was a string, would it look just like this, would
11 you have the same issue with these gaps?

12 A I don't know. I haven't considered that here in
13 this declaration.

14 Q So you don't know what would happen if this
15 flexible U-shaped actuating member was a string as opposed
16 to a, you said, flat wire as depicted in Schaffer; is that
17 right?

18 MR. STOWELL: Objection. Asked and answered.

19 THE WITNESS: I don't know that the geometry would be
20 identical. It depends on the properties of the flexible
21 U-shaped member, flat wire, or polymer versus the
22 properties of the string or wire that you're proposing. I
23 haven't considered that in here. The geometry could be
24 similar. It might be slightly different.

1 BY MR. HAMILTON:

10:43:32

2 Q And whatever the geometry is similar or slightly
3 different, these gaps would still be formed, correct?

10:43:32

10:43:36

4 MR. STOWELL: Objection. Vague. Outside the scope.

10:43:41

5 THE WITNESS: Yeah, I haven't really considered a pair
6 of strings or wires or -- for these -- for these images.
7 So I don't know that gaps would form or not.

10:43:42

10:43:49

10:44:03

8 BY MR. HAMILTON:

10:44:04

9 Q So I thought a moment ago, you said this was a
10 flat wire, Schaffer was a flat wire. Is that not correct?

10:44:05

10:44:08

11 A I think Schaffer gives an example, shows in the
12 embodiments 30 through 34 to be a rectangular-shaped
13 member wire or plastic -- metal or plastic or --
14 descriptions that they use in the specification.

10:44:11

10:44:19

10:44:24

10:44:32

15 Q Are the actuating members in Schaffer a flat
16 wire?

10:44:34

10:44:37

17 A I think they could be a flat wire.

10:44:37

18 Q When you say could be, you mean Schaffer doesn't
19 disclose a flat wire, but one skilled in the art could
20 include a flat wire. Is that what you mean by it could
21 be?

10:44:43

10:44:53

10:44:56

10:44:58

22 MR. STOWELL: Objection. Misstates testimony. Asked
23 and answered.

10:44:58

10:45:00

24 THE WITNESS: I think Schaffer shows pretty clearly in
25 30 through 34, that the actuating members are a flattened

10:45:00

10:45:04

1	material whether it's polymer or metal. Yeah.	10:45:09
2	BY MR. HAMILTON:	10:45:19
3	Q And is that material a flat wire as you	10:45:19
4	understood that -- understand what that term means?	10:45:22
5	MR. STOWELL: Objection. Asked and answered.	10:45:28
6	THE WITNESS: It could be a flattened wire. It could	10:45:29
7	be a flattened polymer. They give those examples as	10:45:33
8	potential materials. I don't think it's mandatory to be	10:45:36
9	this shape, but they don't -- this is what's shown in the	10:45:45
10	30 through 34, is a rectangular cross-section implying a	10:45:49
11	flattened wire, flattened polymer as the actuating member.	10:45:55
12	BY MR. HAMILTON:	10:46:00
13	Q So if a flattened wire is used, that's what	10:46:00
14	you're depicting on page 20, correct, a flat wire?	10:46:02
15	A Yes.	10:46:05
16	Q And if a flat wire is used in Schaffer, you	10:46:08
17	understand it is, gaps are going to be formed as shown on	10:46:12
18	page 20 of your declaration, correct?	10:46:17
19	A Gaps may be formed in some instances depending on	10:46:19
20	all the properties that we've talked about already.	10:46:24
21	That's what's being shown on page 20.	10:46:27
22	Q If you could turn to the next page, 21,	10:46:29
23	paragraph 35. You see the sentence about the middle of	10:47:15
24	that paragraph, This particular disclosure. Do you see	10:47:29
25	that?	10:47:32

1	A	I need to read to get there, sorry.	10:47:32
2	Q	Sure, go ahead.	10:47:40
3	A	Okay.	10:47:41
4	Q	Is it your understanding that the third seal	10:48:06
5		member shown in Figures 12 through 15 is not used in the	10:48:20
6		embodiment of Figures 30 through 34, is that what you're	10:48:25
7		saying here in this paragraph?	10:48:29
8	A	I'm saying this particular disclosure refers to	10:48:30
9		Figures 12 through 15 in Schaffer, not to Figures 30	10:49:09
10		through 34. Figures 12 through 15 are different	10:49:14
11		embodiments that does not use an external circumferential	10:49:18
12		member to compress the seal module.	10:49:25
13	Q	Does that embodiment use a third seal member?	10:49:28
14	MR. STOWELL:	Objection.	10:49:40
15	THE WITNESS:	Which embodiment?	10:49:41
16	BY MR. HAMILTON:		10:49:42
17	Q	The one Figures 12 through 15.	10:49:43
18	A	Let's see... third seal member. Figures 12	10:49:45
19		through 15 on Schaffer show a third seal member 165 in	10:50:14
20		those embodiments, and those embodiments work with a	10:50:21
21		method of action where the antegrade crusher 270 is	10:50:24
22		sufficient to push the valve closed.	10:50:32
23	Q	And how does the seal module close in those	10:50:41
24		figures, does seal member 165 form a seal?	10:50:45
25	MR. STOWELL:	Objection. Compound.	10:50:50

1 THE WITNESS: The design shown in 12 through 15, I 10:50:51
2 believe, work by blood pressure 270 shown in Figure 13 as 10:50:57
3 pushing a seal member 170, which doesn't really compress, 10:51:08
4 and it compresses the third seal member 165 because that 10:51:15
5 is extremely soft and compliant and can self-seal is how 10:51:20
6 it's described in the patent. 10:51:25

7 BY MR. HAMILTON: 10:51:26

8 Q So seal member 165 in Figures 12 through 13 forms 10:51:30
9 the seal based on deforming, correct? 10:51:38

10 MR. STOWELL: Objection. Vague. 10:51:44

11 THE WITNESS: My understanding is it's compressed 10:51:46
12 actually, which causes it to collapse cylindrically and 10:51:51
13 seal. 10:52:00

14 BY MR. HAMILTON: 10:52:00

15 Q And then in Figures 30 through 34, that seal 10:52:00
16 member's compressed from the outside using the U-shaped 10:52:03
17 members, correct, that's the difference? 10:52:06

18 MR. STOWELL: Objection. Vague. Compound. 10:52:09

19 THE WITNESS: Well, the mechanism of sealing is 10:52:10
20 different in that it is an outside, cylindrical 10:52:17
21 circumferential force that collapses the tubular member. 10:52:22

22 BY MR. HAMILTON: 10:52:26

23 Q So as you just read, Figures 12 through 15 10:53:27
24 include third seal member 165, right? 10:53:30

25 A Yes. The figures show that. 10:53:34

1 Q And then if you look at page 70 of Schaffer, 10:53:37
2 that's Exhibit 1005 -- excuse me. Paragraph 70. I'm 10:53:41
3 sorry. Not paragraph 70. Paragraph 77. Paragraph 77 10:53:47
4 also refers to third seal member 165, correct? 10:54:11

5 A Yeah, at the end of that paragraph, it states 10:54:14
6 that, The lumen 193 of the third seal member 165 is able 10:54:43
7 to retract to an unsealed configuration. 10:54:47

8 Q And then actually, up in the previous column, it 10:54:49
9 refers to it again, The lumen 193 of third seal member 165 10:54:53
10 is at least partially collapsed by the compressive force 10:55:00
11 67. Do you see that? 10:55:05

12 A Yes. 10:55:06

13 Q So the third seal member 165 forms the seal as 10:55:07
14 described in paragraph 77, correct? 10:55:17

15 A That's what paragraph 77 is saying. 10:55:19

16 Q And paragraph 77 relates to the embodiment of 10:55:25
17 Figures 30 through 34; is that correct? 10:55:28

18 A It appears that they relate to Figures 30 10:55:30
19 through 34 where paragraph 75 at the end says that, The 10:55:40
20 seal module 100 can be formed of one or more materials, 10:55:46
21 including the relative properties above. 10:55:50

22 Q So now let's look back at page 21 of your 10:55:53
23 declaration. The embodiment that you're discussing here 10:56:04
24 on page 21 of Figures 12 through 15 includes the seal 10:56:40
25 member 165 as we just discussed, right? 10:56:48

1 A It lists that seal member 165 as part of seal
2 module 100.

3 Q And for your citation that the disclosure relates
4 to, Figures 12 through 15, you cite paragraph 68 and 69.
5 Do you see that?

6 A Yes.

7 Q What I'm trying to understand is just below that,
8 just below the figure, you criticize patent owner as not
9 depicting a compliant sealing member as described in
10 Schaffer, and you cite the exact same paragraph 68. So
11 what I'm trying to understand is, is the compliant seal
12 member of paragraph 68 included in the embodiment of
13 Figures 30 through 34 or not?

14 MR. STOWELL: Objection. Compound. Vague.

15 THE WITNESS: I think it's clear that 68 and 69 in
16 Schaffer are referring to the earlier embodiments that are
17 passive. They describe it as hands-free operation at the
18 end of paragraph 69. For those to function, they would
19 need a very compliant, gel-like, soft material is how they
20 describe it in the patent.

21 Whereas in 30 through 34, I believe that material
22 is not -- would not be appropriate, would not function
23 with a -- with the design shown on Figures 30 through 34.

24 BY MR. HAMILTON:

25 Q So patent owner argues properties that seal --

1 withdraw the question.

10:58:56

2 So then is it your testimony that the third seal
3 member 165, as disclosed with respect to Figures 12
4 through 15, is not included in the embodiment of Figures
5 30 through 34?

10:58:57

10:59:49

10:59:54

11:00:01

6 A I think in paragraph 77, when they're talking
7 about third seal member 165, that just means the middle
8 most seal member if there's more than one, and that could
9 have, as paragraph 75 says, any of its respective seal
10 members can be formed from one or more materials. In
11 Figure 30 through 34, that material would be something
12 that is not particularly highly compliant, gelatinous, et
13 cetera.

11:00:01

11:00:09

11:00:15

11:00:19

11:00:33

11:00:41

11:00:45

11:00:51

14 Q Could a person of ordinary skill in the art make
15 a material that's highly compliant, yet not sticky or
16 gelatinous?

11:00:51

11:01:23

11:01:33

17 MR. STOWELL: Objection. Vague.

11:01:35

18 THE WITNESS: I don't know. I haven't talked about
19 that in my disclosure.

11:01:36

11:01:42

20 BY MR. HAMILTON:

11:01:43

21 Q Are you aware of any material that's highly
22 compliant but that's not sticky?

11:01:51

11:01:54

23 MR. STOWELL: Objection. Vague.

11:01:59

24 THE WITNESS: I don't know. I haven't considered
25 that.

11:02:00

11:02:05

1	BY MR. HAMILTON:	11:02:05
2	Q If you could turn to paragraph 59 of Schaffer,	11:02:14
3	Exhibit 1005. Do you see the first sentence?	11:02:17
4	A Yes.	11:02:41
5	Q The first sentence discusses a third central seal	11:02:42
6	member 165 that includes a material that is highly	11:02:46
7	elastic, deformable, compliant and yet virtually	11:02:51
8	noncompressible. Do you see that?	11:02:54
9	A Yes.	11:02:56
10	Q Would that material always be sticky?	11:02:56
11	MR. STOWELL: Objection. Vague. Incomplete	11:03:09
12	hypothetical.	11:03:10
13	THE WITNESS: I don't think it would necessarily be	11:03:10
14	sticky. I think the description here is also trying to	11:03:23
15	describe a seal member that can be compressed and can	11:03:31
16	recover without having permanent deformation. They talk	11:03:39
17	about noncompressible. In other words, it's not	11:03:45
18	permanently deformed.	11:03:47
19	So in order to have a seal member that can be	11:03:49
20	compressed to basically zero, when nothing's inside and	11:03:53
21	yet reopen is how I think that first sentence is really	11:03:58
22	describing the function of the -- any seal member.	11:04:04
23	BY MR. HAMILTON:	11:04:08
24	Q When you say any seal member, you mean any seal	11:04:11
25	member used throughout Schaffer, correct?	11:04:13

1 A They're describing seal members within Schaffer,
2 I believe.

3 Q And that could include the seal member in the
4 embodiment of Figures 30 through 34, correct?

5 A Yes. I think they refer back. When describing
6 30 through 34, they refer back to prior descriptions of
7 materials that are potential materials to use for the seal
8 member.

9 Q And that would include a material that is highly
10 elastic, deformable, compliant, and yet virtually
11 noncompressible, correct?

12 A That's what the first sentence says, yes.

13 Q And that material could be sticky, and it might
14 not be sticky; is that right?

15 MR. STOWELL: Objection. Vague.

16 THE WITNESS: I think later on in paragraph 59, they
17 talk about more specific materials with different shore
18 hardness scales. Materials that are in the shore hardness
19 00 scale, they describe as being extremely soft,
20 compliant, intrinsically sticky.

21 So that's a category -- a subcategory of the
22 materials they're listing there that could perform the
23 functions of the tubular member.

24 BY MR. HAMILTON:

25 Q So if one skilled in the art made a material as

1 set forth in paragraph 59 that had a shore hardness in 11:05:48
2 this range on the 00 scale, that material, would that 11:05:55
3 material be sticky? 11:05:59

4 A I'm not sure when the term stickiness would apply 11:06:04
5 as you get to very soft materials. 11:06:12

6 Q Could that material -- could a material 11:06:14
7 manufactured as described in that paragraph and having 11:06:28
8 that shore hardness be used in the embodiment of Figures 11:06:31
9 30 through 34? 11:06:36

10 A Which shore hardness? 11:06:36

11 Q The shore hardness in paragraph 59. 11:06:37

12 MR. STOWELL: Objection. Vague and compound. 11:06:41

13 THE WITNESS: They give a wide range of shore 11:06:44
14 hardnesses from 5 to 15 in the shore A categorization and 11:06:55
15 15 to 20 in the 00 measurement scale. So there's a wide 11:07:03
16 range shown there that a person skilled in the art might 11:07:09
17 start with materials in that range and then experiment to 11:07:18
18 optimize from there. 11:07:23

19 BY MR. HAMILTON: 11:07:25

20 Q What do you mean experiment to optimize, optimize 11:07:45
21 what? 11:07:50

22 A All the required design features, such as 11:07:50
23 recovery being nondeformable, not plastically deformable, 11:07:58
24 the ability to seal well around the tools. All the design 11:08:05
25 requirements that might be necessary for that seal member. 11:08:15

1	Q	And I think you've testified two of those	11:08:17
2		requirements are the ability to seal well. So fill in the	11:08:24
3		gaps, right, that's one of them?	11:08:27
4	A	I think the goal of the project would be to seal	11:08:29
5		the hemostasis valve overall.	11:08:32
6	Q	And that would be by filling in the gaps,	11:08:36
7		correct?	11:08:38
8	MR. STOWELL:	Objection. Vague.	11:08:38
9	THE WITNESS:	It would be by preventing gaps and	11:08:39
10		creating a full seal around a variety of instruments would	11:08:43
11		be the design goal.	11:08:48
12	BY MR. HAMILTON:		11:08:51
13	Q	And a person of ordinary skill in the art would	11:08:51
14		be able to optimize that design goal, correct?	11:08:53
15	A	I think they would be able to make adjustments	11:09:03
16		and do experimentation to the springs, the actuating	11:09:07
17		members, the seal member, the material dimensions in order	11:09:11
18		to try to optimize a hemostatic valve design.	11:09:22
19	Q	If you look at the last sentence of paragraph 59	11:09:30
20		in Schaffer, you see the phrase, Under very light	11:09:55
21		compression?	11:10:07
22	A	Yes.	11:10:08
23	Q	Is it important in a hemostasis valve to form a	11:10:16
24		good seal under very light compression?	11:10:31
25	A	I'm not sure. I haven't really considered that.	11:10:32

1 The physician usability is where I think about -- when I 11:10:44
2 think about compression and actuating the valve. 11:10:50

3 Q So why is Schaffer referencing that the seal can 11:10:57
4 be formed under very light compression, what does Schaffer 11:11:00
5 mean by that? 11:11:03

6 MR. STOWELL: Objection. Vague. Calls for 11:11:04
7 speculation. 11:11:05

8 THE WITNESS: Well, that sentence about using a very 11:11:05
9 light compression at the end of paragraph 59 is clearly 11:11:12
10 referring to the materials in the very soft shore 00 scale 11:11:19
11 where they refer to them as extremely soft, compliant, and 11:11:27
12 sticky. And they compare it to a gelatinous substance and 11:11:30
13 have a self-closing nature under a very light compression. 11:11:39

14 So I believe that is really referring to the 11:11:48
15 designs shown in Figures 12 through 15 which are the 11:11:51
16 designs that operate under low pressure, like blood 11:12:00
17 pressure, to be self-closing and don't require -- the term 11:12:05
18 they use is -- and allow a hands-free operation. The term 11:12:14
19 they use in paragraph 69. 11:12:20

20 BY MR. HAMILTON: 11:12:21

21 Q So other than in that embodiment, is there any 11:12:21
22 other reason one skilled in the art might want to create a 11:12:25
23 seal under light compression? 11:12:28

24 MR. STOWELL: Objection. Vague. Outside the scope. 11:12:29

25 THE WITNESS: I think for a design like this, it's 11:12:31

1 always a balance between the spring force, the material
2 properties of the seal member, size of devices going
3 through it. So I think a person of skill in the art would
4 try to optimize those, those different aspects of a
5 design.

6 BY MR. HAMILTON:

7 Q And when you say optimize, why do you need a
8 balance -- why do you need to optimize the balance between
9 the spring force, the material properties of the seal
10 member and the size of the devices going through it?

11 A Well, excessive spring force would mean the
12 physician would have to push harder. So there's an
13 ergonomic aspect to the spring force for the doctor to
14 actuate, to open the valve. The higher spring force -- if
15 the spring force was too high, it could exert excessive
16 force on the seal member depending on the properties of
17 the seal member itself. So there are several aspects that
18 would need to be balanced if one were trying to optimize
19 the design.

20 Q What is the problem with exerting excessive force
21 on the seal member?

22 A Yeah, I don't know that there would be a problem.
23 It depends on the thickness of the material, the amount of
24 pressure. But, you know, conceivably, it could be --
25 could damage a seal member.

1 Q Could it also damage the catheter going through
2 the seal member?

11:14:43

11:14:46

3 MR. STOWELL: Objection. Vague.

11:14:52

4 THE WITNESS: I don't -- I don't know. Haven't
5 thought about that.

11:14:53

11:14:57

6 BY MR. HAMILTON:

11:14:57

7 Q Could it also damage the tools going through the
8 seal member?

11:14:58

11:15:00

9 MR. STOWELL: Objection. Vague.

11:15:01

10 THE WITNESS: Well, the other aspect I didn't mention
11 was you'd also want to have the ability to move the
12 devices forward and back. So I think friction within that
13 system might be important. Certainly design
14 considerations might also include damage to the devices
15 going through the tubular member.

11:15:02

11:15:12

11:15:16

11:15:21

11:15:27

11:15:31

16 BY MR. HAMILTON:

11:15:33

17 Q If you could turn to page 10 of your
18 declaration -- supplemental declaration. Excuse me. See
19 the figure -- annotated Figure 34 on page 10?

11:17:09

11:17:12

11:17:25

20 A Yes.

11:17:30

21 Q Is it your understanding that the figures of
22 Schaffer are drawn to scale?

11:17:36

11:18:18

23 A No. I think most patents, things are not drawn
24 to scale.

11:18:19

11:18:26

25 Q So here, you're comparing the thickness of the

11:18:26

1 U-shaped member with the thickness of the compression
2 spring. Do you see that?

3 A Yes.

4 Q Do you think that's drawn to scale?

5 MR. STOWELL: Objection. Vague.

6 THE WITNESS: I don't believe most drawings in patents
7 are necessarily drawn to scale.

8 BY MR. HAMILTON:

9 Q So I'm trying to figure out why do you say they
10 have the same thickness if you don't believe this is drawn
11 to scale?

12 A Whatever scale is drawn to, I took my calipers,
13 and it looked like they were approximately the same
14 thickness, that the U-shaped actuating member thickness
15 was about the same as the compression spring diameter,
16 giving some indication or giving a person of ordinary
17 skill in the art some indication that those are probably
18 relatively flexible actuating members.

19 Q How does the length of the compression spring
20 compare to the length of the U-shaped actuating members?

21 MR. STOWELL: Objection. Vague.

22 THE WITNESS: The length of the compression spring in
23 its compressed state or uncompressed state or unwound
24 state?

25 BY MR. HAMILTON:

1	Q	Let's say the unwound state.	11:19:42
2	A	I have no idea.	11:19:47
3	Q	The compression spring is much longer than the	11:19:48
4		U-shaped members in an unwound state, isn't it?	11:19:51
5	MR. STOWELL:	Objection. Asked and answered.	11:19:55
6	THE WITNESS:	I would assume if an unwound state, it	11:19:57
7		would be a longer piece of spring steel, yes.	11:20:00
8	BY MR. HAMILTON:		11:20:03
9	Q	If you had two identical materials of identical	11:20:08
10		thickness and one was many times longer than the other,	11:20:13
11		would you expect the one that was many times longer to be	11:20:19
12		more flexible?	11:20:22
13	MR. STOWELL:	Objection. Incomplete hypothetical.	11:20:30
14	THE WITNESS:	Yeah, I haven't considered that. This	11:20:32
15		is just considering the diameter shown of the compression	11:20:35
16		spring as being very similar to the thickness shown of the	11:20:42
17		actuating member, which I believe would convey a certain	11:20:47
18		amount of information that it was relatively thin and	11:20:52
19		flexible -- not thin, relatively flexible in its	11:21:00
20		mechanical properties.	11:21:08
21	BY MR. HAMILTON:		11:21:09
22	Q	And your comparison here is simply taking into	11:21:17
23		account the thickness shown in this figure; is that right?	11:21:20
24	A	That and the fact that my understanding of a	11:21:23
25		compression spring and having a physician able to compress	11:21:30

1 the two buttons is that it would have to be a fairly soft 11:21:37
2 compression spring in order to be ergonomically 11:21:44
3 appropriate for a physician to use. 11:21:48

4 Q Do you know the material that this compression 11:21:49
5 spring is manufactured from? 11:21:52

6 A I don't believe Schaffer talks about the material 11:21:53
7 of a compression spring in this patent. 11:21:57

8 Q Would you need to know the material that it's 11:22:00
9 manufactured from to determine how flexible the 11:22:15
10 compression spring is? 11:22:18

11 A The material, the diameter of the wire, the 11:22:18
12 stacking of the spring, all those would be important in 11:22:27
13 order to quantify a compression force of a spring. 11:22:31

14 Q So here, your comparison is based on the 11:22:35
15 thickness of the U-shaped member and the thickness of the 11:22:39
16 spring, but you've ignored all the other properties of 11:22:41
17 those components, correct? 11:22:44

18 MR. STOWELL: Objection. Misstates testimony. Asked 11:22:46
19 and answered. 11:22:50

20 THE WITNESS: All I'm showing is that I believe the 11:22:50
21 figures in Schaffer, this cross-section, would give a 11:22:53
22 person of ordinary skill the sense that the actuating 11:23:00
23 members are probably relatively flexible. Because they 11:23:03
24 would be relatively thin. 11:23:09
25

1 BY MR. HAMILTON:

11:23:10

2 Q And that's based solely on the thickness of those
3 members, correct, the comparison of the thickness; is that
4 right?

11:23:15

11:23:17

11:23:20

5 MR. STOWELL: Objection. Misstates testimony. Asked
6 and answered.

11:23:20

11:23:22

7 THE WITNESS: That's all we're showing here.

11:23:22

8 BY MR. HAMILTON:

11:23:30

9 Q And there are many other properties of both those
10 components that would determine how flexible they are;
11 isn't that right?

11:23:34

11:23:37

11:23:39

12 MR. STOWELL: Objection. Vague.

11:23:42

13 THE WITNESS: Certainly to measure flexibility, one
14 would need to know the material, the dimensions and how
15 the material was processed even.

11:23:42

11:23:51

11:23:53

16 BY MR. HAMILTON:

11:23:57

17 Q If you could turn to page 12 of your declaration.
18 Do you see the figures shown on page 12?

11:23:59

11:24:12

19 A Yes.

11:24:14

20 Q So I believe a few moments ago, you testified
21 that these figures aren't to scale; is that right?

11:24:14

11:24:22

22 A I'm assuming that they're not exactly to scale.
23 As most patent drawings are not.

11:24:25

11:24:29

24 Q But do you believe the size of the components are
25 to scale relative to each other in the figure?

11:24:31

11:24:39

1 A Not necessarily. But they overall have an
2 appearance of, you know, being a reasonably -- reasonably
3 sized for use in a handheld, hemostatic device.

4 Q So to create the measurements of these components
5 in this figure, you've assumed they are to scale relative
6 to each other, correct?

7 A That was the assumption, to create these
8 dimensions that we added, yes.

9 Q Does the circumference define an encircled area?

10 MR. STOWELL: Objection. Vague.

11 THE STENOGRAPHIC REPORTER: I'm sorry, Counsel. You
12 said encircled area?

13 MR. HAMILTON: Encircled.

14 THE STENOGRAPHIC REPORTER: Thank you.

15 MR. STOWELL: Outside the scope.

16 THE WITNESS: Can you be more clear in the question?

17 BY MR. HAMILTON:

18 Q What don't you understand about the question?

19 A I'm not sure what you're referring to in my
20 declaration.

21 Q Do you understand what the word circumference
22 means?

23 A Yes.

24 Q Do you understand that the claims in the patent
25 use the term circumferentially constrict?

1 A I'd have to relook at the claims, I guess. In
2 the '011 patent you're talking about?

3 Q Mm-hmm.

4 A Yeah, Claim 1 uses the term circumferentially
5 constrict after talking about a first member coupled to
6 the first in the filament, and a second member coupled
7 (indiscernible utterance) to the second --

8 THE STENOGRAPHIC REPORTER: I'm sorry. You're
9 speaking really fast.

10 THE WITNESS: Sorry.

11 THE STENOGRAPHIC REPORTER: Are you saying second end?
12 I didn't understand that.

13 THE WITNESS: Second end of the filament wherein the
14 first member and the second member of the actuator are
15 moveable between a first position wherein the filament
16 circumferentially -- circumferentially constricts the
17 lumen to create a seal.

18 BY MR. HAMILTON:

19 Q Does the circumference define an encircled area?

20 MR. STOWELL: Objection. Vague.

21 THE WITNESS: Well, I think with respect to the
22 Figures 30 through 34 in Schaffer and in '011, those are
23 both encircling -- encircling the tubular member and
24 circumferentially constricting.

1	BY MR. HAMILTON:	11:28:52
2	Q Does a circumference define an encircled area?	11:28:52
3	MR. STOWELL: Objection. Vague.	11:28:56
4	THE WITNESS: I'm not sure what encircled area you're	11:28:57
5	referencing here.	11:29:01
6	BY MR. HAMILTON:	11:29:02
7	Q Do you understand what the word circumference	11:29:03
8	means?	11:29:05
9	A Yes.	11:29:05
10	Q What does the word circumference mean?	11:29:08
11	A Is there a dictionary definition listed	11:29:10
12	somewhere?	11:29:22
13	Q Do you need a dictionary to understand what the	11:29:23
14	word circumference means?	11:29:24
15	A Well, if you have it, I would use that.	11:29:25
16	Q I do not.	11:29:29
17	A Okay. So my understanding is circumference means	11:29:31
18	to surround, wrap around, encircle.	11:29:37
19	Q You said surround, wrap around, encircle. Is	11:29:49
20	there a difference between those three terms, or do they	11:29:57
21	all mean the same thing?	11:29:59
22	MR. STOWELL: Objection. Outside the scope.	11:30:00
23	THE WITNESS: Well, I think they all relate to	11:30:01
24	circumferentially constricting a tubular member as it	11:30:07
25	relates to these patents.	11:30:11

1	BY MR. HAMILTON:	11:30:12
2	Q Are you using those three words as synonyms?	11:30:38
3	MR. STOWELL: Objection. Outside the scope.	11:30:44
4	THE WITNESS: I'm giving those as examples of	11:30:46
5	circumferentially constricting the seal member as it	11:30:49
6	relates to these patents.	11:30:54
7	BY MR. HAMILTON:	11:30:55
8	Q So the question was about the word circumference	11:30:56
9	and what does circumference mean. And you said, Surround,	11:30:58
10	wrap around, encircle. Is that right?	11:31:02
11	A I think from a geometric standpoint,	11:31:07
12	circumference means the outside length of a circle or	11:31:16
13	something approximating a circle, doesn't have to be a	11:31:23
14	true circle.	11:31:27
15	Q What do you mean by true circle?	11:31:28
16	A From a geometric standpoint, a true circle.	11:31:57
17	Q So it could be an oval or some other shape; is	11:32:04
18	that right?	11:32:10
19	MR. STOWELL: Objection, vague.	11:32:10
20	THE WITNESS: I believe the term circumference can be	11:32:10
21	used to describe the perimeter dimension of things that	11:32:16
22	are not true circles, including ellipses or ovals or tree	11:32:24
23	trunks.	11:32:34
24	BY MR. HAMILTON:	11:32:36
25	Q So then would that be it's the outer boundary of	11:32:37

1 an area?

11:32:41

2 MR. STOWELL: Objection. Vague.

11:32:42

3 THE WITNESS: Circumference is, from a geometric
4 standpoint, the measurement of the outside perimeter of a
5 circle or roundish or oval type of member of geometry.

11:32:42

11:32:50

11:32:55

6 BY MR. HAMILTON:

11:33:06

7 Q Does the '011 patent disclose any embodiments
8 that do not circumferentially constrict?

11:33:16

11:33:19

9 MR. STOWELL: Objection. Outside the scope.

11:33:36

10 THE WITNESS: I will say the figures -- in the
11 figures, at least for the '011 patent as I interpret them,
12 it does appear that they -- that their embodiments
13 including Figures 8 and 9 do circumferentially constrict
14 the seal member.

11:33:37

11:34:00

11:34:07

11:34:14

11:34:18

15 BY MR. HAMILTON:

11:34:20

16 Q So it's your understanding every figure discloses
17 embodiments that circumferentially constrict; is that
18 right?

11:34:24

11:34:26

11:34:29

19 A That's my interpretation of these figures.

11:34:29

20 Q Are you aware of any embodiment in the
21 specification that does not circumferentially constrict?

11:34:35

11:34:38

22 A I'd have to look at more detail at the
23 specification. I haven't considered that for this -- this
24 supplementary declaration.

11:34:43

11:34:47

11:34:55

25 Q Did you consider it for your first declaration,

11:34:55

1 Exhibit 1003?

11:35:14

2 A I believe we did discuss circumferential
3 collapse, including more details about Figures 8 and 9 and
4 how those systems would work.

11:35:16

11:35:30

11:35:35

5 Q So are you aware of any embodiment in the '011
6 patent that does not circumferentially constrict?

11:35:36

11:35:42

7 A I'd have to look at more detail at the
8 specification. I haven't considered that for this
9 supplemental declaration.

11:35:46

11:35:53

11:36:00

10 Q Have you considered that question with respect to
11 your first declaration?

11:36:02

11:36:06

12 A I believe there was some description and
13 explanation for all the -- all the embodiments shown in
14 '011.

11:36:08

11:36:18

11:36:24

15 Q I see you have in front of you Figures 8 and 9 of
16 Exhibit 1001, the '011 patent.

11:36:25

11:37:08

17 A Yes.

11:37:10

18 Q Do those figures show interlocking bights?

11:37:10

19 A Yes. The two separate bights are overlapping, or
20 interlocking, I think, is the term that the patent uses as
21 one option.

11:37:16

11:37:24

11:37:27

22 Q What does overlap mean?

11:37:28

23 A The one wire is inside the other wire when
24 they're assembled as shown in Figures 8 and 9. I believe
25 that was given as an option that they would be

11:37:31

11:37:38

11:37:46

1 interlocking and that they don't have to be interlocking.

11:37:50

2 Q So if they're not interlocking, do they form an
3 encircled area?

11:37:53

11:37:58

4 A Yes. In Column 14, line 2, it states, In some
5 embodiments the first orientation is different from the
6 second orientation. These are referring to the bight
7 embodiments, such that the first and second receiving
8 areas 808A and 808B overlap and define an encircled area,
9 also referred to as a constricting area. Elongate member
10 132 is received -- can be received within the encircled
11 area 814.

11:37:59

11:39:28

11:39:33

11:39:37

11:39:38

11:39:45

11:39:53

11:39:56

12 Q What you just read is the interlocking bights,
13 correct?

11:39:59

11:40:08

14 MR. STOWELL: Objection. Misstates document.

11:40:08

15 THE WITNESS: In the section above, Column 13,
16 line 50, Whereas in other embodiments, the first and
17 second bights 800A, 800B can be noninterlocking. So I
18 believe it's referring to either interlocking or
19 noninterlocking.

11:40:09

11:40:29

11:40:32

11:40:42

11:40:45

20 BY MR. HAMILTON:

11:40:46

21 Q So whether they interlock or not, it's your
22 testimony that they overlap; is that right?

11:40:46

11:40:50

23 A Well, the U-shaped components have to overlap in
24 order to allow the tubing to go in between. So they're
25 overlapping in order to receive the sealing member.

11:40:51

11:41:04

11:41:08

1 Q And is that what's meant by overlap in -- that's 11:41:11
2 your understanding of the passage you just read in 11:41:17
3 Column 13, overlap means they overlap along the axis? 11:41:21

4 MR. STOWELL: Objection. Vague. 11:41:27

5 THE WITNESS: Well, it says they overlap to define an 11:41:27
6 encircled area 814, so... Figure 8 is showing the 11:41:32
7 overlapped area as being the 814 encircled area. 11:41:44

8 BY MR. HAMILTON: 11:41:49

9 Q Figure 8 shows the interlocking bights, correct? 11:41:49

10 A It does. 11:41:53

11 Q It does not show bights that are not interlocked, 11:41:54
12 does it? 11:41:56

13 A It doesn't, but I think the interlocking area -- 11:41:57
14 I'm sorry, the overlapping area, the encircled area would 11:42:01
15 be identical whether the bights are interlocked or not 11:42:04
16 interlocked. 11:42:11

17 Q Would the bights that are not interlocked have to 11:42:11
18 be contacting each other to form an encircled area? 11:42:26

19 MR. STOWELL: Objection. Vague. 11:42:31

20 THE WITNESS: I haven't thought about it. 11:42:31

21 BY MR. HAMILTON: 11:42:37

22 Q Can you think about it now? 11:42:38

23 A It's not something I've considered in my 11:42:39
24 declaration for today. 11:42:45

25 Q If the bights are not contacting each other side 11:42:46

1	by side, would that form an encircled area?	11:42:52
2	A I guess I would say if they're close enough to	11:42:56
3	compress the tubing, then they're forming an encircled	11:43:20
4	area around the tubing.	11:43:24
5	Q So whether or not the compression is along a	11:43:26
6	circumference, the bights would compress the tubing; is	11:43:36
7	that right?	11:43:40
8	MR. STOWELL: Objection. Vague.	11:43:40
9	THE WITNESS: Can you explain the compression along	11:43:40
10	the circumference?	11:43:50
11	BY MR. HAMILTON:	11:43:51
12	Q If they're interlocking, there is compression	11:43:51
13	along a single circumference, correct?	11:43:55
14	MR. STOWELL: Objection. Vague.	11:43:57
15	THE WITNESS: I'm not sure. I haven't addressed that	11:43:57
16	in my declaration.	11:44:11
17	BY MR. HAMILTON:	11:44:13
18	Q If the bights are side by side, would each bight	11:44:19
19	form an arc around the tubular member?	11:45:13
20	MR. STOWELL: Objection. Vague.	11:45:17
21	THE WITNESS: Yeah, I really haven't considered that.	11:45:19
22	I'm not sure what -- I'm not sure what -- what the	11:45:30
23	question is, I guess.	11:45:36
24	BY MR. HAMILTON:	11:45:37
25	Q What don't you understand about the question?	11:45:37

1	A	How are you using the term arc?	11:45:38
2	Q	Do you understand what the term arc means?	11:45:48
3	A	Yes.	11:45:50
4	Q	What does arc mean?	11:45:51
5	A	A curve. A bend or a curve.	11:45:54
6	Q	What's the difference between an arc and a	11:46:04
7		circumference?	11:46:10
8	MR. STOWELL:	Objection. Outside the scope.	11:46:11
9	THE WITNESS:	I think before I said circumference is	11:46:12
10		surrounding, encircling or the measurement of a perimeter	11:46:18
11		of a circle is a circumference.	11:46:29
12	BY MR. HAMILTON:		11:46:31
13	Q	And how is that different from an arc?	11:46:36
14	MR. STOWELL:	Objection. Outside the scope.	11:46:39
15	THE WITNESS:	An arc has a length --	11:46:40
16	MR. STOWELL:	Vague.	11:46:43
17	THE WITNESS:	-- that's something less than a complete	11:46:44
18		circle. Something less than a complete circumference.	11:46:47
19	BY MR. HAMILTON:		11:46:50
20	Q	So it would be fair to say an arc is a partial,	11:46:50
21		could be a partial circumference?	11:46:53
22	MR. STOWELL:	Objection. Vague.	11:46:57
23	THE WITNESS:	From a geometric standpoint, an arc is a	11:46:57
24		part of a curve or a circle.	11:47:10
25			

1 BY MR. HAMILTON:

2 Q And if two arcs -- could two arcs form a
3 circumference?

4 MR. STOWELL: Objection. Vague. Outside the scope.

5 THE WITNESS: With respect to the patent, I think the
6 arcs shown in, for instance, Figure 8, together form a
7 circumference around the seal member.

8 BY MR. HAMILTON:

9 Q And Figure 8 again shows interlocking bights,
10 correct?

11 A It shows interlocking bights and I think it could
12 show noninterlocking bights and I would have the same
13 answer.

14 Q What do you mean it could show interlocking
15 bights, does it show interlocking bights or not?

16 MR. STOWELL: Objection. Asked and answered.

17 THE WITNESS: The specification says they could be
18 interlocking or noninterlocking. So they could have shown
19 noninterlocking. They chose to show interlocking bights
20 in Figure 8.

21 BY MR. HAMILTON:

22 Q Is there any figure showing noninterlocking
23 bights in the '011 patent?

24 A I don't believe so.

25 Q So if the bights of Figures 8 and 9 were

1 noninterlocking, they're side by side, would each bight 11:49:16
2 form an arc around the tubular member? 11:49:20

3 MR. STOWELL: Objection. Outside the scope. Vague. 11:49:25

4 THE WITNESS: I think the curved portion could be 11:49:28
5 considered an arc. And together, they would act to form 11:49:32
6 an encircled area. 11:49:37

7 BY MR. HAMILTON: 11:49:39

8 Q But those two arcs would not actually connect, 11:49:39
9 would they? 11:49:43

10 MR. STOWELL: Objection. Vague. 11:49:44

11 THE WITNESS: They would not be interlocking if they 11:49:45
12 were side by side. 11:49:48

13 BY MR. HAMILTON: 11:49:53

14 Q And because they're not interlocking, they 11:49:55
15 wouldn't connect, would they? 11:49:58

16 MR. STOWELL: Objection. Vague. 11:49:59

17 THE WITNESS: They wouldn't be interlocked if that's 11:49:59
18 what you mean by connected. 11:50:07

19 BY MR. HAMILTON: 11:50:08

20 Q If the bights were interlocked, would that form a 11:50:41
21 singular substantially circular line that encircles the 11:50:48
22 tubular member? 11:50:55

23 MR. STOWELL: Objection. Vague. Outside the scope. 11:50:55

24 THE WITNESS: I think what it would form is how they 11:50:57
25 describe it in the patent. Column 14. They describe an 11:51:11

1	encircled area 814.	11:51:27
2	BY MR. HAMILTON:	11:51:29
3	Q And is that encircled area -- does that encircled	11:51:29
4	area have a singular substantially circular line?	11:51:33
5	MR. STOWELL: Objection. Vague.	11:51:39
6	THE WITNESS: I'm not sure what that means.	11:51:40
7	BY MR. HAMILTON:	11:51:42
8	Q The two side-by-side arcs form a singular	11:51:46
9	substantially circular line?	11:51:54
10	MR. STOWELL: Objection. Vague.	11:51:58
11	THE WITNESS: I'm not sure where substantially	11:51:58
12	circular line is coming from or --	11:52:06
13	BY MR. HAMILTON:	11:52:07
14	Q You don't understand what those words mean?	11:52:07
15	A I don't understand the reference to those words	11:52:08
16	that you're referring to.	11:52:10
17	Q Do you understand what substantially means?	11:52:12
18	A Sure.	11:52:15
19	Q Do you understand what singular means?	11:52:16
20	A With respect to these designs and patents, I'm	11:52:19
21	not sure what substantially singular line means.	11:52:22
22	Q Do you understand what circular means?	11:52:26
23	A Yes.	11:52:29
24	Q What's a circular line?	11:52:29
25	MR. STOWELL: Objection. Vague. Outside the scope.	11:52:31

1	THE WITNESS: A circle.	11:52:33
2	BY MR. HAMILTON:	11:52:36
3	Q What's a singular circular line?	11:52:42
4	MR. STOWELL: Objection. Asked and answered.	11:52:46
5	THE WITNESS: I'm not sure how it relates to this	11:52:47
6	patent or what section you're reading from to find that	11:52:50
7	reference.	11:52:57
8	BY MR. HAMILTON:	11:52:57
9	Q Do you understand what a singular circular line	11:53:03
10	is?	11:53:05
11	MR. STOWELL: Objection. Asked and answered.	11:53:06
12	THE WITNESS: I think I said it's a circle.	11:53:08
13	BY MR. HAMILTON:	11:53:11
14	Q And for that circle, is one able to trace the	11:53:13
15	circle completely around its circumference?	11:53:18
16	MR. STOWELL: Objection. Outside the scope.	11:53:22
17	THE WITNESS: I think that's the definition of a	11:53:23
18	circle.	11:53:29
19	BY MR. HAMILTON:	11:53:30
20	Q So that's a yes?	11:53:30
21	A I think what you're describing is the definition	11:53:31
22	of a circle.	11:53:37
23	Q If you could turn to Column 4 of the '011 patent.	11:53:38
24	I want to ask you about the sentence beginning on line 51.	11:54:18
25	A You said Column 4?	11:54:36

1	Q	Column 4, the sentence beginning on line 51.	11:54:38
2	A	Okay.	11:54:41
3	Q	So the sentence beginning at line 51, In some	11:56:14
4		embodiments. Do you see that?	11:56:19
5	A	Yes.	11:56:19
6	Q	Earlier, I had asked if there were embodiments	11:56:22
7		disclosed that do not circumferentially constrict. Does	11:56:29
8		this help you answer this question?	11:56:37
9	MR. STOWELL:	Objection. Outside the scope. Vague.	11:56:38
10	THE WITNESS:	(Indiscernible utterance)I don't think	11:56:40
11		it changes my answer.	11:57:56
12	THE STENOGRAPHIC REPORTER:	I'm sorry. Repeat that?	11:57:56
13	THE WITNESS:	I don't think it changes my answer that	11:57:58
14		the embodiments shown are all circumferentially	11:58:00
15		constricting a tubular member.	11:58:08
16	BY MR. HAMILTON:		11:58:10
17	Q	When you say the embodiments shown, you mean in	11:58:13
18		the figures?	11:58:15
19	A	In the figures. And in this paragraph you asked	11:58:15
20		me to read.	11:58:20
21	Q	And this paragraph says, In some embodiments, the	11:58:20
22		at least one filament circumferentially constricts the	11:58:30
23		tubular member. Do you see that?	11:58:34
24	A	Yeah.	11:58:34
25	Q	So does that imply that there are embodiments	11:58:37

1	that do not circumferentially constrict?	11:58:40
2	MR. STOWELL: Objection. Vague. Outside the scope.	11:58:43
3	THE WITNESS: I don't recall embodiments that don't	11:58:45
4	circumferentially constrict.	11:58:52
5	BY MR. HAMILTON:	11:58:52
6	Q So as you sit here today, you're not aware of any	11:59:01
7	embodiment in the '011 that patent that does not	11:59:04
8	circumferentially constrict, where a filament does not	11:59:07
9	circumferentially constrict the tubular member; is that	11:59:11
10	right?	11:59:19
11	MR. STOWELL: Objection. Asked and answered.	11:59:19
12	THE WITNESS: That's my recollection, is that the	11:59:21
13	embodiment in '011 all discuss circumferentially	11:59:25
14	constricting using a filament of some type.	11:59:33
15	BY MR. HAMILTON:	11:59:34
16	Q And that was your understanding in rendering your	11:59:35
17	opinion in this case; is that correct?	11:59:37
18	A That's my understanding.	11:59:38
19	Q And the fact that this paragraph says, In some	11:59:44
20	embodiments, the at least one filament circumferentially	11:59:48
21	constricts, doesn't change your answer. You still believe	11:59:53
22	all the embodiments in the '011 patent circumferentially	11:59:59
23	constrict; is that right?	12:00:03
24	MR. STOWELL: Objection. Asked and answered.	12:00:03
25	THE WITNESS: That's my recollection, not having	12:00:04

1	looked at it in great detail today.	12:00:07
2	MR. STOWELL: We've been going another hour and a	12:00:31
3	half. So when you reach a good time for a break, let's do	12:00:33
4	that.	12:00:35
5	MR. HAMILTON: Sure, yeah. Let's take a break.	12:00:36
6	MR. STOWELL: Okay.	12:00:37
7	THE VIDEOGRAPHER: Okay. We are going off the record.	12:00:38
8	The time is 12:00 o'clock p.m.	12:00:40
9	(Recess taken.)	12:35:39
10	THE VIDEOGRAPHER: We are back on the record. The	12:35:39
11	time is 12:35 p.m.	12:35:46
12	BY MR. HAMILTON:	12:35:48
13	Q Mr. Thornton, do you understand you're still	12:35:50
14	under oath?	12:35:51
15	A Yes.	12:35:51
16	Q Did you review any documents during the break?	12:35:52
17	A No.	12:35:57
18	Q Did you communicate with anybody in any way	12:35:58
19	regarding your testimony here today?	12:36:01
20	A No.	12:36:05
21	Q Did you communicate with anybody regarding this	12:36:05
22	matter in any way?	12:36:07
23	A No.	12:36:08
24	Q What is steel rebar?	12:36:08
25	MR. STOWELL: Objection. Vague. Outside the scope.	12:36:17

1 THE WITNESS: In my declaration that I gave as an 12:36:18
2 example of -- well, steel rebar is using construction for 12:36:24
3 reenforcing concrete. 12:36:36

4 BY MR. HAMILTON: 12:36:37

5 Q Are you aware of steel rebar being used in a 12:36:39
6 hemostasis valve? 12:36:43

7 A No. 12:36:45

8 Q Would a person of ordinary skill in the art ever 12:36:46
9 use steel rebar in a hemostasis valve? 12:36:50

10 A No. 12:36:53

11 MR. HAMILTON: All right. I have no further 12:37:22
12 questions. 12:37:24

13 Thank you for your time today. 12:37:24

14 MR. STOWELL: I don't have any questions either. 12:37:26

15 THE VIDEOGRAPHER: Okay. One moment, I'll read us 12:37:32
16 off. 12:37:36

17 This marks the end of the deposition of Troy L. 12:37:40
18 Thornton. We're going off the record at 12:37 p.m. 12:37:44

19 (WHEREUPON THE DEPOSITION WAS

20 CONCLUDED AT 12:37 P.M.)

1 Please be advised I have read the
2 foregoing deposition, pages 1 through
86, inclusive.

3 I hereby state there are:
4
5

6 (Check one) _____ no corrections
7
8 _____ corrections per attached
9
10 _____

11 TROY L. THORNTON
12
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WITNESS'S CHANGES OR CORRECTIONS

NOTE: If you are adding to your testimony, print the exact words you want to add. If you are deleting from your testimony, print the exact words you want to delete. Specify with "Add" or "Delete" and sign this form.

Deposition of: TROY L. THORNTON
Case Title: IMPERATIVE V. INARI
Date of Deposition: AUGUST 15, 2025

I, _____ have
the following corrections to make to my deposition:

Page Line Change/Add/Delete

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CERTIFICATE OF SHORTHAND REPORTER/STENOGRAPHER

I, Christa Yan, Certified Shorthand/Stenographic Reporter
within and for the State of California do hereby certify:

That Troy Thornton, the Witness whose deposition is
hereinbefore set forth, was duly sworn by me before the
commencement of such deposition and that such deposition
was taken before me and is a true record of the testimony
given by such witness.

I further certify that both parties were represented by
counsel at the deposition.

I further certify that the deposition of Troy Thornton,
occurred at the offices of Knobbe Martens San Francisco on
August 15, 2025, commencing at 9:01 a.m. to 12:37 p.m.

I further certify that I am not related to any of the
parties to this action by blood or marriage, I am not
employed by or an attorney to any of the parties to this
action, and that I am in no way interested, financially or
otherwise, in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 20th
day of August 2025.



CERTIFIED SHORTHAND/STENOGRAPHIC REPORTER
IN AND FOR THE STATE OF CALIFORNIA

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