

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2
3
4 BEFORE THE PATENT TRIAL AND APPEAL BOARD

5
6 IMPERATIVE CARE, INC.
7 Petitioner,

8 v.

9 INARI MEDICAL , INC.,
10 Patent Owner.

11
12 Case IPR2025-01562
13 Patent No. 12,109,384

14 VIDEOTAPED DEPOSITION OF
15 TROY LANE THORNTON
16 THURSDAY, MAY 28, 2026
17 San Francisco, California

18
19 9:19 a.m. PDT

20 to

21 11:54 a.m. PDT

22
23 Stenographically Reported by:
24 Burgundy B. Ryan, RPR,
25 CSR No. 11373
Job No. 634099
Pages 1-65

A P P E A R A N C E S

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ALSO PRESENT:

Philip Astor, Videographer
Planet Depos

DEPOSITION SUPPORT INDEX

QUESTIONS INSTRUCTED NOT TO ANSWER:

PAGE LINE

(None)

REQUEST FOR PRODUCTION OF DOCUMENTS

PAGE LINE

(None)

STIPULATIONS

PAGE LINE

(None)

QUESTIONS MARKED

PAGE LINE

(None)

REPORTER'S NOTE:

QUOTATION MARKS ARE USED FOR CLARITY AND DO NOT
NECESSARILY REFLECT A DIRECT QUOTE.

I N D E X

	PAGE
EXAMINATION BY MR. MILLER.....	6

--o0o--

E X H I B I T S

EXHIBIT	DESCRIPTION	PAGE
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(The following previously-marked exhibits were
discussed: 1001, 1002, 1003, 1006, 1007, 1014, and
1015.)

--o0o--

Transcript of Troy Lane Thornton
Conducted on May 28, 2026

5

1 BE IT REMEMBERED that, pursuant to Notice
2 of Taking Deposition, and on Thursday, May 28, 2026,
3 commencing at 9:19 a.m. PDT thereof, at Knobbe
4 Martens Olsen & Bear, 333 Bush Street, San
5 Francisco, California, before me, Burgundy B. Ryan,
6 a Certified Shorthand Reporter in and for the State
7 of California, personally appeared

8 TROY L. THORNTON,
9 a witness called on behalf of PATENT OWNER, and who,
10 having been first duly sworn by me to testify to the
11 truth, was examined and testified as follows:

12 THE VIDEOGRAPHER: Here begins Media No. 1
13 in the videotaped deposition of Troy Thornton in the
14 matter of Imperative Care, Inc. versus Inari
15 Medical, Inc. in the United States Patent and
16 Trademark Office before the Patent Trial and Appeal
17 Board, case number IPR2025-01562.

18 Today's date is May 28th, 2026.

19 The time on the video monitor is 9:19
20 Pacific.

21 The videographer today is Philip Astor
22 representing Planet Depos, headquartered at 451
23 Hungerford Drive, Suite 400, Rockville, Maryland
24 20850.

25 This video deposition is taking place at

Transcript of Troy Lane Thornton
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1	333 Bush Street, 21st Floor, San Francisco,	09:19:31
2	California.	09:19:36
3	Would Counsel please voice identify	09:19:37
4	themselves and state whom they represent?	09:19:38
5	MR. STOWELL: Joshua Stowell of Knobbe	09:19:41
6	Martens on behalf of the Petitioner Imperative Care	09:19:43
7	and the witness.	09:19:47
8	MR. MILLER: James Miller of Perkins Coie	09:19:48
9	on behalf of Inari.	09:19:50
10	THE VIDEOGRAPHER: The court reporter today	09:19:53
11	is Burgundy Brooke Ryan representing Planet Depos.	09:19:54
12	The witness will now be sworn.	09:19:58
13	COURT REPORTER: Good morning. My name is	09:20:14
14	Burgundy Brooke Ryan, California CSR License No.	09:20:14
15	11373.	09:20:14
16	(Whereupon, the witness was sworn.)	09:20:15
17	COURT REPORTER: Thank you very much.	09:20:15
18	Counsel, you may proceed.	09:20:15
19	TROY LANE THORNTON,	09:20:15
20	having been first duly sworn to tell the whole	09:20:15
21	truth, testified as follows,	09:20:15
22	EXAMINATION	09:20:16
23	By MR. MILLER:	09:20:16
24	Q. Mr. Thornton, could you state your full	09:20:16
25	name for the record?	09:20:18

Transcript of Troy Lane Thornton
Conducted on May 28, 2026

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1	A.	Troy Lane Thornton.	09:20:20
2	Q.	What is your current address?	09:20:22
3	A.	773 Rhode Island Street, San Francisco	09:20:24
4		94107.	09:20:28
5	Q.	You've been deposed many times in	09:20:31
6		connection with the IPRs between Imperative and	09:20:34
7		Inari; right?	09:20:39
8	A.	Yes.	09:20:41
9	Q.	It's fair to say that you are familiar with	09:20:42
10		how these depositions work?	09:20:43
11	A.	Yes.	09:20:45
12	Q.	So I'll -- I'll skip some of the usual	09:20:45
13		background, but you understand that you are under	09:20:48
14		oath?	09:20:52
15	A.	Yes.	09:20:53
16	Q.	And is there any reason why you cannot	09:20:53
17		testify truthfully and fully?	09:20:56
18	A.	No.	09:20:59
19	Q.	Did you bring any documents with you today?	09:21:01
20	A.	No.	09:21:03
21	Q.	Did you do any preparation for today's	09:21:05
22		deposition?	09:21:07
23	A.	Yes.	09:21:08
24	Q.	And what did you do?	09:21:09
25	A.	I met with counsel yesterday, reviewed a	09:21:12

Transcript of Troy Lane Thornton
Conducted on May 28, 2026

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1	number of documents.	09:21:16
2	Q. Do you recall what documents you looked at?	09:21:19
3	A. My declaration plus some of the references	09:21:26
4	that are listed in the declaration.	09:21:29
5	Q. Do you remember which references?	09:21:32
6	A. I certainly reviewed the '348 patent that	09:21:43
7	is at issue here. Some of the other patents that	09:21:47
8	are mentioned referenced in that declaration, I also	09:21:50
9	reviewed parts of.	09:21:55
10	Q. Did you review the prior art asserted in	09:21:58
11	this IPR?	09:22:00
12	A. Which specific prior art?	09:22:04
13	Q. Which do you recall reviewing?	09:22:06
14	A. Certainly, I reviewed parts of Shaker,	09:22:17
15	Heller and Hartley. Those are three -- three that I	09:22:20
16	recall reviewing recently.	09:22:25
17	Q. You stated earlier that you met with	09:22:40
18	counsel.	09:22:43
19	Who all did you meet with?	09:22:44
20	A. Josh.	09:22:46
21	Q. Anyone else?	09:22:48
22	A. No.	09:22:49
23	Q. For how long did you meet?	09:22:51
24	A. I think it was a couple of hours yesterday.	09:22:55
25	Q. Was that the only time you met?	09:23:00

Transcript of Troy Lane Thornton
Conducted on May 28, 2026

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1	A.	We did a phone call, Zoom call, earlier in	09:23:05
2		the week. I believe it was Tuesday morning.	09:23:10
3	Q.	Who was on that call?	09:23:12
4	A.	Josh.	09:23:15
5	Q.	Anyone else?	09:23:17
6	A.	No.	09:23:18
7	Q.	How long was the call?	09:23:19
8	A.	Less than a half an hour, as I recall.	09:23:23
9	Q.	Besides your counsel with you here	09:23:31
10		today, did you speak with anyone else in preparation	09:23:33
11		for this deposition?	09:23:35
12	A.	No.	09:23:36
13	Q.	Other than meeting and reviewing the	09:23:37
14		declaration, the patent at issue, some of the	09:23:42
15		patents referenced in that patent and the prior	09:23:46
16		art, did you review anything else in preparation for	09:23:47
17		your deposition?	09:23:49
18	A.	Not that I recall.	09:23:56
19	Q.	Has your rate changed, your hourly rate	09:24:01
20		changed, since the last time you were deposed in the	09:24:04
21		Imperative Inari IPRs?	09:24:09
22	A.	No.	09:24:11
23	Q.	How many hours have you spent on this IPR	09:24:12
24		specifically?	09:24:15
25	A.	I don't recall. It was written more than a	09:24:19

Transcript of Troy Lane Thornton
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1	year ago, I believe.	09:24:23
2	Q. Do you have a rough estimate?	09:24:26
3	A. I don't really remember.	09:24:28
4	Q. In total, how many hours do you think	09:24:31
5	you've spent preparing for this deposition?	09:24:33
6	A. Maybe five or six hours.	09:24:50
7	Q. Other than with counsel, have you discussed	09:24:53
8	your testimony, declaration, or any other aspect of	09:24:57
9	this IPR with anybody?	09:25:00
10	A. No.	09:25:01
11	Q. Have you ever communicated in any way with	09:25:05
12	anyone at Imperative Care about your work on this	09:25:08
13	IPR?	09:25:10
14	A. No.	09:25:11
15	Q. I'm going to hand you what has been	09:25:28
16	previously marked as Exhibit 1003.	09:25:30
17	Do you recognize Exhibit 1003?	09:25:45
18	A. Yes. It's my declaration related to this	09:25:52
19	'384 patent. It was signed on September 16th, 2025.	09:25:56
20	Q. And that is your signature on page 119?	09:26:10
21	A. That is my electric signature.	09:26:13
22	MR. STOWELL: Counsel, the version I have	09:26:15
23	looks to be different than the version the witness	09:26:16
24	has. I have additional materials at the back of	09:26:18
25	mine, RC.	09:26:21

Transcript of Troy Lane Thornton
Conducted on May 28, 2026

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1	MR. MILLER: There might have been some	09:26:23
2	misprint.	09:26:25
3	Do you want to use mine?	09:26:27
4	MR. STOWELL: It looks like that is --	09:26:28
5	MR. MILLER: Oh, it looks like his resume	09:26:29
6	got accidentally attached to that one. You can have	09:26:32
7	that one.	09:26:34
8	MR. STOWELL: Okay. There we go. Let me	09:26:35
9	just see yours.	09:26:36
10	By MR. STOWELL:	09:26:38
11	Q. Okay. Does this appear, now that we have	09:26:38
12	sorted out the versions, appear to be an accurate	09:26:52
13	representation of the declaration you submitted in	09:26:57
14	this IPR?	09:26:59
15	A. Yes.	09:27:01
16	Q. Sitting here today, do you have any	09:27:04
17	corrections or errors that you've identified in your	09:27:05
18	declaration?	09:27:09
19	A. No.	09:27:10
20	Q. Did you write this declaration?	09:27:23
21	A. I worked on it along with counsel.	09:27:29
22	Q. Do you know how many drafts that you worked	09:27:34
23	on?	09:27:35
24	A. I don't know.	09:27:37
25	Q. You can set that aside. We will come back	09:27:50

1	to it.	09:27:55
2	I'm handing you what has been previously	09:28:09
3	marked as Exhibit 1001.	09:28:10
4	Do you recognize Exhibit 1001?	09:28:26
5	A. Yes.	09:28:31
6	Q. What is it?	09:28:31
7	A. US Patent No. 12,109,384 B2 --	09:28:34
8	Q. Do you understand --	09:28:44
9	A. -- referred to earlier as the '384 patent.	09:28:46
10	Q. And you understand that the '384 patent,	09:28:49
11	Exhibit 1001, is the patent at issue in this IPR?	09:28:51
12	A. Yes.	09:28:55
13	Q. I may refer to Exhibit 1001 just as the	09:28:56
14	'384 patent.	09:29:00
15	Do you understand that when I do that I'm	09:29:02
16	referring to this exhibit?	09:29:03
17	A. Yes.	09:29:04
18	Q. It's fair to say you've reviewed the '384	09:29:10
19	patent numerous times at this point; right?	09:29:13
20	A. Yeah. I have definitely seen it more than	09:29:20
21	once.	09:29:23
22	Q. You reviewed the figures of the '384	09:29:23
23	patent; correct?	09:29:26
24	A. Yes.	09:29:27
25	Q. Would you say you're familiar with the	09:29:31

1	alleged invention of the '384 patent?	09:29:34
2	A. Yes.	09:29:37
3	Q. Let's look at the claims of the '384	09:29:47
4	patent. They start on column 17.	09:29:50
5	MR. STOWELL: Objection. Misstates	09:29:59
6	document.	09:30:00
7	MR. MILLER: Oh, sorry. Column 22.	09:30:02
8	By MR. MILLER:	09:30:15
9	Q. If we look at Claim 1 and you go to the	09:30:15
10	limitation, that's the third line down, it says, "A	09:30:23
11	second filament extending in a second loop" -- oh,	09:30:26
12	actually, sorry. I jumped ahead. Let's look at the	09:30:31
13	second limitation. "A first filament extending in a	09:30:33
14	first loop around the tubular member where in the	09:30:36
15	first filament is flexible."	09:30:40
16	Do you see that?	09:30:41
17	A. Yes.	09:30:41
18	Q. And then the next line reads, "A second	09:30:42
19	filament extending in a second loop around the	09:30:45
20	tubular member where in the second filament is	09:30:47
21	flexible."	09:30:52
22	Do you see that?	09:30:53
23	A. Yes.	09:30:53
24	Q. Do you understand that Claim 1 of the '384	09:30:54
25	patent requires two filaments?	09:30:57

1 A. Yes. It requires a first filament and it
2 requires a second filament extending in a second
3 loop around the tubular member.

4 Q. Why would a person of ordinary skill in the
5 art want to use two filaments?

6 MR. STOWELL: Objection. Vague.

7 THE WITNESS: Yeah. I don't know.

8 By MR. MILLER:

9 Q. Do you think it's -- would a person of
10 ordinary skill in the art use two filaments --
11 strike that.

12 If we look at the figures of the '384
13 patent -- let's look at Figure 7.

14 Do you understand what Figure 7 is showing?

15 A. Yes.

16 Q. What is it showing?

17 A. I think it's showing an example as Claim 1
18 is describing where there is a first filament in a
19 first loop and a second filament in a second loop
20 around the tubular member.

21 Q. And why -- and the tubular member is, for
22 lack of a better word, the object that the blood
23 will go through in these systems; right?

24 MR. STOWELL: Objection. Vague.

25 THE WITNESS: Yeah. The tubular member is

1 shown in prior Figures 2, 3, 4, 5. And that's the
2 member that is compressible by these filaments.

3 By MR. MILLER:

4 Q. And why would a person of ordinary skill in
5 the art use two filaments to constrict the tubular
6 member rather than one?

7 A. I think the patent shows examples of one.
8 I think they are just trying to show multiple
9 examples of potential design options.

10 So Figure 6 shows a single filament and a
11 single loop, for example.

12 Q. Sitting here today, can you think of any
13 disadvantages to using a single loop versus a double
14 loop or double filament -- sorry. Single filament
15 versus double filament?

16 MR. STOWELL: Objection. Compound.

17 THE WITNESS: I don't recall in the patent
18 if they described any particular benefits or
19 negatives of using one loop versus two versus the
20 design shown in Figure 8 and 9.

21 I think the authors were just trying to
22 show different embodiment -- potential embodiments.

23 By MR. MILLER:

24 Q. If you were designing a system like this
25 and you had the option to use one filament versus

09:33:06

09:33:19

09:33:26

09:33:26

09:33:29

09:33:34

09:33:38

09:33:43

09:33:45

09:33:51

09:33:55

09:34:01

09:34:03

09:34:07

09:34:12

09:34:16

09:34:18

09:34:19

09:34:25

09:34:29

09:34:34

09:34:35

09:34:48

09:34:48

09:34:52

1	two, what would you do?	09:34:56
2	MR. STOWELL: Objection. Vague.	09:34:58
3	Incomplete hypothetical.	09:35:01
4	THE WITNESS: I think I would need more	09:35:19
5	information about what size, what the width was of	09:35:20
6	the filaments, what the cost of the filaments might	09:35:25
7	be. Using one component is usually better than	09:35:32
8	using two components from a cost and manufacturing	09:35:35
9	standpoint, so I'm not sure if there is any clear	09:35:38
10	benefits or negatives of the design in Figure 6	09:35:43
11	versus Figure 7.	09:35:47
12	By MR. MILLER:	09:36:04
13	Q. In the context of the '384 patent and the	09:36:04
14	knowledge of a person of ordinary skill in the art	09:36:09
15	at the time of the invention, would they have been	09:36:14
16	motivated to use two filaments rather than one?	09:36:23
17	MR. STOWELL: Objection. Vague.	09:36:29
18	THE WITNESS: I think it's unclear, without	09:36:37
19	knowing the force required, to compress the tubing,	09:36:39
20	the width, let's say of the filaments that are in	09:36:45
21	contact with the tubing whether it's a flat, you	09:36:52
22	know, a flat wire, let's say, that is wound around,	09:36:56
23	versus a round wire that they seem to show in	09:36:59
24	Figures 6 and 7.	09:37:03
25	In other words, the surface area is in	09:37:05

1 contact with the tubing, so I think there are a lot
2 of factors that would have to be considered in
3 actually prototyping or designing something like
4 this.

5 By MR. MILLER:

6 Q. In providing your declaration in this IPR
7 and your opinions and testimony in this IPR, did you
8 consider those factors?

9 MR. STOWELL: Objection. Vague.

10 THE WITNESS: In my declaration, I
11 certainly did not opine on any differences between a
12 single loop or a double loop type of design or the
13 potential benefits or negatives of each of those.

14 By MR. MILLER:

15 Q. And you said single loop or double loop.
16 How about single filament versus double
17 filament?

18 A. Yeah. I could have used that term
19 "filament" instead of "loop."

20 Q. In preparing for today's deposition, did
21 you review the prosecution history for the '384
22 patent?

23 A. I reviewed only the section that we
24 included in here. I don't recall looking at the
25 150-page document in preparation for this.

1 Q. Are you familiar with the restriction
2 requirement issued to the applicant for the '384
3 patent in the prosecution history?

4 A. Yeah. I don't recall any restriction
5 requirement section that I included here under
6 Prosecution History. Starting on page 20, doesn't
7 mention that.

8 What I did say at the bottom of page 20 was
9 it did not -- that the examiner did not cite or
10 apply Schafer and did not issue any substantive
11 office actions.

12 Q. Then you're not familiar with the election
13 by the applicant to directly mention the '384
14 patent, the embodiment shown in Figure 7?

15 A. I would have to look back at that section
16 in the examiner's report.

17 Q. Well, let's -- let's look back at Figure 7
18 on the '384 patent for a minute. I think that's the
19 other page in front of you.

20 So you agree with me that Figure 7 depicts
21 two filaments; right?

22 A. Yeah. As the patent '384, column 12, says
23 toward the bottom, line 61, "In some embodiments,
24 the filament 150 can comprise multiple filaments,
25 and specifically, as shown in Figures 7 through 9,

09:39:09
09:39:12
09:39:16
09:40:07
09:40:09
09:40:12
09:40:15
09:40:26
09:40:28
09:40:32
09:40:38
09:41:18
09:41:23
09:41:31
09:41:35
09:41:36
09:41:48
09:41:51
09:41:54
09:42:03
09:42:06
09:42:48
09:42:53
09:42:59
09:43:02

1 the filament can comprise a first filament, 150-A,
2 and a second filament, 150-B."

3 Q. Those filaments are separate from one
4 another as shown in Figure 7; correct?

5 MR. STOWELL: Objection. Vague.

6 THE WITNESS: The specification doesn't say
7 that they are separate. I think a person of skill
8 in the art would look at Figure 7 and understand
9 that this specific example shows them as two
10 separate components that are next to each other.

11 By MR. MILLER:

12 Q. Do the filaments in Figure 7 form loops?

13 A. It's certainly how it's described in
14 column 13 --

15 Q. So that is a "yes"?

16 A. -- line 20, where they discuss that the --
17 in some embodiments the filament can be configured
18 to form multiple loops.

19 Q. What is a loop?

20 MR. STOWELL: Objection. Vague.

21 THE WITNESS: I think how they are using it
22 in this patent as it relates to these embodiments,
23 it is a -- it's forming a shape around -- completely
24 around the tubular member.

25 By MR. MILLER:

1 Q. You are saying that's how they are using it 09:45:17
2 in this patent. 09:45:21

3 Do you have a -- outside of this patent, do 09:45:25
4 you have a different understanding of what a loop 09:45:27
5 is? 09:45:29

6 MR. STOWELL: Objection. Vague. 09:45:33

7 THE WITNESS: Well, I think it can be used 09:46:01
8 in different context. For instance, a loop around 09:46:02
9 something is more of a -- a verb, versus forming a 09:46:06
10 loop might mean wrapping around something else. 09:46:14

11 So I think how it's used in this patent 09:46:19
12 is -- is how it's taught, and this patent is looping 09:46:21
13 around the tubular member. 09:46:28

14 By MR. MILLER: 09:46:31

15 Q. That is completely around? 09:46:31

16 A. In Claim 1 they certainly use the term 09:46:40
17 "loop around the tubular member." 09:46:43

18 In later claims, I think there is a -- 09:46:46
19 Claim 15 is described as the first filament 09:47:04
20 configured in a first loop completely around the 09:47:08
21 tubular member, et cetera. 09:47:11

22 Q. So, in your opinion, to form a loop, a 09:47:35
23 filament would need to go completely around the 09:47:41
24 tubular member? 09:47:44

25 A. For Claim 15, they make that clear. For 09:47:52

1 Claim 1, where it just says "loop around," in prior
2 IPRs we made the argument that Figure 8, for
3 instance, as an example where the two filaments
4 together form a loop around the tubular member.

5 Q. How would you form a loop without going
6 completely around the object you are trying to form
7 a loop around?

8 A. I would have to look back at the prior IPRs
9 where we discussed, really, Figure 8 in more detail.
10 But that's the argument that we used there. That is
11 not part of this IPR.

12 Q. With respect to Figure 7, does it show a
13 filament going completely around the tubular member?

14 A. I think a person of skill in the art would
15 interpret that Figure to encompass the Claim 15
16 language of "completely around."

17 Q. Looking at Claim 1, if you go down about
18 two-thirds of the way through the claim, it
19 says, "In the first portion" -- do you see that?

20 A. I see "In the first position."

21 Q. "First position." Sorry. "The actuators
22 are positioned to tension the first filament and the
23 second filament, thereby decreasing a dimension of
24 the first loop, and thereby decreasing a dimension
25 of the first" -- of -- "and a dimension of the

1	second loop to constrict the lumen of the tubular	09:50:28
2	member."	09:50:31
3	Do you see that?	09:50:32
4	A. Yes.	09:50:32
5	Q. What does "decreasing a dimension of the	09:50:40
6	first loop" mean?	09:50:44
7	A. I think they are describing decreasing the	09:50:54
8	size of the loop which would constrict the tubular	09:50:57
9	member.	09:51:01
10	Q. And how would it do that if it wasn't	09:51:16
11	completely wrapped around the tubular member?	09:51:19
12	A. Well, I think as Figure 8 shows, with two	09:51:26
13	separate U-shaped elements, by pulling on the ends,	09:51:31
14	it would also decrease the size of the tubular	09:51:38
15	member.	09:51:42
16	Q. So is it your opinion that Claim 1 of the	09:51:56
17	of the '384 patent is directed to Figure 8 for the	09:52:00
18	embodiment shown in Figure 8?	09:52:07
19	A. I didn't really address that in the	09:53:28
20	declaration. It seems like it's written broadly	09:53:30
21	enough that it could encompass the design shown in	09:53:36
22	Figure 8.	09:53:39
23	Q. And you may have addressed this before in	09:54:01
24	other IPRs, but just for the sake of having it on	09:54:03
25	the record here, do you view Figure 8 as disclosing	09:54:06

1	one or two filaments?	09:54:10
2	A. Two filaments.	09:54:20
3	Q. I'm going to hand you what has been	09:54:50
4	pre-marked as Exhibit 1002.	09:54:52
5	Do you recognize Exhibit 1002?	09:55:07
6	A. Yes.	09:55:14
7	Q. What is it?	09:55:14
8	A. On page 2, the title says "Issue	09:55:37
9	notification related to patent number 12,109,384."	09:55:40
10	Q. Do you recognize Exhibit 1002 to be	09:55:54
11	excerpts of the prosecution history of the '384	09:55:58
12	patent?	09:56:01
13	A. I don't know if it's excerpts or the whole	09:56:02
14	thing. It's almost 400 pages.	09:56:04
15	Q. But it does appear to be at least a portion	09:56:09
16	of the prosecution history?	09:56:13
17	A. Yes.	09:56:16
18	Q. Let's look at page 18. There should be	09:56:20
19	numbers at the bottom of every page.	09:56:24
20	Do you see that this appears to be an	09:56:35
21	office action with at least one section describing	09:56:37
22	reasons for allowance?	09:56:43
23	You might have to turn to page 19.	09:56:49
24	A. Page 19 talks about the reasons for	09:57:24
25	allowance from the examiner. They have a section	09:57:27

1 regarding Claim 1 and a section regarding Claim 15.

09:57:32

2 Q. And if you go to page 20, the next
3 page, right above the section titled "Prior Art,
4 Hartley," the examiner stated, "The closest prior
5 art of record is Hartley," gives the publication
6 number, "Wong, et al," gives the publication number,
7 and "Eller" with the publication number.

09:57:36

09:57:42

09:57:49

09:57:52

09:57:55

09:57:59

8 Do you see that?

09:58:03

9 A. Yes.

09:58:09

10 Q. And do you see the examiner said, "These
11 references do not disclose the device that is
12 claimed or described above"?

09:58:10

09:58:12

09:58:15

13 A. Yes.

09:58:25

14 Q. Do you agree then that the examiner at
15 least considered Hartley and Eller in the
16 prosecution of the '384 patent; correct?

09:58:26

09:58:28

09:58:31

17 A. Yeah. At the end of the next section,
18 "Prior art, Harley" -- I think it's "Hartley." It
19 is written as "Harley" in this document.

09:58:50

09:58:52

09:58:59

20 The last sentence, "Harley fails to
21 disclose that the actuator is as a pair of
22 actuators, a second filament." Therefore, Hartley
23 fails to disclose the limitations as mentioned in
24 Claims 1, 15, and 23 above.

09:59:03

09:59:04

09:59:08

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09:59:15

25 But it looks like the examiner believed

09:59:21

1	that Hartley had all the other limitations except	09:59:24
2	for the second filament.	09:59:26
3	Q. In your opinion, does Hartley disclose two	09:59:33
4	filaments?	09:59:36
5	A. Do you have the Hartley reference we were	09:59:44
6	discussing?	09:59:46
7	Q. I'm handing you what has been marked as	10:00:01
8	Exhibit 1006.	10:00:04
9	Do you recognize this Exhibit 1006 to be	10:00:17
10	the Hartley reference?	10:00:21
11	A. Yes.	10:00:25
12	Q. So my question was, in your opinion, does	10:00:50
13	Hartley disclose two filaments?	10:00:54
14	A. In Hartley, paragraph 17, it says, "The	10:02:26
15	flexible member may be a string, suture, or band or	10:02:29
16	other material."	10:02:31
17	And in paragraph 21, they describe it as "A	10:02:52
18	flexible member passed circumferentially around the	10:02:59
19	cylindrical diaphragm." So wrapped around or looped	10:03:03
20	around the diaphragm.	10:03:06
21	I believe there's another location where it	10:03:06
22	says it's preferentially looped two times around.	10:03:16
23	Q. If you go to paragraph 31 -- perhaps we can	10:03:24
24	shortcut this.	10:03:27
25	At the top of the second column in that	10:03:28

1 page, it says, "A string 14 is mounted into the 10:03:32
2 rotary actuator with a knot 16 at one end and then 10:03:35
3 passes through an aperture 20 cylindrical housing 6 10:03:39
4 and is wound preferably twice around the cylindrical 10:03:42
5 diaphragm 8." 10:03:46

6 Do you see that? 10:03:48

7 A. Yeah. That is the area I was looking for 10:03:48
8 for being wrapped around preferably twice but it 10:03:50
9 could be only once. 10:03:53

10 Q. Back to my question. It's referring to a 10:03:56
11 string, a singular string; correct? 10:04:00

12 A. Yeah. I don't think the patent ever shows 10:04:09
13 one or more strings. 10:04:11

14 Q. So Hartley doesn't disclose using two 10:04:20
15 filaments; correct? 10:04:24

16 MR. STOWELL: Objection. Misstates 10:04:25
17 testimony. 10:04:25

18 THE WITNESS: I think it discloses really 10:04:31
19 one string that could be -- could be looped around 10:04:32
20 at least one time. 10:04:36

21 By MR. MILLER: 10:04:42

22 Q. Do you think that the examiner was wrong in 10:04:42
23 finding Hartley did not disclose a second filament? 10:04:44

24 A. Yeah. I think in my -- in my declaration 10:05:13
25 we addressed that the Hartley string could be 10:05:19

1 considered to have more than one strand and that a
2 strand can be defined as a filament based upon the
3 '384 patent.

4 I don't think the examiner considered that
5 aspect, that a string could be composed of multiple
6 strands and that a strand is defined as a filament
7 in the '384 patent.

8 Q. Does Hartley teach using multiple strands
9 in a single string or a single filament?

10 A. I believe it just says that the flexible
11 member may be a string, suture, or band or other
12 suitable material.

13 And as I discuss in the declaration, the
14 common definition of string is a component that
15 would have multiple strands that make up the string.

16 Q. If you look back to the '384 patent,
17 Exhibit 1001, and look at Claim 6.

18 Claim 6 reads --

19 A. Sorry. Could you back up?

20 Q. Yeah.

21 A. Could you say that again?

22 Q. If you look at the '384 patent,
23 Exhibit 1001, the bottom of column 22.

24 So Claim 6 reads, "The valve assembly of
25 Claim 1 where in the first element -- filament --

10:05:22

10:05:32

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10:06:04

10:06:15

10:06:18

10:06:23

10:06:29

10:06:32

10:06:37

10:06:50

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10:07:00

10:07:01

10:07:02

10:07:06

10:07:12

10:07:15

1	and the second filament, each comprise a plurality	10:07:18
2	of strands woven together."	10:07:21
3	Do you see that?	10:07:24
4	A. Yes.	10:07:25
5	Q. What do you think this claim means by "each	10:07:31
6	comprise a plurality of strands woven together"?	10:07:36
7	A. Well, it reads, "The first filament would	10:07:46
8	be comprised of a plurality of strands and the	10:07:50
9	second filament would be comprised of a plurality of	10:07:53
10	strands."	10:07:56
11	Q. So, under Claim 6, a first filament would	10:08:01
12	comprise more than one strand woven together;	10:08:04
13	correct?	10:08:07
14	A. Yes.	10:08:13
15	Q. You're familiar with the fact that	10:08:22
16	dependent claims generally have to be narrower than	10:08:27
17	independent claims; correct?	10:08:29
18	A. Yes.	10:08:32
19	Q. Did you consider the language of Claim 6	10:08:40
20	when you were providing your opinions regarding	10:08:44
21	Claim 1?	10:08:46
22	A. I did. As I discuss in paragraph 68 of my	10:09:43
23	declaration, I wrote that "Claim 6 of the '384	10:09:47
24	patent confirms my opinion that the threads or	10:09:54
25	strands making up Hartley string are a first	10:09:58

1 filament and second filament as recited in Claim 1. 10:10:02
2 Claim 6 depends from Claim 1 but adds the following 10:10:06
3 limitation: Where in the first filament and the 10:10:11
4 second filament each comprise a plurality of strands 10:10:14
5 woven together. Thus, in Claim 6, each of the first 10:10:18
6 and second filaments must each be formed from 10:10:22
7 multiple strands woven together." 10:10:26

8 In other words, I understand that Claim 1 10:10:36
9 does not require that the first and second filaments 10:10:38
10 form from a plurality of woven strands, otherwise 10:10:42
11 Claim 6 would be superfluous. 10:10:45

12 "The first and second filaments in Claim 1, 10:10:47
13 therefore, encompass the individual threads or 10:10:52
14 strands forming Hartley's string." 10:10:56

15 Q. So what do you think the word "each" is 10:11:05
16 doing in Claim 6? 10:11:07

17 MR. STOWELL: Objection. Vague. 10:11:11

18 THE WITNESS: I think it means what it 10:11:19
19 says, that the first filament comprises a plurality 10:11:20
20 of strands and also the second filament would 10:11:23
21 comprise a plurality of strands. 10:11:27

22 By MR. MILLER: 10:11:31

23 Q. Under your interpretation though, a 10:11:31
24 plurality of strands is multiple filaments; correct? 10:11:33

25 A. I think in the interpretation of the -- in 10:11:41

1 the description in the '384 patent, column 9,
2 line 21, the filament 150 can comprise one or
3 several threads, lines, cords, et cetera.

4 And, yes, I think that means that a -- one
5 thread can comprise a filament.

6 Q. So, in your opinion, if a first filament
7 had two threads, it would be, what, three filaments?

8 Or what would it be?

9 MR. STOWELL: Objection. Vague.

10 THE WITNESS: I don't understand the
11 question.

12 By MR. MILLER:

13 Q. So, in your opinion that you just stated, a
14 thread could be a filament; correct?

15 A. I think that's what the '384 patent says in
16 the line I just read, that the filament could
17 comprise one or several. So, in this case, one
18 thread. So thread could equal filament.

19 Q. In Claim 6 and Claim 1, for that matter, it
20 refers to two filaments; correct?

21 MR. STOWELL: Objection. Misstates the
22 claim.

23 By MR. MILLER:

24 Q. The first and second filament.

25 A. Yes. Those claims refer to a first

1 filament and a second filament.

10:13:36

2 Q. Under your interpretation of filament,
3 would a first filament having two strands, would
4 that be a first filament or a first and second
5 filament at the same time?

10:13:39

10:13:43

10:13:58

10:14:02

6 MR. STOWELL: Objection. Vague.

10:14:07

7 THE WITNESS: Well, I think as I said in
8 the declaration, that Hartley's string were just
9 made up of multiple threads. And the fact that a
10 filament could be a single thread, that those would
11 equate that Hartley's string could have two
12 filaments within it.

10:14:17

10:14:19

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10:14:37

10:14:43

10:14:51

13 By MR. MILLER:

10:14:55

14 Q. Hartley doesn't describe a string with two
15 threads; correct?

10:14:55

10:14:57

16 A. The description of string that I'm applying
17 is from a couple of references. Exhibit 1014 and
18 Exhibit 1015, one of which states that material --
19 that the string -- definition of string is a
20 material consisting of threads of cotton, hemp, or
21 other material twisted together to form a thin
22 length.

10:15:03

10:15:05

10:15:12

10:15:20

10:15:23

10:15:27

10:15:31

23 Q. The answer to my question, though -- or
24 sorry. Strike that.

10:15:31

10:15:33

25 My question was, Hartley doesn't describe a

10:15:34

1 string with two threads. And you've now referenced
2 two other non-Hartley references.

3 Is the answer to my question, yes, it does
4 not describe a string with two threads?

5 MR. STOWELL: Objection. Vague.

6 THE WITNESS: Hartley gave a few examples,
7 one of which was a string that could be used as it's
8 tensioning member.

9 By MR. MILLER:

10 Q. But it does not describe how many threads
11 in that string; correct?

12 A. I don't believe it describes anymore detail
13 than listing it as a string. It also lists suture
14 and band, as I recall.

15 Q. A string can have a single thread; correct?

16 A. I know that sutures can be a monofilament
17 suture. I'm not familiar with a string that is not
18 woven or has multiple threads together.

19 Q. You've never seen a string that has a
20 single thread?

21 A. I think the common definition of a string
22 would include multiple threads woven together --
23 woven or twisted together.

24 Q. Turning back to Claim 6. It states, "The
25 first filament having a plurality of strands woven

10:15:36

10:15:39

10:15:42

10:15:45

10:15:48

10:15:54

10:15:55

10:16:00

10:16:08

10:16:08

10:16:11

10:16:14

10:16:16

10:16:21

10:16:25

10:16:40

10:16:44

10:16:47

10:16:53

10:16:55

10:17:00

10:17:02

10:17:06

10:17:11

10:17:21

1 together and a second filament comprising a
2 plurality of strings woven together."

3 Do you understand that's what the claim is
4 referring to?

5 A. Yes.

6 Q. If the first filament comprised a plurality
7 of strings woven together, under your definition or
8 opinion, that first filament would no longer be a
9 first filament, it would be a first filament, second
10 filament, third filament, however many threads there
11 were; correct?

12 MR. STOWELL: Objection. Compound.

13 THE WITNESS: Can you re-ask the question?

14 By MR. MILLER:

15 Q. So you agree with me that Claim 6 describes
16 two filaments, the first and second filament?

17 A. Yes.

18 Q. You've said repeatedly now that a strand --
19 a single strand would be a filament; correct?

20 A. I think a single strand within a string
21 would be described as a filament, per column 9, the
22 section I read before, because it could be a single
23 thread.

24 Q. So is it your opinion that a strand to
25 comprise -- a strand to be a filament, it has to be

1 woven with other strands?

10:19:04

2 A. I think as section 9 says, a filament could
3 be a single -- a single thread. So it's one or
4 several. That means it could be one thread.

10:19:21

10:19:25

10:19:35

5 Q. Do you understand that a strand is the same
6 thing as a thread?

10:19:40

10:19:43

7 A. I think for the purposes of this patent,
8 that's how it's being used.

10:19:51

10:19:53

9 Q. So if I had a first filament that had two
10 strands, how many filaments is that?

10:19:57

10:20:00

11 MR. STOWELL: Objection. Vague.
12 Misleading.

10:20:06

10:20:10

13 THE WITNESS: I think as it relates to
14 Claim 1, that filament could comprise two strands
15 within it. Claim 6 is different, where the filament
16 is defined as having multiple strands woven
17 together.

10:20:14

10:20:16

10:20:22

10:20:30

10:20:33

18 By MR. MILLER:

10:20:36

19 Q. I'm trying to understand the result there.

10:20:36

20 Then under Claim -- thinking about Claim 1,
21 if I have a filament that comprises two strands, how
22 many filaments do I have under your definition of
23 what a filament is?

10:20:40

10:20:42

10:20:48

10:20:51

24 MR. STOWELL: Objection. Vague.
25 Misleading.

10:20:53

10:20:54

1 THE WITNESS: I think a filament could be 10:21:05
2 one or more individual strands as it shows in 10:21:07
3 column 9. 10:21:12

4 By MR. MILLER: 10:21:22

5 Q. To me, this is kind of a chicken before the 10:21:22
6 egg thing. If you say that a filament could be one 10:21:24
7 or more individual strands but that each strand can 10:21:29
8 be a filament, then if you have one filament with 10:21:32
9 two strands, won't you, under your definition, have 10:21:36
10 two filaments? 10:21:39

11 MR. STOWELL: Objection. Compound. Vague. 10:21:42
12 Misleading. 10:21:44

13 THE WITNESS: Yeah. I'm not sure. I think 10:21:46
14 in the -- the way I look at the Hartley string, the 10:21:48
15 Hartley string is composed of, let's say, two 10:21:55
16 strands, and in the definition -- the description in 10:22:01
17 column 9 that a single strand could constitute the 10:22:07
18 filament. 10:22:11

19 Therefore, the individual -- the two 10:22:13
20 individual strands within Hartley's string could 10:22:22
21 constitute the two individual filaments as described 10:22:27
22 in Claim 1. 10:22:31

23 By MR. MILLER: 10:22:59

24 Q. I'm a little confused by your answer. 10:22:59

25 So taking a step back, if I have a single 10:23:02

1 strand, is that one or -- is that a filament? 10:23:11

2 A. I think it can be a filament as shown on 10:23:18
3 line 22 on column 9, a filament can comprise one or 10:23:24
4 several threads. And I'm equating thread with 10:23:30
5 strand, which I think the patent does also. 10:23:34

6 Q. For Claim 6 -- actually, strike that. 10:23:55

7 Taking a step back. In view of that 10:24:18
8 definition or description on column 9, do you think 10:24:19
9 the first filament must be describing one thread or 10:24:36
10 multiple threads in Claim 1? 10:24:43

11 MR. STOWELL: Objection. Vague. 10:24:51

12 THE WITNESS: Since Claim 6 narrows it to a 10:25:01
13 filament that is comprised of a plurality of 10:25:06
14 strands, and Claim 1 could be -- is broader than 10:25:09
15 that, so it could be a single strand making up a 10:25:15
16 filament. 10:25:20

17 By MR. MILLER: 10:25:50

18 Q. For Claim 6 then, since it's referring to a 10:25:50
19 first and second filament, each comprising a 10:25:54
20 plurality of strands woven together, how many 10:25:57
21 filaments are there if you have a first filament 10:26:06
22 with two strands and a second filament with two 10:26:10
23 strands? 10:26:14

24 A. In Claim 6? 10:26:18

25 Q. Uh-huh. 10:26:20

1 A. In Claim 6, I think that is describing two
2 filaments each of which has, in your example, two
3 strands within it.

4 Q. With respect to Claim 6, if you had -- or
5 Claim 1, sorry -- if you had a first filament and a
6 second filament each comprising two strands, how
7 many filaments would you have under your view of
8 what a filament is?

9 MR. STOWELL: Objection. Vague.
10 Misleading.

11 THE WITNESS: How many filaments or how
12 many strands? What did you ask --

13 By MR. MILLER:

14 Q. How many filaments?

15 A. Can you re-ask the question? Sorry.

16 Q. With respect to Claim 1, if you had a first
17 filament comprising two strands and a second
18 filament comprising two strands, how many
19 filaments -- actually, let me reframe this. Maybe
20 it will bypass an objection over here.

21 With respect to Claim 1, if you had two
22 strings, each string comprising two strands, under
23 your definition of what a filament is, how many
24 filaments would you have?

25 A. Well, you used the term "strings" not

1 filaments.

10:27:45

2 Can you re-ask the question?

10:27:45

3 Q. Right. But you've said multiple times that
4 a string could be a filament; right?

10:27:46

10:27:50

5 A. Yes. I think in my declaration we said
6 that Hartley string constitutes a filament because
7 it is at least one or more threads within that
8 string.

10:27:57

10:27:59

10:28:06

10:28:10

9 Q. Right. So with respect to Claim 1, if I
10 have two strings comprising two threads each, how
11 many filaments do I have?

10:28:10

10:28:17

10:28:23

12 A. If you're equating filament to string in
13 Claim 1, what you described is each filament has
14 multiple strands, which is really what Claim 6 is
15 saying.

10:28:44

10:28:47

10:28:54

10:28:58

16 Q. Are you equating filament to string for
17 Claim 1?

10:28:59

10:29:04

18 A. I think Hartley string constitutes a
19 filament, as I describe in paragraph 67 of the
20 declaration.

10:29:06

10:29:10

10:29:13

21 Q. So if Hartley's string was a single
22 thread, would it still be a filament?

10:29:27

10:29:32

23 MR. STOWELL: Objection. Vague.

10:29:39

24 THE WITNESS: Well, per section 9 -- or
25 column 9, the filament could be a single thread,

10:29:46

10:29:48

1	line, et cetera.	10:29:53
2	By MR. MILLER:	10:30:03
3	Q. And how many filaments would Hartley	10:30:03
4	describe if it had a string with two threads?	10:30:06
5	A. Hartley string with two threads could	10:30:18
6	constitute that those threads are equal to a	10:30:23
7	filament.	10:30:26
8	Q. Each thread is equivalent -- equal to a	10:30:28
9	filament?	10:30:31
10	A. That's how I read line 22 on column 9, that	10:30:32
11	a filament could comprise a single thread.	10:30:37
12	Q. And that's what you think a person of	10:30:57
13	ordinary skill in the art would understand the scope	10:31:00
14	of filament to encompass?	10:31:07
15	MR. STOWELL: Objection. Vague.	10:31:14
16	THE WITNESS: Well, I certainly think that	10:31:23
17	the patent makes -- has a very broad definition of	10:31:25
18	filament in that column 9. It could be one or	10:31:28
19	several. Earlier, they talk about it could be a	10:31:33
20	monofilament. It could be a plurality of	10:31:35
21	strands, one or several threads, lines, cords, et	10:31:43
22	cetera.	10:31:48
23	So they are giving a wide range. So I	10:31:49
24	think a person of skill in the art would be able to	10:31:52
25	pick from that range in how they were using the term	10:31:55

1 "filament" and how they would use the term "string."

10:32:05

2 By MR. MILLER:

10:32:27

3 Q. If a single string of multiple threads is
4 not multiple filaments, and it's just a single
5 filament, would Hartley disclose only one filament?

10:32:27

10:32:34

10:32:38

6 A. Can you say that again?

10:32:42

7 Q. If a single string of multiple threads is
8 not considered multiple filaments, then Hartley
9 discloses only one filament; correct?

10:32:43

10:32:47

10:32:51

10 MR. STOWELL: Objection. Vague.

10:32:57

11 By MR. MILLER:

10:33:02

12 Q. To make this more clear. If your
13 dictionary definition of what a string is, multiple
14 threads -- multiple woven threads, is not accepted,
15 and only the string is considered a single filament,
16 then Hartley only discloses a single filament;
17 correct?

10:33:02

10:33:05

10:33:09

10:33:16

10:33:23

10:33:27

18 MR. STOWELL: Objection. Vague.

10:33:27

19 THE WITNESS: Yes. I think if the board --
20 as I stated in here, if the board didn't, you know,
21 agree with this line of reasoning, we've got the --
22 the next possible design iteration is shown in the
23 following pages, starting with page 41, where I said
24 "If the board concludes that Hartley string does not
25 constitute a first and second filament as shown in

10:33:34

10:33:35

10:33:38

10:33:44

10:33:50

10:33:59

10:34:01

1 Figure -- in Claim 1, then a person of ordinary
2 skill in the art would have found it obvious to
3 substitute two of Hartley's strings or Schafer's two
4 actuator members."

5 And I show that example in the illustration
6 on page 41.

7 MR. STOWELL: We have been going about an
8 hour and a half. Whenever --

9 MR. MILLER: Yeah. We can take a break.

10 MR. STOWELL: Yeah. Sure.

11 THE VIDEOGRAPHER: We are going off the
12 record at 10:34.

13 (Recess.)

14 THE VIDEOGRAPHER: We are back on the
15 record at 10:45.

16 By MR. MILLER:

17 Q. So we were discussing earlier Hartley and
18 you mentioned that it discloses preferably wrapping
19 the string around the tubular member.

20 I don't remember if it says "tubular
21 member," but tubular member of Hartley twice.

22 Do you remember that?

23 A. Yeah. Hartley says in column -- sorry,
24 paragraph 31, that the string is wound preferably
25 twice around the cylinder diaphragm, et cetera.

Transcript of Troy Lane Thornton
Conducted on May 28, 2026

42

1 Q. When you wrap a filament or here, a string,
2 around twice, what does that do compared to doing it
3 once?

4 MR. STOWELL: Objection. Vague.

5 THE WITNESS: Well, Hartley doesn't explain
6 why he or she might preferably wrap around twice,
7 but -- so I'm not sure what Hartley is referring to
8 or what Hartley may see as the benefit for his
9 design.

10 By MR. MILLER:

11 Q. Well, you're the expert. So what would a
12 person of ordinary skill -- or why would a person of
13 ordinary skill wrap around twice?

14 A. Yeah. I'm not sure that a person of
15 ordinary skill would necessarily wrap it twice. I
16 think it could have some negatives of adding
17 additional friction and make it more difficult to
18 compress the tubular member if it were wrapped twice
19 around. So I'm not sure there would be any benefit
20 to doing so.

21 Q. Are those same negatives present when you
22 have two separate filaments wrapped around once?

23 A. No. I think the friction of each loop of
24 each string as I show in -- on page 41, I think the
25 friction would be -- the friction between the string

1 and the tubular member would be less.

10:48:36

2 Q. On each individual string or total for
3 both?

10:48:44

10:48:47

4 A. On each individual string would be less
5 than wrapping each string around two times.

10:48:49

10:48:51

6 Q. But the total friction where there is a
7 first string and a second string compared to one
8 string wrapped around twice would be the same;
9 right?

10:48:55

10:48:58

10:49:01

10:49:04

10 A. I don't know. I think it depends on the
11 coefficient of friction of the tube of the strings,
12 the surface area, and contact. It's unknown how
13 that -- how the friction would stack up.

10:49:06

10:49:11

10:49:16

10:49:23

14 Q. Well, assuming the same identical strings,
15 the same tubular member with uniform shape, size,
16 material -- wouldn't two identical strings wrapped
17 around once have the same friction as one string
18 looped around twice?

10:49:29

10:49:32

10:49:39

10:49:46

10:49:51

19 MR. STOWELL: Objection. Vague.

10:49:58

20 THE WITNESS: Yeah. I don't believe so.

10:50:06

21 By MR. MILLER:

10:50:09

22 Q. Why not?

10:50:09

23 A. Yeah. I'm not sure I can describe why not.

10:50:35

24 Q. Why aren't you sure?

10:50:50

25 MR. STOWELL: Objection. Misstates

10:50:56

1	testimony.	10:50:57
2	THE WITNESS: Yeah. It's hard to say	10:51:35
3	without doing testing or evaluating or knowing the	10:51:37
4	different parameters. It certainly seems that one	10:51:43
5	string wrapped around twice has different force	10:51:48
6	vectors happening on it as you pull on each end than	10:51:52
7	two strings each wrapped around a single time.	10:51:57
8	By MR. MILLER:	10:52:10
9	Q. Did you explain this difference in force	10:52:10
10	vectors in your declaration?	10:52:15
11	A. No.	10:52:19
12	Q. Can you think of any advantages to just	10:52:25
13	using -- well, actually, strike that.	10:52:29
14	I think you mentioned a few advantages of	10:52:31
15	why using one string over two earlier, including	10:52:34
16	ease of manufacturing.	10:52:40
17	Was there anything else that you would see	10:52:43
18	as an advantage of using one string wrapped around	10:52:45
19	twice than using two?	10:52:52
20	A. I don't think I could -- I don't think I	10:52:54
21	mentioned any advantages of one string wrapped	10:52:55
22	around twice. It just seems counterintuitive to	10:52:58
23	wrap a string around twice when you are trying to	10:53:03
24	compress a tubular member within it.	10:53:06
25	Q. Why is it counterintuitive?	10:53:12

1 A. It just doesn't seem necessary if you are
2 trying to compress a tube that you would need to
3 wrap around two times.

4 Q. If your option was to wrap around two times
5 or use two strings, why might a person of ordinary
6 skill in the art use one string to wrap around
7 twice?

8 A. I think I said I don't see where a person
9 of skill in the art would -- would wrap around
10 twice.

11 Q. Perhaps they didn't want to use two strings
12 before cost, manufacturing.

13 Are there any other reasons they might not
14 want to use two strings?

15 MR. STOWELL: Objection. Compound.

16 THE WITNESS: I just think a person of
17 skill in the art would find it most obvious to use a
18 single string wrapped around once. If there was a
19 benefit to spacing the strings apart, then I think a
20 person of skill in the art would most likely
21 consider a second string wrapped around once.

22 By MR. MILLER:

23 Q. But wouldn't that be more costly?

24 A. A second string wrapped around once would
25 be more costly than a one string wrapped around

1 once. Those are the two considerations that I think
2 a person of skill in the art would think about.

3 Q. Are there any other considerations that a
4 person of ordinary skill in the art might take into
5 consideration when deciding between a second string
6 wrapped around once or a first string wrapped around
7 twice?

8 A. Between a single string wrapped around once
9 and two strings wrapped around once, I think I list
10 a couple of potential benefits of, one, you could
11 space those strings apart if you wanted a larger
12 surface area to compress.

13 As I stated on page 42, "Two loops of
14 string would apply constricting force along a
15 greater length of the tubular member, thereby
16 creating a larger sealing area and more robust
17 seal."

18 Q. Which paragraph is that?

19 A. 79. The end of 79.

20 Q. So I've seen you use the term "larger
21 sealing area," and then in paragraph 81 you describe
22 a "wider sealing area."

23 Are those the same thing?

24 A. Yes.

25 Q. What -- what is a wider sealing area?

10:55:05

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10:56:01

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10:56:12

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10:56:18

10:56:23

10:56:25

10:56:28

10:56:41

10:56:46

10:56:49

10:56:52

10:57:01

10:57:06

1 A. As I describe at the end of 79, a greater
2 length -- you will be constricting along greater
3 length of the tubular member. So longitudinal
4 distance could be greater if you had two strings
5 that were next to each other or separated slightly.

6 But, of course, it depends on the size of
7 the string, the profile of the string, et cetera.

8 Q. Why would a wider sealing area or
9 separation between the strings -- actually, strike
10 that.

11 Why would separation between the strings be
12 advantageous?

13 A. Depending on the size of the string, the
14 profile of the string, for instance, if it's a flat
15 profile ribbon, let's say, it may not be
16 advantageous.

17 But it's possible that having a wider
18 sealing area may seal more effectively because
19 you're compressing a longer length of tubing.

20 As I said in the end of paragraph 81, it
21 may be advantageous because it would create
22 constrictive pressure over a larger area of the
23 tools being inserted through the valve.

24 Q. So you said depending on the size of the
25 string, the profile of the string, for instance, if

10:57:15
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10:57:51
10:57:52
10:58:08
10:58:10
10:58:13
10:58:19
10:58:23
10:58:25
10:58:33
10:58:39
10:58:43
10:58:47
10:58:50
10:59:01
10:59:03

1 it's a flat profile ribbon, let's say, it may not be 10:59:05
2 advantageous, why wouldn't it be advantageous in 10:59:11
3 those circumstances? 10:59:13

4 A. Having two strings? 10:59:19

5 Q. I'm getting at more what about the profile 10:59:20
6 of the string would make it non-advantageous to have 10:59:24
7 space between the strings? 10:59:30

8 A. I'm just thinking of the instance where the 10:59:34
9 filament string might be a flat ribbon with a 10:59:37
10 significant width. 10:59:44

11 In that case, you wouldn't need to have two 10:59:46
12 narrow strings that together might form that same 10:59:49
13 width of compression on the tubing. 10:59:54

14 Q. You've testified throughout your 11:00:12
15 declaration that a person of ordinary skill in the 11:00:14
16 art would be able to make these various 11:00:17
17 modifications including, for instance, adding, 11:00:20
18 removing strings, modifying the materials used in 11:00:27
19 those strings or the tubular member. 11:00:32

20 Is it fair to say that in your opinion a 11:00:37
21 person of ordinary skill in the art can readily 11:00:40
22 ascertain and adapt to the advantages or 11:00:48
23 disadvantages of different configurations in these 11:00:58
24 devices? 11:01:05

25 MR. STOWELL: Objection. Compound. 11:01:06

1 Vague.

2 THE WITNESS: I actually think a person of
3 skill in the art would be able to consider different
4 designs, consider different materials, structures,
5 in order to find a design that worked adequately and
6 met the design goals.

7 By MR. MILLER:

8 Q. So if faced, for example, with increased
9 friction due to a certain arrangement of strings, a
10 person of ordinary skill in the art, in your
11 opinion, would be able to accommodate for that
12 friction through material changes?

13 A. Friction can be adjusted by coatings, by
14 material differences, by surface area changes.

15 So a person of skill in the art would
16 consider multiple options, I think, to optimize
17 friction, if that was a design requirement.

18 Q. Would two strings wrapped around once
19 provide a wider sealing area than a single string
20 wrapped around twice?

21 A. Assuming that two strings are right next to
22 each other, then I think it would be the same width
23 of sealing -- width of string that is touching the
24 tubing.

25 Q. Does a single string wrapped around twice

1 have to be right next to each other? Like the two
2 loops, do they have to be right next to each other?

3 MR. STOWELL: Objection. Vague.

4 THE WITNESS: Not necessarily. But in
5 these designs that we're discussing, unless there is
6 a feature on the tubing that keeps them separate, a
7 ridge on the tubing that keeps them separated, I
8 would assume that they would be next to each other.

9 By MR. MILLER:

10 Q. Why would you assume that?

11 A. Just because that's how, if you have a
12 point of attachment that's straight apart from each
13 other, they would tend to be -- the loops would tend
14 to be next to each other, I believe.

15 Q. Are there risks to introducing gaps
16 between, say, two strings?

17 A. I don't know of any. I can't think of
18 any.

19 Q. Could blood get trapped in the space
20 between constriction of the two strings?

21 MR. STOWELL: Objection. Vague.

22 THE WITNESS: I haven't thought about it in
23 terms of this declaration.

24 By MR. MILLER:

25 Q. But would that be something that a person

1 of ordinary skill in the art might take into 11:05:34
2 consideration when choosing between two strings 11:05:37
3 looped around once with space between them versus 11:05:41
4 one string looped around twice? 11:05:46

5 MR. STOWELL: Objection. Vague. 11:05:50
6 Incomplete hypothetical. 11:05:51

7 THE WITNESS: It's possible. I did not 11:05:57
8 consider that or think of that. 11:05:58

9 By MR. MILLER: 11:06:19

10 Q. You described other purported advantages of 11:06:19
11 using two strings. 11:06:23

12 For example, I believe at some point you 11:06:25
13 reference redundancy; right? 11:06:27

14 A. Yes. In paragraph 82 I mention that a 11:06:32
15 second string would provide a redundancy. For 11:06:35
16 instance, if one of the strings were to fail, to 11:06:41
17 tighten, then there would still be another string 11:06:46
18 that would be able to form the seal. 11:06:48

19 Q. And do you stand by that testimony? 11:06:52

20 A. I think it's one possible advantage if -- 11:06:57
21 of the two-string arrangement. 11:07:00

22 Q. I think you also ascribe durability as an 11:07:04
23 advantage or at least a non-issue in a two-string 11:07:10
24 configuration. 11:07:16

25 Do you recall that? 11:07:17

1	A.	I'm not sure what you're referring to.	11:07:20
2	Q.	I believe on the bottom of page 70 there is	11:07:31
3		a section titled "Hartley strings or Eller's wire	11:07:35
4		members would not weaken the durability of Schafer's	11:07:39
5		valve."	11:07:47
6		Do you recall that?	11:07:47
7	A.	Page 70?	11:07:51
8	Q.	Yes.	11:07:52
9	A.	Paragraph --	11:07:54
10	Q.	Bottom of page 70, do you see there is a	11:07:55
11		section title that?	11:07:57
12	A.	Oh.	11:07:59
13	Q.	And then it continues on.	11:07:59
14	A.	Yes.	11:08:00
15	Q.	Do you recall this -- your opinion in this	11:08:01
16		declaration on durability?	11:08:04
17	A.	Yes.	11:08:08
18	Q.	Why would durability not be an issue in a	11:08:13
19		two-string configuration?	11:08:17
20	A.	Well, as I stated in paragraph 123, "A	11:08:50
21		person of ordinary skill in the art would have known	11:09:02
22		of many durable materials that could be used to form	11:09:04
23		a string or wire for use in the medical device."	11:09:08
24		And the paragraph ends with, "Durability	11:09:21
25		concerns that this was raised in -- by the patent	11:09:23

1 owner in other IPRs -- would not have dissuaded a
2 person of ordinary skill in the art from
3 substituting Schafer's U-shaped actuating members
4 with Hartley's string or wire member."

5 Q. Do you stand by your testimony that
6 durability would not be an issue?

7 A. I think that a person of skill in the art
8 could find materials that would have appropriate
9 durability for the purpose.

10 In the earlier section, talking about the
11 potential use of two strings, I'm just listing that
12 as a potential benefit of having two strings versus
13 one.

14 Probably very unlikely that durability
15 couldn't be addressed with one string. I'm just
16 listing that as another potential benefit.

17 Q. I'm handing you what's been previously
18 marked as Exhibit 1007.

19 Do you recognize Exhibit 1007?

20 A. Yes.

21 Q. What is it?

22 A. It's the Eller patent US 9,980,813 B2.

23 Q. Your -- is it fair to say that you're
24 familiar with Eller?

25 A. Yes.

1	Q. Let's look at Figure 16.	11:11:42
2	What does Figure 16 show?	11:11:55
3	A. As column 22 states regarding Figure 16, it	11:12:34
4	says, "Figure 16 and 17 illustrate the sleeve 420 in	11:12:39
5	the first configuration and the first wire member	11:12:43
6	422 in the first configuration."	11:12:46
7	Q. Is item 526 a loop?	11:12:57
8	A. Well, I think 526, they list as the second	11:13:30
9	end of the wire member 422.	11:13:34
10	So I would call that -- the wire member is	11:13:41
11	422, which is looping around the sealing member 420.	11:13:44
12	That may not be their term but tubular member.	11:13:55
13	Q. Is the wire member 422 a filament, in your	11:14:01
14	opinion?	11:14:05
15	A. As I said in my declaration, paragraph 86,	11:14:28
16	"Eller explains that its wire member can have any	11:14:35
17	suitable structure and comprise any suitable number	11:14:38
18	strands and/or fibers that are twisted or otherwise	11:14:41
19	interconnected to one another. A person of ordinary	11:14:45
20	skill in the art would have therefore understood	11:14:53
21	that each of the twisted strands or fibers making up	11:14:55
22	Eller's wire member would be a flexible filament."	11:14:58
23	So Eller's wire member includes at least a	11:15:04
24	first and second filament, as cited in Claim 1, with	11:15:06
25	the same logic that I provided before with Hartley.	11:15:12

1	Q. Let's look at Figure 18.	11:15:19
2	How many wire members are shown in	11:15:30
3	Figure 18?	11:15:32
4	A. Three.	11:15:36
5	Q. In your opinion, how many filaments are	11:15:39
6	shown in Figure 18?	11:15:41
7	A. Well, each wire member could have a number	11:15:49
8	of filaments within it or strands within it.	11:15:51
9	So based on the '384 description of	11:15:57
10	filament, each of those strands could be considered	11:16:01
11	a filament.	11:16:05
12	Q. Let's take wire number, I think it's 721.	11:16:11
13	Do you see that one?	11:16:14
14	A. Yes.	11:16:17
15	Q. Does the 721 wire member form a loop around	11:16:19
16	the tubular member?	11:16:22
17	A. I would characterize it as the three wire	11:16:32
18	members together form a loop around the tubular	11:16:34
19	member.	11:16:37
20	Q. But that wire member or that filament or	11:16:40
21	filaments does not form a loop around the tubular	11:16:44
22	member; correct?	11:16:46
23	A. On its own, I wouldn't characterize it that	11:16:49
24	way.	11:16:52
25	Q. And why wouldn't you characterize it that	11:16:53

1	way?	11:16:55
2	A. Because it's working with two other wire	11:17:00
3	members in order to form a complete loop around the	11:17:04
4	tubular member.	11:17:09
5	Q. I guess that begs the question, is an	11:17:24
6	incomplete loop a loop?	11:17:26
7	MR. STOWELL: Objection. Vague.	11:17:31
8	THE WITNESS: Yeah.	11:17:32
9	By MR. MILLER:	11:17:53
10	Q. Let me ask it this way. Does any -- does	11:17:53
11	any wire member alone in Figure 18 of Eller form a	11:17:59
12	loop around the tubular member?	11:18:09
13	A. In Figure 18, I wouldn't characterize	11:18:20
14	each -- any individual wire member as forming a	11:18:24
15	loop. Figure 2 does, I think, show a complete loop.	11:18:28
16	And I think the specification talks about	11:18:38
17	that a single wire member could form a loop.	11:18:44
18	Q. Because that single wire member could be	11:18:59
19	wrapped completely around the tubular member?	11:19:01
20	A. So as the Eller patent says on column 16,	11:21:34
21	line 15, "Example number of wire members considered	11:21:43
22	suitable to include in a selective fluid barrier	11:21:47
23	valve device include one, at least one, two in	11:21:51
24	plurality," et cetera.	11:21:56
25	So one or more wire members are being	11:21:57

1 disclosed as part of the Eller patent. And I think 11:22:02
2 Figure 2 is the closest to showing a single wire 11:22:06
3 member looping around. 11:22:09

4 Q. In Eller, to adequately constrict the 11:22:18
5 tubular member with a single wire member, it would 11:22:24
6 have to be completely around the tubular member; 11:22:27
7 correct? 11:22:31

8 MR. STOWELL: Objection. Vague. 11:22:34

9 THE WITNESS: Yeah. I'm not sure. They 11:22:38
10 certainly show in Figure 16 and 17 where the wire 11:22:40
11 member is not looped completely around but mostly 11:22:44
12 around the tubular member. 11:22:50

13 By MR. MILLER: 11:23:07

14 Q. Practically speaking, when constricted, 11:23:07
15 these loops around the wire members, for instance, 11:23:12
16 items -- or item 526, when constricted what 11:23:20
17 practical effect is that going to have on the 11:23:26
18 position of the wire member? 11:23:29

19 MR. STOWELL: Objection. Vague. 11:23:33

20 THE WITNESS: Position of the wire member? 11:23:37

21 By MR. MILLER: 11:23:40

22 Q. So you were just saying that it looks like 11:23:40
23 it's wrapped mostly around the tubular member. 11:23:42

24 If the string was pulled taut or the 11:23:47
25 constriction was occurring, would this loop be 11:23:50

1	pulled in to make a complete loop around?	11:23:57
2	By "the loop pulled in," I mean, like	11:24:02
3	574, 526. Would that be pulled taut and form a	11:24:04
4	complete loop around the tubular member?	11:24:10
5	MR. STOWELL: Objection. Compound. Vague.	11:24:13
6	THE WITNESS: Yeah. They don't show an	11:24:42
7	example of -- in 17, once the actuator is rotated,	11:24:43
8	what the cross-section looks like, that I can see	11:24:50
9	here. So I'm not sure.	11:24:54
10	By MR. MILLER:	11:25:05
11	Q. Have you ever used one of these?	11:25:05
12	A. No.	11:25:10
13	Q. If, for instance, we're looking at	11:26:34
14	Figure 16 or 17, something say goes around the	11:26:37
15	tubular member 75 percent of its circumference, is	11:26:43
16	that a loop?	11:26:47
17	A. I guess I would characterize it as it's	11:26:52
18	looping mostly around the tubular member.	11:26:55
19	Q. But it's not a loop?	11:26:58
20	MR. STOWELL: Objection. Calls for a legal	11:27:04
21	conclusion.	11:27:06
22	THE WITNESS: I think some of the claims in	11:27:21
23	'384 talk about looping completely around. The 15	11:27:23
24	claim set is completely around, so they are using	11:27:39
25	the term "loop" as a verb, looping completely	11:27:46

1 around -- or looped completely around.

11:27:49

2 By MR. MILLER:

11:27:55

3 Q. But as a noun, would something that only
4 goes around 75 percent of the circumference of a
5 tubular member be a loop?

11:27:55

11:28:01

11:28:05

6 A. I think it depends on the application, the
7 industry --

11:28:08

11:28:13

8 Q. In your --

11:28:20

9 A. -- how it might be defined in '384.

11:28:21

10 Q. In your experience and your understanding
11 of what a person of ordinary skill in the art would
12 understand a loop to mean, do you think a person of
13 ordinary skill in the art would consider a loop to
14 be less than completely around?

11:28:25

11:28:27

11:28:29

11:28:33

11:28:37

15 MR. STOWELL: Objection. Vague.

11:28:41

16 THE WITNESS: Yeah. I'm not sure. I think
17 a partial loop -- partial loops exist. Complete
18 loops exist.

11:28:56

11:28:57

11:29:02

19 By MR. MILLER:

11:29:35

20 Q. You've provided testimony in other IPRs
21 that Imperative has filed against Inari patents;
22 correct?

11:29:35

11:29:46

11:29:50

23 A. Yes.

11:29:51

24 Q. And you provided testimony in
25 IPR 2024-01157 as to the '011 patent; correct?

11:29:53

11:29:55

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Conducted on May 28, 2026

60

1	A.	Sounds familiar. The '011 patent sounds	11:30:04
2		familiar, yes.	11:30:09
3	Q.	Do you stand by the testimony that you've	11:30:11
4		provided in that IPR?	11:30:12
5	MR. STOWELL:	Objection. Vague.	11:30:14
6	THE WITNESS:	Yes.	11:30:16
7	By MR. MILLER:		11:30:18
8	Q.	You also provided testimony in	11:30:18
9		IPR2025-00156 as to that '012 patent; correct?	11:30:20
10	A.	Certainly the '012 patent is familiar to me	11:30:30
11		and the IPR, that I did.	11:30:33
12	Q.	Do you stand by the testimony you provided	11:30:35
13		in that IPR?	11:30:37
14	MR. STOWELL:	Objection. Vague.	11:30:38
15	THE WITNESS:	Yes.	11:30:40
16	By MR. MILLER:		11:30:46
17	Q.	You provided testimony in IPR2025-00728 as	11:30:46
18		to the '921 patent; correct?	11:30:54
19	A.	'921 IPR sounds correct.	11:30:57
20	Q.	Do you stand by the testimony you provided	11:31:00
21		in that IPR?	11:31:02
22	MR. STOWELL:	Objection. Vague.	11:31:03
23	THE WITNESS:	Yes.	11:31:04
24	By MR. MILLER:		11:31:27
25	Q.	In your declaration in this IPR, did you	11:31:27

1 explain or provide support for your understanding of 11:31:31
2 a partial loop versus a complete loop? 11:31:41

3 MR. STOWELL: Objection. Vague. Compound. 11:31:50

4 THE WITNESS: I'd have to look at the 11:31:57
5 section regarding Claim 15 because that's the first 11:31:58
6 time they talk about -- examples where the loops are 11:32:01
7 completely around the tubular member. 11:32:28

8 And, really, for Claim 15, the arguments 11:33:31
9 are essentially the same as for Claims 1 -- 1 and 2. 11:33:34

10 So that is shown on paragraph 174. And, 11:33:56
11 really, the arguments I just say are the same -- 11:34:00
12 same reasons why the combination of Schafer with 11:34:03
13 Hartley or Eller render those limitations obvious. 11:34:07
14 And I refer back to Claims 1 and 2, Supra VIA 3-5 11:34:13
15 and VIB. 11:34:25

16 By MR. MILLER: 11:34:33

17 Q. In your opinion, is a partial loop an 11:34:33
18 incomplete loop, and a complete loop, all loops? 11:34:44

19 MR. STOWELL: Objection. Compound. 11:34:49

20 THE WITNESS: I think since Claim 15 has 11:35:00
21 the additional limitation of looping completely 11:35:03
22 around the tubular member, that would say that 11:35:07
23 the -- some earlier claims don't necessarily have to 11:35:15
24 loop completely around the tubular member. 11:35:19

25 By MR. MILLER: 11:36:33

1	Q. So creating a first loop around the tubular	11:36:33
2	member, what do you -- in your opinion, what does	11:36:36
3	that look like?	11:36:46
4	A. Are you talking about Claim 15?	11:36:52
5	Q. Claim 1. So Claim 1 states, "A first	11:36:55
6	filament extending in a first loop around the	11:36:57
7	tubular member."	11:37:00
8	A. As I think I stated before, it seems like	11:37:06
9	that could encompass not just Figures 6 and 7, but	11:37:07
10	it could encompass Figure 8 because it doesn't say	11:37:11
11	"complete loop."	11:37:17
12	I think it was written to cover the	11:37:19
13	embodiment shown in Figure 8 where they are	11:37:23
14	essentially partial loops, each of the two	11:37:25
15	filaments -- or the filament is composed of two --	11:37:30
16	each of the tube filaments forms a partial loop	11:37:35
17	around approximately half of the circumference.	11:37:39
18	MR. MILLER: Okay. We can take like a	11:38:43
19	ten-minute break and then I might be close to	11:38:45
20	done.	11:38:47
21	MR. STOWELL: Okay.	11:38:48
22	THE VIDEOGRAPHER: We are going off the	11:38:48
23	record at 11:38.	11:38:49
24	(Recess.)	11:49:24
25	THE VIDEOGRAPHER: We are back on the	11:49:56

1	record at 11:50.	11:49:57
2	By MR. MILLER:	11:50:06
3	Q. Earlier, we were talking about Hartley and	11:50:06
4	your understanding or your use of a definition of	11:50:11
5	string to include multiple strands.	11:50:16
6	Do you recall that?	11:50:21
7	A. Yes.	11:50:25
8	Q. And I asked a question about if a string --	11:50:29
9	or sorry -- the definition of a filament did not	11:50:38
10	include a string -- strike that.	11:50:41
11	So many terms. Trying to keep them	11:50:46
12	straight here for you.	11:50:47
13	If your definition of "string" is having	11:50:52
14	multiple threads was not used by the USPTO -- you	11:50:55
15	pointed me to a section of your declaration.	11:51:00
16	Do you recall that?	11:51:04
17	A. Yes.	11:51:05
18	Q. But I -- I looked back and I don't think	11:51:07
19	you answered the question that I had been asking,	11:51:10
20	which was if your definition of string to include	11:51:12
21	multiple threads was not accepted, does Hartley	11:51:18
22	disclose only a single filament?	11:51:23
23	A. Hartley discloses a single wire member or	11:51:49
24	"string" is their term that they use. So they teach	11:51:58
25	a single string wrapped around the tubular member.	11:52:05

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1	Q. In other words, a single filament.	11:52:20
2	MR. STOWELL: Objection. Vague.	11:52:28
3	THE WITNESS: I think it's a single	11:52:56
4	filament in the '384 patent description, that a	11:52:58
5	filament could be one or several threads, cord,	11:53:03
6	rope.	11:53:09
7	So if the string in Hartley is a	11:53:16
8	monofilament, then that would comprise a filament.	11:53:23
9	If it were one or several threads, it would	11:53:32
10	also comprise the patent definition of filament.	11:53:35
11	By MR. MILLER:	11:53:57
12	Q. During the breaks today, did you discuss	11:53:57
13	your testimony with anyone?	11:54:00
14	A. No.	11:54:02
15	Q. You didn't discuss the substance of any of	11:54:05
16	the testimony that you provided?	11:54:08
17	A. No.	11:54:11
18	MR. MILLER: I have no further questions.	11:54:15
19	MR. STOWELL: I do not have any questions	11:54:16
20	for the witness today.	11:54:17
21	THE VIDEOGRAPHER: All right. This marks	11:54:19
22	the end of the deposition of Troy Thornton. We are	11:54:20
23	going off the record at 11:54.	11:54:23
24	(Proceedings concluded.)	
25	---o0o---	

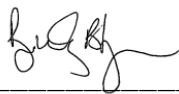
CERTIFICATE OF STENOGRAPHIC REPORTER

I, BURGUNDY B. RYAN, a Certified Shorthand Reporter, hereby certify that the witness in the foregoing deposition,

TROY LANE THORNTON,
was by me duly sworn to tell the truth, the whole truth, and nothing but the truth, in the within-entitled cause; that said deposition was taken at the time and place therein named; that the testimony of said witness was stenographically reported by me, a disinterested person, and was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for either or any of the parties to said deposition, nor in any way interested in the outcome of the cause named in said caption.

DATED: Thursday, June 4, 2026.



Burgundy B. Ryan, CSR No. 11373, RPR

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