Transcript of Troy L. Thornton

Date: June 25, 2025
Case: Imperative Care, Inc. -v- Inari Medical, Inc. (PTAB)

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INARI-2007
Imperative Care, Inc. v Inari Medical, Inc.
IPR2025-00156

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

IMPERATIVE CARE, INC.,)
Petitioner,)
VS.) Case No. IPR2025-00156
) U.S. Patent No. 11,697,012
INARI MEDICAL, INC.,)
Patent Owner.)

IN-PERSON VIDEOTAPED DEPOSITION OF
TROY THORNTON
WEDNESDAY, JUNE 25, 2025

STENOGRAPHIC REPORTER: CHRISTA YAN, CSR NO. 14316, RPR

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ALSO PRESENT PERSONALLY:
PHILIP ASTOR, The Videographer

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BE IT REMEMBERED that on WEDNESDAY, the 25TH DAY OF JUNE, 2025, at the hour of 9:01 A.M., of said day, at 333 Bush Street, 21st Floor, San Francisco, California 94104, before me, CHRISTA YAN, a Certified Shorthand Reporter, State of California, personally appeared TROY THORNTON, who was examined as a witness in said cause; that said transcript format was prepared in accordance with California Code of Regulations Section 2473.

--oOo--

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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., PTAB in
4 the United States Patent and Trademark Office before the
5 Patent Trial and Appeal Board, Case Number IPR2025-00156.
6 Today's date is June 25th, 2025. The time on the
7 video monitor is 9:01. The videographer today is Philip
8 Astor, representing Planet Depos. This video deposition
9 is taking place at Knobbe Martens, San Francisco,
10 California.
11 Would counsel please voice identify themselves
12 and state whom they represent.
13 MR. HAMILTON: Good morning. This is Joseph Hamilton
14 from Perkins Coie representing patent owner.
15 MR. STOWELL: Joshua Stowell of Knobbe Martens
16 representing petitioner and the witness.
17 THE VIDEOGRAPHER: The court reporter today is Christa
18 Yan representing Planet Depos.
19 TROY THORNTON,
20 the Witness, called on behalf of the Patent Owner, being
21 duly sworn to state the truth, the whole truth, and
22 nothing but the truth, testified on oath as follows:
23 EXAMINATION
24 BY MR. HAMILTON:
25 Q Good morning, Mr. Thornton.

6

1 **A Good morning.**
2 Q Could you state your full name for the record?
3 **A Troy Layne Thornton.**
4 Q And what's your current address?
5 **A 773 Rhode Island Street, San Francisco, 94107.**
6 Q Do you recall being deposed by me mid-March in a
7 related matter for the '011 patent?
8 **A Yes.**
9 Q I know I went over this before. But I'm just
10 going to go through it again just so it's clear today.
11 You understand you're under oath?
12 **A Yes.**
13 Q Do you understand at the conclusion of this
14 deposition, you're going to be given a transcript, and
15 you'll have an opportunity to correct any errors in that
16 transcript, and if you -- any substantive changes that you
17 make may be commented upon and may affect your
18 credibility. Do you understand that?
19 **A Yes.**
20 Q If at any time there's something you don't
21 understand or you don't hear me, please feel free to ask
22 for clarification, definitions, explanations. One thing I
23 would ask is that we not speak over each other. We have a
24 court reporter here who is recording everything we say.
25 So I'll try to wait for your answer before I ask the next

7

1 question. If you could wait for my question before you
2 answer. Can you do that?
3 **A Yes.**
4 Q Thank you.
5 In terms of responses, I'll also ask that you
6 give an audible response and not a head nod, but a yes or
7 a no. Is that fair?
8 **A Yes.**
9 Q Is there any reason you can't give your full,
10 complete, and truthful testimony today?
11 **A No.**
12 Q Are you on any medications or have any health
13 conditions that might prevent you from giving your full,
14 complete, and truthful testimony today?
15 **A No.**
16 Q If at any time you need a break, feel free to
17 ask. One thing I request is we don't take a break while a
18 question is pending. Is that fair?
19 **A Yes.**
20 Q Did you bring any documents with you today?
21 **A No.**
22 Q Did you do any preparation for your deposition
23 today?
24 **A I didn't do any preparation today.**
25 Q Did you do any preparation for your deposition?

8

1 **A Yes.**
2 Q And what did you do?
3 **A Reviewed a number of documents including my**
4 **declaration. I met with patent counsel yesterday.**
5 Q Do you recall which documents you reviewed?
6 **A Not all of them. Not each of them.**
7 Q Other than your declaration, what documents do
8 you recall reviewing?
9 **A The '012 patent, Schaffer patent, maybe some**
10 **other patents that are referenced in my declaration.**
11 Q Do you recall reviewing any documents that aren't
12 marked as an exhibit in this matter?
13 **A No.**
14 Q So you had said you met with counsel yesterday;
15 is that right?
16 **A Yes.**
17 Q How long did you meet?
18 **A About four hours.**
19 Q And where did you meet?
20 **A Here in this building.**
21 Q And who was present at that meeting?
22 **A Joshua.**
23 Q Anybody else?
24 **A No.**
25 Q Other than that meeting for four hours yesterday

9

1 and your reviewing of the documents as you previously
2 testified, did you do any other preparation for your
3 deposition?
4 **A No.**
5 Q So I had asked at the last deposition in March
6 about your prior deposition experience and testimony.
7 Since that deposition, have you been deposed in any other
8 matter?
9 **A No.**
10 Q Have you testified in any other matter?
11 **A No.**
12 Q Do you bill your time for this matter by the
13 hour?
14 **A Yes.**
15 Q What's your rate?
16 **A $500 per hour.**
17 Q And how many hours have you spent total on this
18 matter?
19 **A Preparing for the deposition? Or writing the**
20 **declaration? Or...**
21 Q Total.
22 **A I don't know.**
23 Q Less than 20?
24 **A No.**
25 Q Less than 30?

10

1 **A I don't remember. Could be around there.**
2 Q Have you provided declarations or worked on
3 matters that are related to this specific IPR?
4 MR. STOWELL: Objection. Vague.
5 THE WITNESS: Yeah, can you clarify?
6 BY MR. HAMILTON:
7 Q What don't you understand about my question?
8 **A Can you repeat the question?**
9 Q Have you provided declarations or worked on
10 matters that are related to this specific IPR?
11 MR. STOWELL: Same objection.
12 THE WITNESS: I worked on an IPR related to the 011
13 patent which is, you know, has the same specification, and
14 there were prior IPRs that also had the same
15 specification. I can't remember how many that I've worked
16 on. Several.
17 BY MR. HAMILTON:
18 Q When you say several, does nine, say, sound about
19 right?
20 **A Seems like less than that.**
21 Q Okay. Other than with counsel in this matter,
22 have you discussed your testimony, declaration, or any
23 other aspect of this matter with anybody else?
24 **A No.**
25 Q Have you ever communicated in any way with anyone

11

1 at Imperative Care?
2 **A No. Can you repeat the question?**
3 Q Are you concerned your answer wasn't correct for
4 that question?
5 **A I may need to add something to the answer.**
6 Q Okay. Sure.
7 Have you ever communicated in any way with anyone
8 at Imperative Care?
9 **A Yes. I know a couple of people at Imperative**
10 **Care.**
11 Q And have you communicated with those people in
12 connection with any of your work on this IPR or the
13 related IPRs that we just discussed?
14 **A No.**
15 Q When was the last time you communicated with
16 anybody at Imperative Care?
17 **A I don't remember exactly. Except that I was at**
18 **Dr. Fogerty's 90th birthday party when I communicated with**
19 **somebody I used to work with who is now at Imperative**
20 **Care. Probably a year and a half ago.**
21 Q Do you recall if that was before or after your
22 retention in this matter or any of the related IPRs?
23 **A Before.**
24 Q So since your retention in this matter or any of
25 the related IPRs, have you communicated with anybody at

12

1 Imperative Care?
2 **A No.**
3 Q I'm going to hand you what's been previously
4 marked as Exhibit 1001.
5 Do you recognize Exhibit 1001?
6 **A Yes.**
7 Q What is 1001?
8 **A U.S. Patent 11,697,012 B2.**
9 Q And earlier, you had referred to the '012 patent.
10 Is this the patent you were referring to?
11 **A Yes.**
12 Q So today, as we go through the -- your testimony,
13 you and I may both refer to the '012 patent. Is it fair
14 that you understand that we're referring to this
15 Exhibit 1001?
16 **A Yes.**
17 Q I'm going to hand you what's marked as
18 Exhibit 1003.
19 Do you recognize Exhibit 1003?
20 **A Yes.**
21 Q What is Exhibit 1003?
22 **A It's my declaration related to this '012 patent.**
23 Q If you turn to the last page, 157, is that your
24 signature?
25 **A It's my electronic signature.**

13

1 Q And what do you mean by your electronic
2 signature?
3 **A I signed it using a PDF signature block.**
4 Q Does that mean you inserted your signature into
5 this PDF document?
6 **A Yes.**
7 Q Is that an electronic representation of your
8 signature, or is that your actual as you would write it by
9 hand?
10 **A The former.**
11 Q So that writing Troy Thornton was generated by
12 the PDF program; is that right?
13 **A Yes.**
14 Q And did you personally insert that signature onto
15 this page?
16 **A Yes.**
17 Q And did you do that on November 8th, 2024?
18 **A Yes.**
19 Q Have you submitted any other declaration or
20 testimony in this IPR?
21 **A I don't believe so.**
22 Q Is your Declaration Exhibit 1003 your full and
23 complete testimony in this IPR?
24 **A Yes.**
25 Q Are there any mistakes in Exhibit 1003 that

14

1 you're aware of?
2 **A Not that I'm aware of.**
3 Q Is there anything that's not correct in
4 Exhibit 1003 that you're aware of?
5 **A Not that I know of.**
6 Q Is there anything you want to change in
7 Exhibit 1003?
8 **A No.**
9 Q Do you want to withdraw any of your opinions set
10 forth in Exhibit 1003?
11 **A No.**
12 Q If you take a look at the table of exhibits, I
13 believe it's identified as page 1. It's a couple of pages
14 into the declaration. You see that?
15 **A Yes.**
16 Q Other than what's listed in this table of
17 exhibits, have you reviewed any other exhibits in
18 connection with preparing your declaration?
19 **A I did review the transcript from the last**
20 **deposition, which is not listed here.**
21 Q Okay. So I just want to clarify. So my question
22 was in preparing your declaration, and at the time this
23 declaration was signed, you hadn't been deposed, correct?
24 **A Yes. I misunderstood the question. Can you**
25 **repeat the question?**

15

1 Q Well, let's clarify a couple things.
2 **A Okay.**
3 Q So actually, at that time you had been deposed in
4 the litigation, hadn't you?
5 **A I don't remember the timing of that deposition.**
6 Q Okay. So in preparing your declaration, did you
7 review a deposition transcript?
8 **A I don't believe so.**
9 Q In preparing your declaration, did you review any
10 other documents or information that's not listed on this
11 table of exhibits?
12 **A I don't believe so.**
13 Q Okay. So when you said you reviewed a deposition
14 transcript, what deposition were you referring to?
15 **A The most recent one that was with you -- I don't**
16 **remember the date -- in preparation for this deposition**
17 **today.**
18 Q And was that -- was that deposition transcript in
19 relation to an IPR related to the '011 patent?
20 **A If that was the most recent deposition, yes.**
21 Q Okay. Fair enough.
22 When did you review that transcript?
23 **A A day or two ago.**
24 Q So is it fair to say you reviewed it in
25 preparation for your deposition today?

16

1 **A Yes.**
2 Q Other than a day or two ago, had you reviewed
3 that transcript before?
4 **A I reviewed it shortly after to look for**
5 **corrections or to make corrections.**
6 Q And did you make any corrections to that
7 transcript?
8 **A I believe there were a few.**
9 Q Other than those few corrections, are you aware
10 of any other errors in that transcript?
11 **A No.**
12 Q Is there anything else you want to change in that
13 transcript?
14 **A No.**
15 Q Okay. So since preparing your declaration --
16 I'll just remind you the date, November 8, 2024 -- have
17 you reviewed any other documents or information in
18 connection with this IPR?
19 **A I don't believe so.**
20 Q And just to clarify, other than your deposition
21 transcript?
22 **A I don't believe so.**
23 Q In this list of exhibits you'll see some
24 references, for example, Exhibit 1005 which is referred to
25 as Schaffer, 1006 Hartley, 1007 Eller. Do you see that?

17

1 **A Yes.**
2 Q Did you find those references for your
3 declaration, or were those given to you by counsel?
4 **A I believe those were first given to me by counsel**
5 **sometime ago related to one of the first IPRs, I believe.**
6 Q Is there any document on this list of exhibits
7 that was not given to you by counsel that you found on
8 your own?
9 **A Well, my résumé, Exhibit 1004, I provided to**
10 **counsel, and the rest of them, I believe were provided by**
11 **counsel.**
12 Q And that would include Exhibit 1003, do you see
13 that, the dictionary definition?
14 **A Yes.**
15 Q Did you look at any other dictionaries in
16 conjunction with -- in preparing your declaration?
17 **A I may have. I don't remember.**
18 Q So as you sit here today, do you recall looking
19 at any dictionaries in preparing your declaration?
20 **A I may have looked up certain words. I don't**
21 **really remember.**
22 Q Okay. So since preparing your declaration and in
23 connection with this matter, this IPR, is it correct that
24 you have reviewed no other documents except your
25 deposition transcript from mid-March that we just

18

1 discussed?
2 **A I think that's true as it relates to this**
3 **specific IPR.**
4 Q Okay. And are you aware that since your
5 declaration, the patent office has issued an institution
6 decision?
7 **A Yes.**
8 Q Did you read that?
9 **A I did.**
10 Q Okay. So there's one document. Right?
11 Any others now that you can think of?
12 **A Not that I can think of.**
13 Q Are you aware that the patent owner submitted a
14 response to your declaration and a declaration from
15 another expert since the filing of your declaration here?
16 **A Yes.**
17 Q Did you read any of those?
18 **A I did read a declaration from Zalesky, I believe.**
19 Q Okay. So there's another one?
20 **A Yeah.**
21 Q And did you read the response from patent owner?
22 **A I don't believe so. I believe I saw the**
23 **declaration from Zalesky, is what I read recently.**
24 Q And are you aware that Dr. Zalesky referred to
25 some exhibits in his declaration?

19

1 **A I don't know. I can't remember what he might**
2 **have referred to in there.**
3 Q Did you review any exhibits that were referred to
4 in his declaration?
5 **A I don't recall.**
6 Q So as you sit here today, you remember reading
7 his declaration, but you don't recall whether you read any
8 of the exhibits attached to his declaration; is that
9 correct?
10 **A I --**
11 Q Or excuse me, referred to in his declaration?
12 **A What I recall is most of the references were**
13 **similar to the ones that I have in here, Schaffer,**
14 **Hartley, Eller. So I don't remember reading any other**
15 **exhibits that he might have referenced.**
16 Q Okay. So in connection with this matter, other
17 than the exhibits that are set forth here, you've reviewed
18 your deposition transcript from March in a related IPR,
19 you've reviewed the institution decision and you reviewed
20 a declaration from Dr. Zalesky; is that right?
21 **A Yes.**
22 Q And as you sit here today, do you recall
23 reviewing anything else in connection with this IPR?
24 **A No.**
25 Q If you could turn to paragraph 35 of your

20

1 declaration. And before I ask you that, I just want to
2 clarify, in connection with this IPR or any other IPR,
3 have you reviewed any devices in connection with these
4 matters?
5 **A No.**
6 Q Okay. So paragraph 35. You see paragraph 35,
7 are you there?
8 **A Yes.**
9 Q You see paragraph 35 as defining the
10 qualifications of a person of ordinary skill in the art?
11 **A Yes.**
12 Q Is this the perspective of a person of ordinary
13 skill in the art that you applied in preparing your
14 opinions in this matter and in this declaration?
15 **A Yes.**
16 Q Is there anything you want to change about this
17 definition as you sit here today?
18 **A No.**
19 Q Is there anything that's not correct about this
20 definition?
21 **A No.**
22 Q Is there anything you want to add to it?
23 **A No.**
24 Q Do you have any reason to believe that
25 Dr. Zalesky's not qualified as an expert in this matter?

21

1 A No.
2 Q When you determined the qualifications of a
3 person of ordinary skill in the art, what factors did you
4 consider?
5 A Education, years of experience, the type of
6 engineering discipline, being mechanical engineering or
7 related to mechanical engineering.
8 Q Did you come up with this definition?
9 A Yes.
10 Q Did you consider the education level of the
11 inventors of the '012 patent?
12 A No.
13 Q Do you know anything about the education level of
14 the inventors of the '012 patent?
15 A No.
16 Q If you could turn to paragraphs 20 and 21.
17 That's on page 6. You'll see those two paragraphs fall
18 under the heading, Claim Construction. Do you see that?
19 A Yes.
20 Q Is what's set forth in paragraphs 20 and 21 your
21 full understanding of how to construe a patent claim?
22 A Yes, it represents my understanding.
23 Q And is -- did you construe the claims of the '012
24 patent based on what's set forth in paragraphs 20 and 21?
25 A Well, I'm not a lawyer. So I'm not sure that

22

1 construing the claims is my responsibility in this IPR.
2 Q Did you construe the claims in the '012 patent?
3 A I'm not exactly sure what you mean by that.
4 Q Do you understand the meaning of the claims in
5 the '012 patent?
6 A Yes.
7 Q Do you understand the scope of the claims in the
8 '012 patent?
9 A Yes.
10 Q If you could look at paragraph 21, four lines up
11 from the bottom. Middle of that line, there's the word
12 redefine.
13 A Yes.
14 Q What did you mean by that?
15 A I understand that the patentee can redefine a
16 claim term in either the specification or statements made
17 to the patent office during prosecution. It goes on to
18 talk about... Earlier, it talks about that patentee can
19 act as its own lexicographer to provide a definition that
20 should be applied instead of the plain ordinary meaning.
21 Q Okay. So by redefine, you mean giving a meaning
22 of a term that's different than its plain and ordinary
23 meaning; is that right?
24 A That's how I understand it.
25 Q And do you believe in understanding the meaning

23

1 of the claims in the '012 patent that the patentee has
2 redefined any terms different from their plain and
3 ordinary meaning?
4 MR. STOWELL: Objection. Vague. Compound.
5 THE WITNESS: Well, I know the term filament is the --
6 is being defined as given definition by the patentee.
7 BY MR. HAMILTON:
8 Q And that definition is different from its plain
9 and ordinary meaning; is that right?
10 A I'm not sure.
11 Q Do you understand the plain and ordinary meaning
12 of the term filament?
13 A I think it's important to how it relates to the
14 patent since they're construing it to mean something
15 specific to the patent.
16 Q So does the patent use the term filament
17 according to its plain and ordinary meaning?
18 A I'm not sure.
19 Q In the field of -- in the medical field, does the
20 term filament have an understood meaning?
21 A Well, I've used the term filament for certain
22 pull lines. So I think there's a -- is used in the field.
23 Q And when that term's used in the field, what does
24 it mean?
25 A Well, when I use the term for some products that

24

1 I worked in, on, it was used for pull lines to curb a
2 catheter.
3 Q So I understand you've used it for something, but
4 what does the term mean when you've used that term?
5 MR. STOWELL: Objection. Asked and answered.
6 THE WITNESS: In my case, it was for a tensioning
7 mechanism to pull the tip of a catheter to create a curve.
8 We called it a fiber or a filament or a cable.
9 BY MR. HAMILTON:
10 Q So are you saying the term filament means a
11 tensioning mechanism to pull the tip of a catheter to
12 create a curve?
13 MR. STOWELL: Objection. Misstates testimony.
14 THE WITNESS: I'm saying we use the term for the
15 component that was used to perform that action.
16 BY MR. HAMILTON:
17 Q So when you used the term filament for that
18 component, what was your understanding of the meaning of
19 the term filament?
20 A Well, the meaning to us was the tensioning member
21 that we were using in the catheter.
22 Q Was that tensioning member flexible?
23 A It definitely had flexibility.
24 Q Could it conform to different shapes?
25 MR. STOWELL: Objection. Vague.

25

1 THE WITNESS: It certainly depends on the shape it was
2 trying to go through. Depending on the diameter of the
3 cable we were using, for instance.
4 BY MR. HAMILTON:
5 Q So in the context in which you were using it,
6 could that filament conform to different shapes?
7 MR. STOWELL: Objection. Vague.
8 THE WITNESS: The context we were using it in the pull
9 line, it had to make a tight bend at the tip to be
10 attached to a tip ring. So it was conforming to a tight
11 bend at the tip.
12 BY MR. HAMILTON:
13 Q So in the medical field generally, does the term
14 filament mean one or more threads, lines, cords, ropes,
15 ribbons, flat wire, sheets or tapes?
16 **A Can you point me to where that statement is?**
17 Q What do you mean where that statement is?
18 **A The line you're reading from.**
19 Q I'm reading your definition of the term filament
20 in this patent.
21 **A Can you point me to that paragraph?**
22 Q Sure.
23 That's paragraph 48.
24 **A Can you repeat the question? Sorry.**
25 Q So in the medical field generally, does the term

26

1 filament mean one or more threads, lines, cords, ropes,
2 ribbons, flat wires, sheets, or tape -- tapes? Excuse me.
3 **A Certainly, the component that I'm thinking about**
4 **relating to the project I'm thinking about would have**
5 **fallen under the category of line, cord, possibly flat**
6 **wire.**
7 Q Was it thin?
8 MR. STOWELL: Objection. Vague.
9 THE WITNESS: It was a diameter that would fit through
10 the aluminum of the catheter which was a fairly small
11 lumen for the cord to fit through.
12 BY MR. HAMILTON:
13 Q So compared to its length, it was relatively
14 thin, correct?
15 **A Yes. It was relatively thin compared to its 3-**
16 **or 4-foot length we were using.**
17 Q And I believe you've already said it was also
18 flexible for the application; is that right?
19 **A It was flexible enough to perform the actions**
20 **that we needed it to in the application.**
21 Q And those actions were to conform to different
22 shapes or bend so to speak through a -- as it's inserted;
23 is that right?
24 **A Less important for that. We chose its mechanical**
25 **characteristics such that it could make a bend at the tip**

27

1 **so it could be inserted and attached to a metal ring at**
2 **the tip. So that was the -- that's the location where the**
3 **flexibility was needed.**
4 Q So you said less important. But still that was
5 the -- the component you're talking about was flexible,
6 correct?
7 **A Yes. I would consider it a flexible cable is**
8 **what we're using.**
9 Q If you could turn to Exhibit 1001, that's the
10 '012 patent. I want to talk about Claim 1 which is on
11 Column 22, page 30. Do you understand the meaning of
12 Claim 1?
13 **A Yes.**
14 Q Do you understand the meaning of the individual
15 words and phrases used in Claim 1?
16 **A I believe so.**
17 Q Do you understand the scope of Claim 1?
18 **A Yes.**
19 Q Okay. So let's talk first about the very last
20 line, Reducing a diameter of the loop. Do you see that?
21 **A Yes.**
22 Q What does that mean?
23 **A Well, as it reads, The first actuator in a**
24 **direction that pulls the first end portion such that the**
25 **diameter of the valve lumen decreases in response to**

28

1 **reducing a diameter of the loop.**
2 Q Okay. So I see you've read the claim again.
3 What does reducing a diameter of the loop mean?
4 MR. STOWELL: Objection. Asked and answered.
5 THE WITNESS: It means decreasing the size of the
6 loop.
7 BY MR. HAMILTON:
8 Q Does it mean decreasing the size of the loop in
9 any particular way?
10 **A As the at least first end is pulled, it results**
11 **in the diameter of the valve lumen decreasing because the**
12 **diameter of the loop is decreasing.**
13 Q So let's just break that down a little bit. So
14 the claim says reducing, and you said decreasing. So
15 reducing is decreasing; is that correct?
16 **A I think they're similar.**
17 Q Does reducing mean decreasing in this phrase?
18 **A They seem the same to me.**
19 Q And then the phrase says, Reducing in diameter,
20 and you said, Decreasing the size. Does size mean
21 diameter in this claim -- excuse me, diameter means size
22 in this phrase?
23 **A They seem similar to me.**
24 Q Is there any other way to decrease the size of
25 the loop other than decreasing its diameter?

29

A Decrease the circumference, you know, decrease the area. That decreases the diameter.
Q So is the only way to decrease the size of a loop decreasing the diameter?
MR. STOWELL: Objection. Outside the scope.
THE WITNESS: I think that the size of a loop can be decreased by decreasing the circumference which decreases the diameter, decreases the area. They're all similar actions to me.
BY MR. HAMILTON:
Q So if a loop decreases in size, does the diameter always decrease?
A It seems like the circumference and the area and the diameter would necessarily decrease.
THE STENOGRAPHIC REPORTER: I'm sorry. Would or wouldn't necessarily decrease?
THE WITNESS: Would necessarily decrease.
THE STENOGRAPHIC REPORTER: Thank you.
BY MR. HAMILTON:
Q Does diameter imply any particular shape?
A Typically, one would think of diameter through a true circle, but I also understand that diameter is used as a measurement for things that are not true circles.
Q What other things are not true circles that would have a diameter?

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A I know that the term is used for diameter of a tree, let's say, after the tree is felled. It's not a true circle. A tree trunk wouldn't be. I know diameter's used as a measurement for an egg, which is probably not a true circle either.
I've used diameter as a -- talking about an ellipse, a minor axis and a major axis of ellipse, a major diameter and minor diameter of an ellipse for a catheter that I worked on some years ago that was elliptical in shape.
Q So to break that up a little bit, irregular circles would be one example of something that would have a diameter, is that right, that would be your tree trunk example for one?
A Yeah. It's not a true circle from a geometric standpoint.
Q Another example you said an oval. So an oval would have different diameters depending on where you are along the circumference; is that right?
MR. STOWELL: Objection. Misstates testimony.
THE WITNESS: Well, I believe I said an ellipse, which has a minor diameter and major diameter, is a term that's -- that we've used anyway -- I've used anyway. Excuse me.

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BY MR. HAMILTON:
Q What's an ellipse?
A An ellipse is an elongated circle.
Q Okay. And let's go back to the phrase, Reducing a diameter of the loop. We talked about reducing. We talked about diameter. And you said -- you used the word loop. What is looping in that phrase?
A The feature of the constricting mechanism that is formed around the collapsible tubular sidewall.
Q So if there's anything formed around the collapsible sidewall, it's a loop, or does the loop imply something specific?
MR. STOWELL: Objection. Compound.
THE WITNESS: I'm using loop as it's used in Claim 1, that is the constricting mechanism that is looped at least partially around the tubular sidewall.
BY MR. HAMILTON:
Q So when you say looped, what do you mean looped partially around, what does looped mean?
A Well, I interpret loop to mean at least partially surrounding the tube. The tubular sidewall in this example.
Q Is the word loop in Claim 1 a noun or a verb or something else?
A In Claim 1, it's shown two times, and I believe

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it's a noun in both times. First filament formed into a loop around the collapsible tubular sidewall. And toward the end of Claim 1, Reducing a diameter of the loop. So I believe it's a noun in both cases.
Q Okay. So let's talk about that phrase you just mentioned, First filament formed into a loop. What does that phrase mean in Claim 1. And let me see if I can make it a little easier for you.
You've defined filament that's in your declaration. So please use the word filament. I don't want to focus on that. What I want to focus on is formed into a loop. What does that mean?
A In the context of Claim 1, it's formed into a loop around the collapsible tubular sidewall. So it is at least partially wrapped, at least partially surrounding the tubular sidewall.
Q Does it conform to the shape of the tubular sidewall?
A Doesn't say that here. I would presume that it would if it had sufficient flexibility to do so.
Q What does tubular mean in tubular sidewall?
A This is the collapsible member that the filament surrounds in order to actuate the valve.
Q Does tubular imply a particular shape in Claim 1?
A It implies a tube to me.

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1 Q What's a tube?
2 **A A single lumen hollow member.**
3 Q Would that single lumen hollow member have a
4 particular shape to be tubular?
5 **A Generally, they would be circular.**
6 Q Could they be any other shape?
7 **A I'm sure there are tubes that are not circular.**
8 **I do remember working with hypotubes that we flattened to**
9 **have a more oval shape, and now we still call those**
10 **hypotubes or tubes.**
11 THE STENOGRAPHIC REPORTER: You said hypo?
12 THE WITNESS: Hypo, h-y-p-o, tube.
13 THE STENOGRAPHIC REPORTER: Thank you.
14 BY MR. HAMILTON:
15 Q And in all those examples, would the tubular
16 member have a circumference?
17 **A Yes.**
18 Q So we're not talking about partial tubes, say
19 like a channel. We're talking about something that is --
20 has a sidewall that is 360 degrees; is that right?
21 **A That's my understanding from the specification in**
22 **the patent that that is what's taught in the patent.**
23 Q And then if you look at that phrase again, A
24 first filament formed into a loop, you see the word around
25 the collapsible tubular sidewall. What does around mean?

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1 **A At least partially surrounding.**
2 Q So around does not mean around the entire tube,
3 tubular sidewall?
4 **A I don't think it's required to be around the**
5 **entire circumference.**
6 Q So then is it fair to say you've interpreted the
7 term around to mean partially surrounding; is that right?
8 MR. STOWELL: Objection. Misstates testimony.
9 THE WITNESS: The patent certainly doesn't -- or the
10 claim certainly doesn't say that it is completely around
11 or completely wrapped around the circumference. And the
12 patent certainly gives examples, like in Figure 8, where
13 the filament is, you know, partially looped. Looped
14 partially. Not around -- around the tubular member, not
15 in a circle around the entire circumference.
16 BY MR. HAMILTON:
17 Q So I see you're pointing to Figures 8 and 9 as
18 you're making that statement. Is that right?
19 **A I was referring to Figure 8 in the '012 patent,**
20 **yes.**
21 Q Okay. And then when you say partially around,
22 you're referring to one of the two separate members shown
23 in Figure 8; is that correct?
24 **A Given this is an example of where the**
25 **sub-filament 150-A is shown as partially surrounding.**

35

1 Q And does the patent say that that -- you
2 described it as a sub-filament. Does that patent describe
3 that sub-filament as a loop?
4 **A I think the patent describes this embodiment as**
5 **the filament 150 in Figure 8.**
6 Q Does the patent describe the sub-filament as a
7 loop?
8 **A I believe the patent describes each of the pieces**
9 **or a portion of the sub-filament, the curved portion as a**
10 **bight.**
11 Q Right. So the patent uses the term bight for
12 that sub-filament and that shape; is that right?
13 **A They use the term bight for the portion that**
14 **curves. Portion of each of the two sub-filaments that**
15 **curves, I believe.**
16 Q And that's the portion that's supposed to be
17 around the collapsible tubular sidewall, correct, in that
18 figure?
19 **A Yes.**
20 Q So to be clear, the patent doesn't refer to that
21 portion around the tubular sidewall in that figure as a
22 loop, does it?
23 **A I believe they call that portion a bight.**
24 Q Does the patent refer to any other embodiments as
25 a loop?

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1 **A I don't recall.**
2 Q Why don't you turn to Figures 6 and 7.
3 **A Mm-hmm.**
4 Q Do you understand what's shown in Figures 6 and
5 7?
6 **A Yes.**
7 Q Do you understand the patent as referring to
8 what's shown in Figure 7 as loops?
9 **A I believe they use that term, yes.**
10 Q Okay. So to be clear, the patent uses the term
11 loops referring to Figure 6 and 7 but uses the term bight
12 with respect to Figures 8 and 9; is that correct?
13 **A Once again, I believe they use the term bight**
14 **only to refer to the curved portion of each of those**
15 **sub-filaments.**
16 Q And that's the portion that is around the
17 collapsible tubular sidewall, correct?
18 **A Labeled as 800-A and -- I'm sorry, 800-A and**
19 **800-B. Yes.**
20 Q Does the patent refer to anything shown in
21 Figure 8 or Figure 9 as a loop?
22 **A I believe they use the term bight. It seems to**
23 **me that each -- each of them is a loop, and this portion**
24 **is -- is referred to as a bight.**
25 Q So you've ascribed the term loop to those two

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1 figures, but the patent doesn't use the term loop to
2 describe anything in those two figures, correct?
3 MR. STOWELL: Objection. Compound.
4 THE WITNESS: Yeah, I believe the patent uses the term
5 bight for the Figures 8 and 9.
6 BY MR. HAMILTON:
7 Q So let's turn back to Claim 1. So you had said
8 the term loop in this claim is used twice, and it's a noun
9 in both instances, correct?
10 **A In the first instance, a first filament formed**
11 **into a loop around the collapsible tubular sidewall. So**
12 **it's formed into a loop shape. I might add that word.**
13 **So... I guess it's -- I guess it's a noun. Same at the**
14 **end, reducing a diameter of the loop would be a noun.**
15 Q So that first phrase, a first filament formed
16 into a loop, means the filament has the shape of a loop,
17 correct?
18 **A A first filament formed into a loop would have**
19 **the shape of a loop.**
20 Q And then that second phrase, reducing the
21 diameter of a loop, means that you would have to reduce
22 the diameter of the shape that the filament is formed
23 into, correct?
24 **A Yes.**
25 Q And would that filament have to be flexible to

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1 reduce in diameter?
2 **A It would certainly need some level of flexibility**
3 **at the sizes we're talking about.**
4 Q So for Claim 1, the filament must be flexible; is
5 that correct?
6 **A I think for any of these designs to work, that**
7 **the filament member would need some level of flexibility.**
8 Q And it has to be flexible to be able to reduce in
9 diameter, correct?
10 **A I think I said it would need some level of**
11 **flexibility in order to change shape and reduce in**
12 **diameter.**
13 Q So let's just rephrase that. So it would have to
14 be flexible enough to reduce in diameter, correct?
15 **A It would have to be flexible enough to reduce in**
16 **diameter depending on the stiffness of the tube that's**
17 **compressing the strength of the springs. The**
18 **characteristics of the filament itself would all play into**
19 **the level of flexibility. Everything has some level of**
20 **flexibility. So... there's a -- it's a relative**
21 **flexibility we're talking about.**
22 Q And let's just explore that for a second. So
23 that level of flexibility, in this context of a hemostasis
24 valve for an aspiration catheter, one skilled in the art
25 would be able to determine what that level of flexibility

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1 is, wouldn't they?
2 MR. STOWELL: Objection. Vague.
3 THE WITNESS: I think a person skilled in the art
4 would be able to engineer the right balance of material
5 properties for the filament, the compression tube, or
6 tubular sidewall, the springs, et cetera, in order to make
7 the design work well.
8 BY MR. HAMILTON:
9 Q If you look in Claim 1B -- excuse me, A, you see
10 the phrase, A collapsible tubular sidewall. Do you see
11 that?
12 **A Yes.**
13 Q Would that collapsible tubular sidewall need to
14 be pliable in order to collapse?
15 **A Yes. It would have to have a certain amount**
16 **of... pliability, compressibility in order to collapse.**
17 Q What does pliability mean?
18 **A The ability to deform.**
19 Q Let's look at Column 13, and I'm going to ask you
20 about line 60 of Exhibit 1001. So if you need a moment,
21 feel free to read that paragraph or whatever else --
22 **A Line 6-0?**
23 Q Line 6-0, yes.
24 **A Okay.**
25 Q What does the word overlap mean in line 60?

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1 **A I believe it's relating to the fact that there's**
2 **an interlocking of the two components 800 -- no, 150-A and**
3 **150-B as opposed to them being just parallel to each**
4 **other.**
5 Q So would it be fair to say as shown in -- and
6 again, you are again referring to Figures 8 and 9 there,
7 correct, as you were making that description in your
8 answer?
9 **A I need to revise my answer. In line 60, they're**
10 **not talking about the interlocking that I just mentioned.**
11 **Sorry. Can you repeat the question?**
12 Q What does overlap mean in that sentence?
13 **A That the two sub-filaments -- going to use that**
14 **term -- they overlap or work together to define the**
15 **encircled area 114 -- sorry, 814, where the tubular member**
16 **is located.**
17 Q And what... would it be fair to say that overlap
18 means that if you drew a cross-section perpendicular to
19 the lumen that's going through those two filaments, you
20 would have an encircled area where the entire
21 circumference has some portion of the filament?
22 MR. STOWELL: Objection. Vague.
23 THE WITNESS: I'm not sure I understand the
24 cross-section part of your question.
25

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1 BY MR. HAMILTON:
2 Q Could you draw a cross-section -- withdraw the
3 question.
4 Is it your understanding that a lumen would, in
5 that embodiment shown in Figure 8, be contained within the
6 encircled area?
7 **A Yes. It would reside as shown in Figure 8 and**
8 **the area labeled 814. Which they call the encircled area.**
9 Q And if you drew a -- or made a cross-section of
10 that lumen perpendicular to the axis of the lumen, could
11 you have a cross-section that would include at least some
12 portion of each of the two sub-filaments?
13 MR. STOWELL: Objection. Vague.
14 THE WITNESS: In Figure 8, probably. But they also in
15 the specification talk about how Figure 8, that the two
16 sub-filaments 150-A and 150-B don't necessarily need to
17 interlock. They could be parallel. So you could draw a
18 perpendicular line in between the two and just catch the
19 tube member and not the filament members.
20 BY MR. HAMILTON:
21 Q So in that instance, if you drew -- if they were
22 not interlocked, you could not draw a cross-section that
23 included some portion of both filaments, correct?
24 **A If it were angled, I think you could catch some**
25 **portion of both filaments.**

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1 Q So --
2 **A Depends on the location of the filaments relative**
3 **to each other, how close they are, how perpendicular you**
4 **want to draw the line, plane...**
5 Q And would you have a continuous portion of each
6 of the sub-filaments together that would form a continuous
7 circumference around the lumen in that instance?
8 MR. STOWELL: Objection. Vague.
9 THE WITNESS: If the two filaments 150-A and 150B were
10 interlocking as shown in Figure 8, is that your question?
11 BY MR. HAMILTON:
12 Q If they were, you certainly could, correct?
13 MR. STOWELL: Same objection.
14 THE WITNESS: Can you repeat the question? So you're
15 assuming you're interlocked in Figure 8...
16 BY MR. HAMILTON:
17 Q Well, I'm not assuming. Figure 8 shows them
18 interlocked, doesn't it?
19 **A Yes. But the patent provides that as an option,**
20 **but...**
21 Q Okay. So for Figure 8, with them interlocked,
22 you can draw a perpendicular cross-section of the tubular
23 member that is -- that would go through the encircled area
24 in Figure 8 that would include filament along the entire
25 circumference of the lumen, correct?

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1 **A If the two filaments were touching each other as**
2 **shown in Figure 8, geometrically, I believe that would be**
3 **correct. These are defined as flexible filaments that may**
4 **or may not be sitting next to each other on an actual**
5 **product. This is a representation. In this**
6 **representation, if it were in this position, I guess that**
7 **would be true.**
8 Q Okay. So as shown in Figure 8, that statement's
9 true, correct?
10 MR. STOWELL: Objection. Asked and answered.
11 THE WITNESS: You know, I'd have to model it in 3-D to
12 see if you could really do that. If depends on the size
13 of the cut. It depends on the size of the filaments. If
14 they're really sitting next to each other, I'm not sure.
15 BY MR. HAMILTON:
16 Q And you had said the filaments in practice would
17 be flexible, and you don't know how they would be sitting
18 in there, is that correct, in a real-life device?
19 **A These are drawn as you could say rigid members.**
20 **It could be a rigid wire shown here. It's hard to draw**
21 **something that has, you know, a flexible nature. So it's**
22 **hard to determine that.**
23 Q So from that figure you can't tell whether that's
24 flexible or not, correct?
25 **A One would need to know the dimensions and the**

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1 **material properties and the definition of flexible to**
2 **determine -- to say if it's flexible, flexible relative to**
3 **something else.**
4 Q So let's -- when we use the term flexible for the
5 rest of today, let's use that as capable of reducing in
6 diameter as we just discussed with respect to a filament
7 that's formed into a loop in that context, in the context
8 of this patent and the claims. Is that fair?
9 MR. STOWELL: Objection. Vague. Misstates testimony.
10 THE WITNESS: In the context of assume sizes for a
11 rotating hemostatic valve, some level of flexibility would
12 be required to wrap around a tubular member.
13 BY MR. HAMILTON:
14 Q And you understand as a person of skill in the
15 art -- or excuse me, a person of ordinary skill in the art
16 in 2017 would understand what that level of flexibility
17 would be, wouldn't they?
18 **A I think they could figure it out with other**
19 **constraints of knowing the spring tension, the tubular**
20 **member, size and stiffness, and other parameters probably.**
21 Q Okay. So let's say those two sub-filaments, as
22 you refer to them, are made of a string. And you had said
23 you're not sure where their orientation would be in an
24 actual device; is that correct?
25 MR. STOWELL: Objection. Misstates testimony.

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1 THE WITNESS: Yes, if these were a very flexible
2 string, and the buttons were compressed such that it's in
3 the expanding configuration, it's kind of unknown. It's
4 unlikely that they would have the shape shown here of --
5 which are perfectly straight lines and perfectly partial
6 circle on the bight area.
7 BY MR. HAMILTON:
8 Q And you had said unknown. You wouldn't know what
9 shape they would take, would you?
10 **A Probably not without knowing the rest of the**
11 **parameters and building prototype devices.**
12 Q So focusing on Figure 8, you see this line 60, it
13 says, the two sub-filaments as you refer to them, 808-A
14 and 808-B overlap and define an encircled area.
15 **A Yes.**
16 Q For that encircled area does that mean you could
17 draw a circumference completely around an area touching a
18 filament -- withdraw the question.
19 What is an encircled area?
20 **A I think in terms of this patent, it's the area**
21 **encompassed by these two sub-filaments in Figure A.**
22 Q Does encircled have any meaning to you?
23 **A Wrapped around.**
24 Q Does it use the word circle, does encircled
25 relate to the word circle?

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1 **A Encircle does use the word circle.**
2 Q And does encircled mean you can find a circle, if
3 something is encircled, there's a circle around something?
4 **A My opinion is I'm not -- that's not necessary.**
5 **Still be wrapping around an irregularly shaped object,**
6 **could be encircled also.**
7 Q So your issue is the shape could be irregular.
8 So it's not a perfect circle. It could be an irregular
9 circle; is that right?
10 **A It could be not a perfect circle and still be**
11 **encircled.**
12 Q And to be encircled, it has to have a continuous
13 circumference; is that a correct?
14 MR. STOWELL: Objection --
15 THE WITNESS: Not sure. I don't know about that.
16 BY MR. HAMILTON:
17 Q How could you encircle something without a
18 continuous circumference?
19 **A I think you need a term -- a qualifying term of**
20 **partially encircled which would be partially wrapped.**
21 **Fully encircled would imply completely around a**
22 **circumference of a shape.**
23 Q Does Figure 8 show partially encircled or
24 completely encircled?
25 **A I would say Figure 8 shows complete encirclement**

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1 **of -- doesn't show any other member, but what should --**
2 **could show the tubular member.**
3 Q It's an encircled area at least; is that right?
4 **A Yes.**
5 Q And an encircled area would require a complete
6 encirclement, wouldn't it?
7 **A Seems so.**
8 Q So earlier, you had said that the patent
9 describes an alternative embodiment to Figure 8 where the
10 two sub-filaments are side by side and not interlocked.
11 Do you recall that?
12 **A I believe that's in the description of Figure 8**
13 **or description of this bight type embodiment.**
14 Q But that's not shown in Figure 8, is it?
15 **A It shows an interlocking of the two**
16 **sub-filaments.**
17 Q And just to be clear, Figure 8 and Figure 9 is
18 the same two interlocked sub-filaments just in different
19 positions, correct?
20 **A That's how I understand it.**
21 MR. HAMILTON: I'm going to move to another topic.
22 Why don't we take a break.
23 MR. STOWELL: Okay.
24 THE VIDEOGRAPHER: We are going off the record at
25 1030.

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1 (Recess taken.)
2 THE VIDEOGRAPHER: We are back on the record at 1040.
3 BY MR. HAMILTON:
4 Q Do you understand you're still under oath?
5 **A Yes.**
6 Q Did you communicate with anybody during the break
7 regarding your deposition today?
8 **A No.**
9 Q Did you review any documents during the break?
10 **A No.**
11 Q If you could look at Exhibit 1001, it's page 20,
12 Column 2, line 23. And you'll see in that line the
13 phrase, Active tensioning mechanism is used. And my
14 question to you is: What does that phrase mean, active
15 tensioning mechanism as it's used in the '012 patent?
16 MR. STOWELL: Objection. Outside the scope.
17 THE WITNESS: Yes, I interpret it to mean it's the
18 actuation of the tensioning mechanism -- manual actuation
19 of the tensioning mechanism that's covered in this '012
20 patent.
21 BY MR. HAMILTON:
22 Q So you understand the term active to mean manual?
23 **A In the context of this patent, that's how I'm**
24 **reading that sentence.**
25 Q So active is the act of the user manually

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1 operating the device. Is that fair?
2 **A Includes an active tensioning mechanism. So I**
3 **think it would have to be manually activated by the user.**
4 Q And what about tensioning, what does that mean in
5 that phrase?
6 MR. STOWELL: Objection. Outside the scope.
7 THE WITNESS: Well, this is giving a summary of the
8 invention shown in '012 where it's talked about many times
9 that there's a tensioning mechanism within the hemostatic
10 valve.
11 BY MR. HAMILTON:
12 Q So what does tensioning mean?
13 **A To add force, to add tension to a member.**
14 Q Does that require any particular type of member?
15 MR. STOWELL: Objection. Vague.
16 THE WITNESS: I don't believe so.
17 BY MR. HAMILTON:
18 Q How does one -- so withdraw the question. So you
19 had said to add force, to add tension to a member. Is
20 tension interchangeable with force?
21 **A In general, I think.**
22 Q Is tension a force in a particular direction?
23 **A Yeah. It's opposite of compression. So... a rod**
24 **that's in tension is being pulled on each end.**
25 **(Indiscernible utterance) A rod that's in compression is**

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1 **being pushed on each end.**
2 THE STENOGRAPHIC REPORTER: I'm sorry. I didn't
3 understand that. Please repeat that last part.
4 THE WITNESS: A rod that's in tension is pulled on
5 each end versus a rod that's in compression would be
6 pushed on each end.
7 THE STENOGRAPHIC REPORTER: Thank you.
8 BY MR. HAMILTON:
9 Q So for tension in a tensioning mechanism, would
10 you need to pull on each end in opposite directions?
11 MR. STOWELL: Objection. Vague.
12 THE WITNESS: In the context of this patent, I believe
13 some of the embodiments have a single tensioning mechanism
14 as shown in Figure 5. Such that you're pulling on one end
15 in that case.
16 BY MR. HAMILTON:
17 Q And for Figure 5, is there any force exerted on
18 the other end in the other direction?
19 **A Not by a user. It would be attached to the -- I**
20 **guess it's housing. Not sure what the number is, but...**
21 Q So the other end in Figure 5 of the filament in
22 Figure 5 -- withdraw the question.
23 Is there a filament shown in Figure 5?
24 **A It's labeled as 150.**
25 Q And does that filament have two ends?

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1 **A Yes.**
2 Q And is one end attached to a moveable button?
3 **A Yes.**
4 Q And is the other end attached to the housing of
5 the device?
6 **A Yes.**
7 Q So for tension to occur in that filament, there
8 is a force in opposite directions on that filament,
9 correct?
10 **A Yes. If you looked at a free body diagram of the**
11 **filament, you would have a force also on the end that's**
12 **attached to the housing.**
13 Q And I guess to be clear, they wouldn't have to be
14 in opposite directions, but it would have to be in
15 different directions to put tension on a member; is that
16 right?
17 MR. STOWELL: Objection. Vague.
18 THE WITNESS: In different directions makes sense.
19 BY MR. HAMILTON:
20 Q If you turn to -- back to Claim 1 on page 30 of
21 Exhibit 1001. You see the phrase, An aspiration catheter?
22 **A Yes. The first three words.**
23 Q As that term is used in this patent in the claim,
24 what does aspiration catheter mean?
25 **A It's used to refer to catheters that are inserted**

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1 **into the vasculature to -- typically to remove thrombotic**
2 **material from a patient.**
3 Q And when you say typically, could aspiration
4 catheters be used for anything else?
5 **A I've seen catheters to aspirate a bolus of air**
6 **that got into a patient so. So it can be used to suck out**
7 **an air bubble also. There may be other applications, but**
8 **those are a couple I can think of.**
9 Q What does the word aspiration mean?
10 **A To create a vacuum.**
11 Q And what does the vacuum do, does the vacuum
12 cause some sort of suction?
13 **A Yes. An aspiration catheter, the vacuum will**
14 **create a negative pressure to try to suction in the**
15 **thrombotic material.**
16 Q So for a catheter to be an aspiration catheter,
17 will it always apply a vacuum?
18 **A I think to aspirate something, you would always**
19 **need to create a vacuum.**
20 Q Are you aware of any other types of catheters
21 that use -- that apply a vacuum besides aspiration
22 catheters?
23 **A Well, almost every catheter that I've worked on,**
24 **one of the first steps of the procedure once a catheter is**
25 **in the patient is to aspirate back, pull blood back to**

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1 **make sure there's no air in the catheter. So most**
2 **catheters need to be able to withstand some level of**
3 **vacuum to make sure there's no air in the catheter before**
4 **use in the patient.**
5 Q And those catheters that you said you referred to
6 as almost every catheter I've worked on, were those
7 aspiration catheters?
8 **A They were not designed to be aspiration**
9 **catheters. But a step that is used from a -- by the**
10 **physician for safety of the patients is to aspirate fluid**
11 **back into the catheter to make sure there's no air bubbles**
12 **within the catheter.**
13 Q So that --
14 **A The aspiration step is done routinely for most**
15 **indwelling catheters.**
16 Q Sorry for interrupting. Thank you for finishing.
17 I'll be more careful about that.
18 So then is it your testimony that just about any
19 catheter is an aspiration catheter as that term is used in
20 the '012 patent?
21 **A No. I think aspiration catheters have -- that**
22 **are designed to aspirate clot material are designed to do**
23 **that function. I'm just saying the step of aspiration**
24 **occurs in many, many catheters by physicians all the time**
25 **for all types of catheters.**

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1 Q Okay. So then is it fair to say that just
2 because a catheter could be used for aspiration, it is not
3 an aspiration catheter as the term is used in the '012
4 patent?
5 **A I think aspiration catheters are designed for**
6 **specific uses, to aspirate a clot from different parts of**
7 **the anatomy. And other catheters are designed for other**
8 **things. The other catheters that I'm thinking of have a**
9 **step of aspiration used. So they have to withstand some**
10 **level of vacuum typically.**
11 Q So then is it fair to say that just because a
12 catheter or the use of the catheter includes a step of
13 aspiration, that doesn't mean the catheter's an aspiration
14 catheter, as that term is used in the '012 patent?
15 MR. STOWELL: Objection. Asked and answered.
16 THE WITNESS: I think that's fair. I wouldn't call
17 the catheters I've worked on aspiration catheters even
18 though they had a step of aspiration required.
19 BY MR. HAMILTON:
20 Q Are you aware of any reason to apply vacuum
21 pressure to a catheter other than for aspiration?
22 **A Well, for one of the catheters that we developed**
23 **for the MitraClip project, we would prepare the catheter**
24 **by pulling a vacuum, pulling saline into the catheter to**
25 **displace all air --**

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1 THE STENOGRAPHIC REPORTER: To displace what?
2 THE WITNESS: Displace all air within the catheter.
3 That's one example.
4 THE STENOGRAPHIC REPORTER: I'm sorry. You said for
5 the my drop?
6 THE WITNESS: MitraClip, M-i-t-r-a, dash -- I think
7 there's no dash, capital, Clip.
8 THE STENOGRAPHIC REPORTER: Thank you.
9 BY MR. HAMILTON:
10 Q So that withdrawing of air, would you call that
11 aspiration?
12 **A I think we use that term to pull air out of the**
13 **catheter as aspirating the air out of the catheter,**
14 **pulling saline in before you insert it in the patient.**
15 Q And in that instance the vacuum was applied
16 before the catheter was inserted, correct?
17 **A Yes. It was also applied once it's in the**
18 **patient, as I said before, to pull back blood, make sure**
19 **you get only blood before injecting with saline to make**
20 **sure there's no air in the guiding catheter.**
21 Q All right. I'm going to hand you what's been
22 previously marked as Exhibit 1005.
23 And I'll also hand you what's been previously
24 marked as Exhibit 1008.
25 Do you recognize Exhibit 1005?

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1 **A Yes.**
2 Q What is Exhibit 1005?
3 **A It's Patent Number 11,697,012 -- sorry, reading**
4 **the wrong number. Let me repeat that. It's Publication**
5 **Number U.S. 2003/0225379 A1. It's the Schaffer patent as**
6 **we've been referring to it.**
7 Q So when you refer to Schaffer, is this the
8 exhibit you're referring to?
9 **A Yes. And there's another exhibit that has better**
10 **images of Figures 31 through 34 that I've also reviewed.**
11 Q And is that Exhibit 1008?
12 **A Oh. Yes.**
13 Q And why did you review 1008 when interpreting the
14 Schaffer reference?
15 **A Because the images in the 1005 images for**
16 **Figures 30 through 34 are dark, and it's unclear what**
17 **they're showing.**
18 Q And Figures 30 through 34, that's your -- that's
19 the primary embodiment of Schaffer that's discussed in
20 your declaration; isn't that right?
21 **A I think others are discussed too, but that is**
22 **certainly one that I focused on.**
23 Q So let's take a look at that embodiment shown in
24 Figures 30 through 34, and I'm going to ask you a couple
25 of questions about it. And feel free to refer to

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1 Exhibit 1008 if you need to. Okay?
2 **A Yes.**
3 Q Do you see U-shaped actuating members shown in
4 that embodiment?
5 **A Yeah, Schaffer uses that term for the actuating**
6 **members and are labeled as 55 in Figures 31 through 34.**
7 Q And does that embodiment show two different
8 U-shaped actuating members, 55?
9 **A Yes.**
10 Q And are each of those U-shaped actuating members
11 attached to a different button?
12 **A Yes.**
13 Q In the embodiment, do either of those U-shaped
14 actuating members -- are either of those U-shaped
15 actuating members attached to two different buttons?
16 **A Each of the U-shaped members are attached to a**
17 **different button.**
18 Q So then is it fair to say that one button will
19 control the movement of one U-shaped actuating member and
20 a different button will control the movement of another
21 U-shaped actuating member?
22 **A Yes.**
23 Q If you take a look at Figure 31 specifically,
24 does Figure 1 depict a sealed lumen?
25 **A Figure 32 is a cross-section that depicts the**

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1 **sealed lumen, the closed -- in the closed configuration.**
2 **31 in the description I think is supposed to depict that.**
3 **But to me, 31 looks identical to 33 in the position of the**
4 **actuators, but based on the springs, that the springs are**
5 **extended, yes. 31 depicts -- is intended to depict the**
6 **closed position.**
7 Q And Figure 33, do you see Figure 33?
8 **A Yes.**
9 Q Do you believe Figure 3 is intended to depict an
10 open position?
11 **A Yes. Because the springs are compressed, and**
12 **that relates to the cross-section shown in Figure 34.**
13 Q Do you see -- let's just take one of those
14 U-shaped members 55 in Figure 33. And why don't we take
15 the one on the left of the page with its ends facing
16 towards the left. Are you with me?
17 **A Yes.**
18 Q Okay. Do you see that U-shaped member having a
19 particular shape?
20 **A Yes. It's... yeah. Could be called a U-shape.**
21 Q Does that U-shape member have a particular
22 diameter?
23 **A It's not -- no diameters are provided. No**
24 **dimensions are provided.**
25 Q Would you understand that there is a diameter for

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1 that U-shape member?
2 **A No. It would have a radius. If you were just**
3 **looking at the U-shaped member, it would have a radius for**
4 **the U-shaped portion or bight portion.**
5 Q So then is it your understanding that the
6 U-shaped member 55 that we were talking about, that single
7 U-shaped member on the left of the page, does not have a
8 diameter?
9 **A Acting on its own, I would call it a radius of**
10 **curvature for the curve section.**
11 Q So does that mean it does not have a diameter?
12 **A Right. It has a radius, a curvature for the**
13 **U-shaped portion.**
14 Q Okay. If you compare the shape of that U-shaped
15 member between Figure 33 and Figure 31, is the shape the
16 same between those two figures?
17 **A It appears to be the same.**
18 Q Do those figures show the U-shape member
19 conforming in any way to the shape of the lumen between
20 those two figures?
21 **A It appears to be the same, and I believe it's**
22 **just an artifact of poor draftsmanship to show that.**
23 Q So between the two figures, the U-shape member
24 does not conform in any way to the shape of the lumen,
25 correct?

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1 MR. STOWELL: Objection. Misstates testimony.
2 THE WITNESS: It's not clear from the image. And what
3 I was -- what I mentioned earlier was they're not even
4 moving, that they haven't moved. Even though the springs
5 appear compressed in Figure 33 versus 31, the location of
6 the end of the U seems to be identical. So it seems to me
7 that the draftsman didn't attempt to show the U-shape
8 members moving but just showed the spring being compressed
9 and uncompressed.
10 BY MR. HAMILTON:
11 Q So based on those figures, the U-shape member
12 doesn't change shape between the two figures, correct?
13 MR. STOWELL: Objection. Misstates testimony.
14 THE WITNESS: It didn't change position. Didn't
15 change left to right position between those two images
16 from my, you know, visual look at this.
17 BY MR. HAMILTON:
18 Q Are you finished?
19 **A Yes.**
20 Q Okay. So it doesn't change position. It also
21 doesn't change in shape, correct?
22 **A It doesn't seem to change in shape either, which**
23 **as I mentioned, I -- presuming that the draftsman just**
24 **didn't bother to move it or change its shape. Even though**
25 **the springs did change their compression amount.**

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1 Q And then let's take a look at Figure 34 and
2 Figure 32, the difference between those two. So between
3 those two, you could see that the two U-shape members have
4 moved, correct?
5 **A Yes.**
6 Q And that's supposed to correspond to Figures 31
7 and 33, correct?
8 **A It's supposed to.**
9 Q And in those two figures, does the shape of the
10 U-shape member change between Figures 32 and 34?
11 MR. STOWELL: Objection. Vague.
12 THE WITNESS: The cross-sectional view of the U-shape
13 portion, the draftsman didn't try to make them change
14 shape. They seem to be the same shape.
15 BY MR. HAMILTON:
16 Q And if you look specifically at 32, you can see
17 the U-shape member does not conform to the lumen, correct?
18 **A They're showing a gap between the collapsible**
19 **tubular member and the end of the U-shaped element which I**
20 **think is also an artifact of the draftsman because I think**
21 **there would be some, you know, compression of the tube to**
22 **fill that space and/or some flexing of the U-shaped member**
23 **to conform to that shape.**
24 Q So then is it fair to say you've interpreted
25 these figures to show something that's not actually shown

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1 in these figures?
2 MR. STOWELL: Objection. Misstates testimony.
3 THE WITNESS: I think that there's, you know, some --
4 not sure the draftsman appropriately depicted what would
5 happen when a soft tubular member is compressed in
6 Figure 32.
7 BY MR. HAMILTON:
8 Q And when you say what would happen, you mean what
9 would happen to the U-shaped members, what would happen to
10 the shape of the U-shaped members. Is that what you mean?
11 **A And/or the actuating member depending on how**
12 **flexible that member is.**
13 Q So Figures 32 and 34 show the U-shape member not
14 conforming to the shape of the lumen, correct?
15 MR. STOWELL: Objection. Misstates testimony.
16 THE WITNESS: Which two images? 32, 34?
17 BY MR. HAMILTON:
18 Q Yes.
19 **A Yeah, I think what I said was they're showing it**
20 **as not conforming to the tube and the tube not conforming**
21 **to the actuator.**
22 Q And you believe that's an error or an omission by
23 the draft person. You believe those U-shape members will
24 actually conform to the tube, and the tube will conform to
25 the U-shape members; is that right?

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1 **A Well, as I think I said in my declaration, I**
2 **believe that for Schaffer to work well, that those members**
3 **have to have some level of flexibility, and I'm not sure**
4 **that's well-represented in this image.**
5 Q The U-shape member shown in Figures 30 through
6 34, do those U-shape members interlock?
7 **A They're not interlocking as the '012 patent**
8 **showed one of the configurations, the Figure 8**
9 **configuration if that's what you mean by interlock.**
10 Q And those two U-shape members are in fact
11 parallel to each other, correct?
12 **A I characterize them as parallel to each other.**
13 **Yeah.**
14 Q So then is it fair to say that the two U-shape
15 members do not overlap the same portion of the lumen?
16 MR. STOWELL: Objection. Vague.
17 THE WITNESS: Well, I believe they're parallel to each
18 other. They're next to each other. Similar to how in the
19 '012 patent, they describe that the bight configuration
20 could also be parallel to each other and not interlocked,
21 I think is the term you used.
22 BY MR. HAMILTON:
23 Q Or --
24 **A Or overlapping, interlocked, sorry.**
25 Q Interlocked or overlapping, right?

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1 **A I think you used the term interlocked. I can't**
2 **remember what the patent term is.**
3 Q So those two U-shape members in Figures 30
4 through 34 are not interlocked, correct?
5 **A They're not interlocked.**
6 Q And those two U-shape members in Figures 30
7 through 34 are not overlapping, correct?
8 MR. STOWELL: Objection. Vague.
9 THE WITNESS: I think they're overlapping each other
10 in order to encircle the tubular member.
11 BY MR. HAMILTON:
12 Q They're parallel to each other, correct?
13 **A They're parallel to each other.**
14 Q And would these two U-shape members in operation
15 to seal the lumen pinch the lumen like a pair of scissors?
16 MR. STOWELL: Objection. Vague.
17 THE WITNESS: I think they would work similarly to how
18 the '012 patent is shown with the bight configuration
19 where the two sub-filaments overlap to have a -- to create
20 an encircled area. And I think the Schaffer patent, as I
21 talk about in my declaration, that the Schaffer members
22 have a certain amount of flexibility such that they would
23 perform very similarly to the filament shown in Figure 8,
24 let's say.
25

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1 BY MR. HAMILTON:
2 Q So you said in your answer overlap. You didn't
3 say over interlock. So this is different from the
4 embodiments shown in the '012 patent where the two bights
5 interlock, correct?
6 **A In Figure 8, they overlap, and I believe in the**
7 **description in the specification, they talk about they**
8 **overlap as an option. They may be parallel to each other.**
9 Q So they either overlap or they're parallel,
10 correct?
11 **A They're either interlocked, or they're parallel**
12 **in the '012 patent is my understanding.**
13 Q And is it your understanding whether or not
14 they're interlocked, they overlap?
15 **A I think that the two sub-filaments overlap when**
16 **they're in the -- well, when they're in the device in**
17 **order to form and encircle the area between the two.**
18 Q If they're not interlocked, they don't overlap
19 each other, do they?
20 **A You know, I believe they do overlap creating an**
21 **encircled area in the overlap location.**
22 Q So is it your understanding that two
23 noninterlocking and instead parallel filaments would
24 overlap each other as that term is used in the '012
25 patent?

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1 **A Yes, I believe they are overlapping.**
2 Q And does that form, at least in part, the basis
3 of your opinions in this matter?
4 **A Yeah, my opinions are based on the images in the**
5 **'012 patent and in the other patents referenced, but**
6 **Schaffer here is what we're talking about.**
7 Q And part of that is that two filaments do not
8 need to interlock in order to overlap as that term is used
9 in the '012 patent, correct?
10 **A I can go back and look at the -- how they use the**
11 **term interlock. In the '012 patent, line -- Column 12,**
12 **toward the bottom it says, In some embodiments, a filament**
13 **can comprise multiple filaments, specifically as shown in**
14 **Figure 7 through 9.**
15 **And on Column 13, they use the term interlock,**
16 **line 36, In some embodiments, the first bight 800-A can**
17 **extend through the second bight such that the first and**
18 **second bights interlock, whereas in other embodiments the**
19 **first and second bights can be noninterlocking.**
20 **So that's what I'm referring to, the**
21 **noninterlocking option that's provided in the '012 patent**
22 **would be -- the two sub-filaments would be parallel**
23 **similar to how the two I'll call them filaments in**
24 **Schaffer are parallel to each other.**
25 Q And the noninterlocking filaments is not shown in

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1 Figures 8 and 9 to the '012 patent, correct?
2 **A Correct. Just the interlocking option is shown**
3 **in Figure 8 and 9.**
4 Q And the '012 patent recites that Figures 8 and 9
5 also show two filaments that overlap, correct?
6 MR. STOWELL: Objection. Misstates document.
7 THE WITNESS: I'm not sure if the word overlap is
8 used. But certainly when they're, you know, creating an
9 encircled area, creating a receiving area, I think is the
10 term that they also use, that those two elements are
11 overlapping.
12 BY MR. HAMILTON:
13 Q And that's when they're interlocked, correct?
14 MR. STOWELL: Objection. Asked and answered.
15 THE WITNESS: If they're parallel, they're not
16 interlocked is my interpretation of the patent language.
17 BY MR. HAMILTON:
18 Q So parallel filaments are not interlocked. We
19 agree on that?
20 **A Yes.**
21 Q And Figures 8 and 9 show interlocked filaments,
22 correct?
23 **A Yes.**
24 Q Sub-filaments, excuse me, in your language?
25 **A Yes.**

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1 Q And Figures 30 through 34 of the Schaffer
2 reference show parallel U-shape members, correct?
3 **A Yes. I recall them parallel, not interlocking.**
4 Q Does Schaffer disclose any other ways to compress
5 a lumen in a hemostasis valve to create a seal besides
6 U-shape members?
7 **A Yes. There are several other embodiments in the**
8 **earlier figures.**
9 Q So then is it fair to say just in Schaffer, there
10 are many ways to compress a lumen in a hemostasis valve to
11 create a seal, is that correct, beyond U-shape members?
12 **A Can you repeat the question?**
13 Q Is it fair to say that in Schaffer alone, there
14 are many ways to compress a lumen in a hemostasis valve to
15 create a seal, right?
16 **A Yes.**
17 Q U-shape members is one of them, right?
18 **A Yes.**
19 Q And then there are several others disclosed?
20 **A Yes.**
21 Q For Figures 30 through 34, the embodiments shown
22 in those figures, is the act of applying force to the
23 buttons to release the tension created by the actuating
24 members on the seal module how the valve is opened, is
25 that how that embodiment works?

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1 MR. STOWELL: Objection. Compound.
2 THE WITNESS: Yeah, force is applied to the buttons to
3 relieve tension on the system, to compress the spring to
4 relieve tension on the system to allow the central lumen
5 to expand. I can't remember the terminology that they
6 use. But the central compressible lumen to self-expand.
7 BY MR. HAMILTON:
8 Q Is there any other way for the embodiment Figures
9 30 through 34 to unseal the module, disclosed in Schaffer?
10 **A I think in this embodiment, that's the way it**
11 **works.**
12 Q Let's look at Figures 1 through 4 of Schaffer.
13 Figures 1 through 4 show an embodiment of a valve in
14 Schaffer, correct?
15 **A Yes.**
16 Q And does that embodiment include third seal
17 member 165?
18 **A I see that listed in Figure 4, which I believe**
19 **these are all referencing the same embodiment, 1**
20 **through 4. So yes, this embodiment includes multiple seal**
21 **members.**
22 THE STENOGRAPHIC REPORTER: Sorry, are you saying seal
23 members?
24 THE WITNESS: Seal, s-e-a-l.
25 THE STENOGRAPHIC REPORTER: Thank you.

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1 THE WITNESS: Multiple seal members, including 165 and
2 the ones on each end which I believe is 170 and 180 in
3 Figure 4.
4 BY MR. HAMILTON:
5 Q Okay. Let's look at the embodiment. Let's just
6 take Figures 5 through 22 together. Figures 5 through 22
7 show an embodiment including the third seal member 165,
8 correct?
9 **A Figure 11, I think is just the structure**
10 **surrounding. So that one doesn't include it. But the**
11 **seal member wherein images, where the seal member is**
12 **shown, they do appear to have three seal members through**
13 **Figure 15 anyway. And in Figure 22 and 21.**
14 Q So then is it fair to say the embodiments
15 depicted in Figures 5 through 22 all include third seal
16 member 165?
17 **A I'm not sure that they all do. I'm not sure that**
18 **Figures 16 through 19... they don't list 165. So I'm not**
19 **sure where the cross-section is taken in those.**
20 Q Do you see in Figure 16, 165 listed?
21 **A I do, sorry.**
22 Q So does that change your answer, Figures 16
23 through 19, does that show third seal member 165?
24 **A It's only labeled in 16. And I think the other**
25 **images 17 through 19 are showing the shapes that can occur**

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1 **with different tools through the inside. So I will assume**
2 **that they include a cross-section in the area of 165.**
3 Q Okay. So then Figures 5 through 22 depicted an
4 embodiment that includes third seal member 165, correct?
5 **A I'm not sure what Figure 20 is showing. I'd have**
6 **to look back in the spec because it's not labeled.**
7 **They're just labeled in the entire seal member. Or... 100**
8 **there.**
9 Q So if you take a look, just turn to paragraph 54
10 of Exhibit 1005. So before we do that, let's just clarify
11 Figures 5 through 19 all depict seal member 165, correct?
12 Excuse me, let me withdraw the question. I'll rephrase
13 it.
14 Figures 5 through 19 all depict an embodiment
15 that includes third seal member 165, correct?
16 **A Except for 11 which I think is the tray or the**
17 **containment structure.**
18 Q And 11 is used with the embodiment of Figures 10
19 and 9, which depicts the third seal member, correct?
20 **A Sure.**
21 Q Okay. So Figures 5 through 19 each depict an
22 embodiment that includes third seal member 165, correct?
23 **A Yes.**
24 Q Okay. Now, Figures 20 through 22, do those
25 figures depict an embodiment that includes third seal

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1 member 165?
2 **A Well, only 22 has 165 labeled. But certainly, 21**
3 **is showing three different -- three different seals as**
4 **three different components. So I think that's true.**
5 Q Okay. And if you look at paragraph 54 in
6 Exhibit 1005, you'll see the start of the paragraph refers
7 to Figures 5 through 22. And then the next column, it
8 refers to third central seal member 165. Does that help
9 you answer the question?
10 **A Yes. I read paragraph 54. What's the question**
11 **again?**
12 Q So does that help you answer the question as to
13 whether Figures 20 through 22 depict an embodiment
14 including third seal member 165?
15 **A Yeah, it seems to. They're referencing Figures 5**
16 **through 22, and toward the end of that paragraph, it says,**
17 **The third central seal member 165 is sized and configured**
18 **to maintain an open lumen when no compressive force is**
19 **applied.**
20 Q So let's look at Figures 23 through 26, does the
21 embodiment shown in Figures 23 through 26 include third
22 seal member 165?
23 **A Yeah, it's labeled on three of the four images at**
24 **least.**
25 Q And it's your understanding it's also included in

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1 the fourth image where it's not labeled; is that correct?
2 **A Most likely.**
3 Q Figure 27, does the embodiment depicted in
4 Figure 7 include third seal member 165?
5 **A Yes, it's labeled on Figure 27.**
6 Q And then Figures 28 and 29, does the embodiment
7 depicted in Figures 28 and 29 include third seal member
8 165?
9 **A Yeah, it's labeled there.**
10 Q Okay. So we've been through all the embodiments
11 except 30 through 34.
12 **A Mm-hmm.**
13 Q Is it your understanding, does the embodiment
14 shown in Figures 30 through 34 include third seal member
15 165?
16 MR. STOWELL: Objection. Vague.
17 THE WITNESS: I don't see 165 labeled on any of those.
18 I see it labeled as 100. Seal module 100 is what's shown.
19 BY MR. HAMILTON:
20 Q So the embodiment of Figures 30 through 34
21 include seal module 100; is that correct?
22 **A Includes seal module 100.**
23 Q And does the embodiment of Figures 30 through 34
24 include third seal member 165?
25 **A As I said, it's not labeled on those images.**

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1 Q Do you have an understanding of whether or not
2 it's included in the embodiment of Figures 30 through 34?
3 **A It's not clear to me it's included. It appears**
4 **that they're using one seal member, not three seal**
5 **members. Based on the cross-section, all the other**
6 **cross-sections showed a separate component on each end of**
7 **the central 165 component.**
8 Q Let's -- let's take a look at the specification
9 for the Exhibit 1005.
10 And if you could turn to page 25. Sorry, next
11 page --
12 **A '012 patent?**
13 Q -- 26.
14 Of the Schaffer reference.
15 **A Oh, sorry.**
16 Q Exhibit 1005.
17 **A Paragraph...**
18 Q Paragraph 75.
19 You see paragraph 75 begins the discussion of the
20 embodiment of Figures 30 through 34?
21 **A Yes.**
22 Q And you see that language, The seal module is
23 formed of one or more seal members. Do you see that?
24 **A Yes.**
25 Q One or more seal members means at least one seal

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1 member's included in that embodiment, correct?
2 **A Yes. I think they're showing one seal member in**
3 **30 to 34.**
4 Q When you say, One seal member, what do you mean?
5 **A A single material making up the sealing tubular**
6 **member. I'm saying that because the cross-section doesn't**
7 **show different materials in the cross-section view for**
8 **Figure 34 and 32.**
9 Q So when this paragraph 75 refers to one or more
10 seal members as discussed above, what's it referring to?
11 **A The seal members discussed above.**
12 Q And what are those seal members, is it fair to
13 say there's three seal members discussed above, a first, a
14 second, and a third seal member?
15 MR. STOWELL: Objection. Misstates document.
16 THE WITNESS: They certainly have shown and discussed
17 three different seal members with different mechanical
18 properties in the specification.
19 BY MR. HAMILTON:
20 Q So is it your understanding when this sentence
21 says, One or more seal members as discussed above, it's
22 referring to one or more of those three seal members, the,
23 first, second, and third seal member as discussed above?
24 **A First, second, or third, yeah.**
25 Q Okay. So one of those three has to be included

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1 in this embodiment of Figures 30 through 34, correct?
2 MR. STOWELL: Objection. Misstates the document.
3 THE WITNESS: I think the description of the three is
4 what they're referring to for the single seal member
5 that's used in Figures 30 through -- 31 through 34.
6 BY MR. HAMILTON:
7 Q Is it Figures 30 or 31 through 34?
8 **A Sorry. 31 through 34.**
9 Q Isn't it Figures 30 -- if you look at the top of
10 paragraph 75?
11 **A Sure. Yes, yes.**
12 Q Okay. And then if you go down to paragraph 77,
13 do you see a reference to a third seal member 165?
14 **A Yes.**
15 Q So is it fair to say that at least third seal
16 member 165 is disclosed as being included in Figures 30
17 through 34?
18 MR. STOWELL: Objection. Misstates document.
19 THE WITNESS: Yes. I believe 77 -- paragraph 77 is
20 relating to Figures 30 through 34. In the last sentence
21 of that says that the third seal member 165 is able to
22 retract to an unsealed configuration.
23 BY MR. HAMILTON:
24 Q So does that mean that third seal member 165 is
25 included in the embodiments of figures -- the embodiments

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1 shown in Figures 30 through 34?
2 **A That's how I would interpret that portion of the**
3 **document, yes.**
4 Q All right. I'm going to hand you what's been
5 previously marked as Exhibit 1006.
6 Is Exhibit 1006 the Hartley reference referenced
7 in your declaration?
8 **A Yes.**
9 Q Do you understand what's disclosed in
10 Exhibit 1006?
11 **A Yes.**
12 Q Let's take a look at Figures 3 and 4. Do Figures
13 3 and 4 depict a single string connected on each end to a
14 single rotating actuating member?
15 **A Yes, I can describe it that way.**
16 Q And because the two ends of the string are
17 connected to a single rotating rotator, let's say, those
18 two ends cannot move independently of each other, can
19 they?
20 MR. STOWELL: Objection. Vague.
21 THE WITNESS: Yeah, they would move together as the
22 actuator is rotated.
23 BY MR. HAMILTON:
24 Q Do you see -- focusing on Figure 3.
25 **A Yes.**

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1 Q If the rotator is moved in one direction, let's
2 say clockwise, what happens to the Item 8 depicted in the
3 middle which I believe is some sort of lumen?
4 **A Well, if it's moved counterclockwise, which is**
5 **shown in Figure 4, tension is created on the filament 14**
6 **such that it compresses the central lumen which I guess is**
7 labeled 8. Cylindrical (indiscernible utterance)
8 elastomeric diaphragm is their term for the cylindrical
9 tubular member.
10 THE STENOGRAPHIC REPORTER: I'm sorry. Could you say
11 the word you said after cylindrical?
12 THE WITNESS: Tubular member.
13 THE STENOGRAPHIC REPORTER: No, you said cylindrical
14 something is their term for the cylindrical tubular
15 member.
16 THE WITNESS: Cylindrical elastomeric.
17 THE STENOGRAPHIC REPORTER: Elastomeric? Is that what
18 you said?
19 THE WITNESS: Yes.
20 THE STENOGRAPHIC REPORTER: Thank you.
21 THE WITNESS: Diaphragm Number 8.
22 BY MR. HAMILTON:
23 Q Okay. So going from Figure 3 to 4, that's
24 turning the rotator counterclockwise that Item 8 is
25 constricted, correct?

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1 **A It's compressed. It decreases in its area and**
2 **circumference.**
3 Q And then what about if you turn Figure 3
4 clockwise, what happens?
5 **A Well, I think the same thing happens. It would**
6 **also compress the Item Number 8, the diaphragm.**
7 Q In the same way that it's compressed in Figure 4.
8 Is that fair to say?
9 **A Probably. They didn't depict it that way. So**
10 **it's a little difficult to interpret.**
11 Q But in any event, no matter what direction you
12 turn the rotator, it's going to compress Item 8, fair?
13 **A From a neutral position as shown in Figure 3, I**
14 **believe that's true.**
15 Q So what's shown in Figure 3 -- withdraw the
16 question.
17 I'm going to hand you what's marked Exhibit 1007.
18 Is Exhibit 1007 the Eller reference referenced in your
19 declaration?
20 **A Yes.**
21 Q Let's take a look at Figure 15, for example.
22 **A Okay.**
23 Q Does Figure 15 depict a wire attached to a
24 rotary, a rotating actuating member?
25 **A They do use the term wire member for Item 422**

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1 **showing 16. And it is the rotating type actuator where**
2 **the upper portion, I guess it's labeled for 18 -- that may**
3 **not be the right reference. Sorry. Where the outer**
4 **portion operated by the position is rotated to compress a**
5 **tubular member.**
6 Q And what I want to understand is in this figure,
7 that Item 422 is attached to a single reporter; is that
8 correct?
9 **A Yes. There's one rotating element to which the**
10 **one or more wires are attached.**
11 Q Okay. So whether it's one wire, it's attached to
12 a single rotating element. And if there's multiple wires,
13 they're all attached to that single rotating element, is
14 that correct, is that a fair characterization of the
15 disclosure of Eller?
16 **A I think that's --**
17 MR. STOWELL: Objection. Vague. Misstates document.
18 THE WITNESS: I believe that's a mechanism of action
19 for this design.
20 BY MR. HAMILTON:
21 Q So whether one -- I think you had said wire
22 member, or multiple wire members are used, they are all
23 attached to a single reporter in Eller, correct?
24 MR. STOWELL: Objection. Vague. Misstates document.
25 THE WITNESS: I'm not sure if all the embodiments work

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1 that way. But that's my understanding for the embodiments
2 shown in Figure 18, 19, for instance. 20 through 22 would
3 operate that way.
4 MR. HAMILTON: All right. Why don't we take a break.
5 MR. STOWELL: Okay.
6 MR. HAMILTON: It's noon. Do you want to take a
7 little longer break?
8 MR. STOWELL: Sure.
9 MR. HAMILTON: Have lunch if you'd like.
10 THE WITNESS: Sure.
11 MR. STOWELL: Sure.
12 THE VIDEOGRAPHER: We are going off the record at
13 1159.
14 (Recess taken.)
15 THE VIDEOGRAPHER: We are back on the record at 1239.
16 BY MR. HAMILTON:
17 Q Mr. Thornton, do you understand you're still
18 under oath?
19 **A Yes.**
20 Q During the break did you discuss this matter with
21 anybody?
22 **A No.**
23 Q Did you communicate with anybody in any way
24 regarding this matter?
25 **A No.**

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1 Q Did you review any documents?
2 **A No.**
3 Q I noticed you were just looking at your
4 declaration there. What were you looking at your
5 declaration for?
6 **A Just to find out where it was.**
7 Q Okay. Great.
8 So if you could turn to Exhibit 1005, that's
9 Schaffer. And if you need it, I know you relied on the
10 figures in Exhibit 1008 for Schaffer. So feel free to
11 grab that. I want to ask about paragraph 77, which is on
12 page 26, and specifically, the portion on the top of the
13 next column. So you see this description that includes
14 the phrase, Forcibly disengaged, do you see that?
15 **A Yes.**
16 Q And earlier, we talked about how the embodiment
17 shown in Figures 30 through 34 work. And is it your
18 understanding that to unseal the valve shown in Figures 30
19 through 34, the actuating members must forcibly disengage
20 imposing outer walls as disclosed in paragraph 77?
21 MR. STOWELL: Objection. Vague. Compound.
22 THE WITNESS: My understanding of forcibly disengaged
23 in this section refers to the act of compressing the
24 buttons in order to compress the springs, in order to
25 release tension on the system so that the -- filament

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1 members, I'll call them, because I think it relates both
2 to this and to the '012 patent -- so that the filament
3 members relax and allow, as the patent says at the end of
4 that Section 77, allows the seal member 165 to be able to
5 retract to an unsealed configuration.
6 BY MR. HAMILTON:
7 Q So then is it fair to say that the way the
8 embodiment shown in Figures 30 through 34 operates is
9 through forcible disengagement to unseal the valve shown?
10 MR. STOWELL: Objection. Vague.
11 THE WITNESS: I think the doctor needs to exert some
12 force on the buttons in order to decrease tension on the
13 system -- on the components in the system to allow the
14 seal member to open, and that's the mechanism of opening
15 the valve.
16 BY MR. HAMILTON:
17 Q So Figures 30 through 34 require actuating
18 member -- each engaged actuating member to forcibly
19 disengage opposing outer walls 27 for that embodiment to
20 operate; is that correct?
21 MR. STOWELL: Objection. Asked and answered.
22 THE WITNESS: I don't know about the term disengage
23 because it's still -- you know, in the open configuration
24 shown in Figure 34, the U-shape actuator's still in
25 contact. So I take the forcible -- let me read it --

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1 forcibly disengage nomenclature to mean you're adding
2 force to the buttons to compress the springs to allow
3 opening of the seal member.
4 BY MR. HAMILTON:
5 Q So forcibly disengage means you're adding force
6 to the buttons. That's your understanding, correct?
7 **A Yeah, the doctor is compressing the buttons in**
8 **order to allow the seal member to open.**
9 Q And is it your understanding that forcibly
10 disengage is required to operate the device shown or the
11 embodiment shown in Figures 30 through 34, that's how the
12 doctor opens the device, correct?
13 MR. STOWELL: Objection. Compound.
14 THE WITNESS: In order to operate the device, the
15 buttons need to be compressed. The springs need to be
16 compressed by pushing on the buttons so that it allows the
17 tension to be released on the filament system.
18 BY MR. HAMILTON:
19 Q So this description in paragraph 77 with respect
20 to forcibly disengage, that's required to operate the
21 device or the embodiment disclosed in Figures 30
22 through 34, correct?
23 MR. STOWELL: Objection. Asked and answered.
24 THE WITNESS: I think my last answer was the same.
25

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1 BY MR. HAMILTON:
2 Q And is that a yes?
3 **A That's -- what I answered last, I think, answered**
4 **the latest question.**
5 Q So in order to operate the device, it must
6 operate through this description with respect to forcibly
7 disengage as described in paragraph 77, correct?
8 MR. STOWELL: Objection. Asked and answered.
9 THE WITNESS: I think what I said was in order to --
10 for it to work, the doctor needs to apply force to the
11 buttons to compress the springs, which relaxes the
12 filaments so that the seal member can recover, retract to
13 an unsealed configuration.
14 BY MR. HAMILTON:
15 Q And that description you just gave, that's what
16 you believe forcibly disengage means in paragraph 77,
17 correct?
18 **A That's what I believe this paragraph is**
19 **describing of how the mechanism works.**
20 Q And that description with respect to forcibly
21 disengage is the way the embodiment shown in Figures 30
22 through 34 is operated, correct?
23 MR. STOWELL: Objection. Asked and answered.
24 THE WITNESS: It's -- I've described how I believe it
25 works, and I think that's how the description in

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1 paragraph 77 relates to the function of the valve. Yeah.
2 BY MR. HAMILTON:
3 Q And when you say the description in paragraph 77,
4 you mean the description with respect to the term forcibly
5 disengage, correct?
6 MR. STOWELL: Objection. Asked and answered.
7 THE WITNESS: The description also includes...
8 depressing the (indiscernible utterance) distal end of the
9 actuator button.
10 THE STENOGRAPHIC REPORTER: I'm sorry, depressing the
11 what?
12 THE WITNESS: The distal end of the actuator button.
13 It includes the actuator sliding along the
14 cylindrical interior. It includes the entire mechanism of
15 what's -- of how it's operating. And I think the force --
16 the term force relates to the force that the doctor's
17 applying in order to release tension on the constriction
18 mechanism.
19 BY MR. HAMILTON:
20 Q And just to be clear, you said the term force,
21 but the term is forcibly disengage. You mean the term
22 forcibly disengage, correct?
23 **A I guess you could call it disengagement. It's**
24 **really releasing tension on the system to disengage the**
25 **tension that's applied in the system.**

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1 Q And that description in paragraph 47 that
2 includes forcibly disengage, that is how the embodiment of
3 Figures 30 through 34 operates; isn't that correct?
4 MR. STOWELL: Objection. Asked and answered.
5 THE WITNESS: It operates how I've described it a few
6 times now of forcibly compressing the mechanism to allow
7 the central lumen -- remove tension from the system to
8 allow the central lumen to expand.
9 BY MR. HAMILTON:
10 Q So this time you used the term forcibly
11 compressing. Does forcibly disengage mean forcibly
12 compressing?
13 **A I think disengage for this mechanism means to**
14 **disengage the tension on the system, to remove the tension**
15 **on the system to loosen the tension of the filament**
16 **members on the tube.**
17 Q Okay. So let's just agree to disagree on what
18 forcibly disengage means or what is disclosed in
19 paragraph 77.
20 But whatever's disclosed, under your
21 understanding, that is how the embodiment disclosed in
22 Figures 30 through 34 operates, correct?
23 MR. STOWELL: Objection. Asked and answered.
24 THE WITNESS: I think it operates how I've described
25 several times.

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1 BY MR. HAMILTON:
2 Q And that's set forth in paragraph 77 including
3 forcibly disengage, correct?
4 **A It's set forth in what I answered a few times**
5 **already. And my understanding --**
6 Q And that's paragraph 77, correct?
7 **A There's probably other areas that also talk about**
8 **how the mechanism works. But I'm providing my explanation**
9 **of how I believe the mechanism works in order to unseal**
10 **the seal member.**
11 Q All right. If you could turn to your
12 declaration, Exhibit 1003, page 55. You see about the
13 middle of the text on page 55, starting with the sentence
14 Rather, do you see that?
15 **A Middle of the page, yeah.**
16 Q And is that your understanding as we sit here
17 today of what the term forcibly disengage refers to?
18 **A Well, as I wrote, The term forcibly disengage**
19 **refers to the act of applying force to the buttons to**
20 **release the tension created by the actuating members on**
21 **the seal module, which in turn, allows the seal module to**
22 **retract to an uncollapsed configuration where gases and**
23 **fluids can pass there through.**
24 Q And is that how the embodiment shown in Figures
25 30 through 34 unseals?

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A I believe that's what I've just described several times.
Q Okay. And as you sit here today, is that still your understanding of the term forcibly disengage, what forcibly disengage refers to, or do you want to change it?
A No. I believe it means applying force to the buttons to release the tension on the entire mechanism.
Q Okay. So based on your understanding of what forcibly disengage refers to, forcibly disengage is required to unseal the embodiment shown in Figures 30 through 34, correct?
MR. STOWELL: Objection. Asked and answered.
THE WITNESS: Well, I'll continue reading this. Schaffer's actuating members disengage from the seal member in the same way that the '012 patent's filament disengages from that seal member, the tubular member. So I'm seeing that they're basically the same mechanism of actuation, opening and closing.
BY MR. HAMILTON:
Q I'll move to strike that answer as nonresponsive.
The question was based on your understanding of what forcibly disengage refers to as set forth in this paragraph, is it correct that the embodiments shown in figure -- the embodiment shown in Figures 30 through 34 require forcibly disengage in order to unseal the valve

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shown?
MR. STOWELL: Objection. Asked and answered.
THE WITNESS: In order to disengage the system, to release tension on the system, then force has to be applied to the buttons. That's my understanding of how the mechanism works.
BY MR. HAMILTON:
Q And that's what forcibly disengagement refers to, correct?
MR. STOWELL: Objection. Asked and answered.
THE WITNESS: That's how the mechanism works is my understanding in Schaffer and the '012 patent for that matter.
BY MR. HAMILTON:
Q Okay. If you can turn to page 26 of your declaration, Exhibit 1003.
A Okay.
Q Do you understand what's depicted in the two figures on page 26?
A Yeah, Figure 3 is from a patent titled, Wong. They both are, Figure 3 and Figure 4.
Q Are these items depicted in Figure 3 and 4 members that compress a lumen in the hemostasis valve in Wong?
A Well, as I describe, the slider 17 shown in

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Figure 4 is a brake shoe (indiscernible utterance) like element.
THE STENOGRAPHIC REPORTER: I'm sorry. Is a what like element?
THE WITNESS: Brake shoe.
Brake shoe like element having a groove that sandwiches between two opposing sidewalls.
BY MR. HAMILTON:
Q It compresses the sidewalls, correct?
A Yeah, I need to look at Wong for more detail, but that's my recollection of that patent.
Q And when you say that, you mean it compresses the sidewalls, is that what you mean by that is your recollection?
A I need to look at the patent --
Q Do you see the --
A In more detail. Sorry.
Q No, no problem. I jumped in. Are you finished?
A Yeah, go ahead.
Q So Figure 4, you describe a V-shape groove. Do you see that?
A Yes.
Q Is a V-shape groove similar to a U-shape member?
MR. STOWELL: Objection. Vague.
THE WITNESS: The mechanism of compression in Wong

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seems to be different than in Schaffer.
BY MR. HAMILTON:
Q So the mechanism of compression Wong is another way to compress a lumen different from Schaffer's U-shape members; is that right?
A It's a different mechanism of contraction.
Q Okay. And one's a U shape; one's a V shape. Is that fair to characterize one of the differences?
MR. STOWELL: Objection. Vague.
THE WITNESS: Yeah, I describe a portion of the system as a V shape, having a V-shape groove.
BY MR. HAMILTON:
Q All right. If you could turn to page -- I want to ask about the figure on page -- bottom of page 37 and the figures on the top of page 40. I believe they're the same, but they're pointing to different things. So I want to ask a couple questions about those two things, those two groups of figures.
A 37 in the -- this declaration?
Q Page 37 of the declaration.
Bottom of page 37 and the top of page 40.
A Okay.
Q So the figures on the bottom of page 37 and the top of page 31 are the same, just with different annotations. Do you see that?

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1 A **Top of page 31?**
2 Q Mm-hmm.
3 A **Yes.**
4 Q And the one on 37 is pointing to the end of --
5 let's say 35, and you've labeled it, Connecting member.
6 Do you see that?
7 A **Yes.**
8 Q And you've also labeled a connecting member on
9 Figure 31 on the bottom of page 37. Do you see that?
10 A **Yes.**
11 Q What does that connecting member connect to?
12 A **A catheter.**
13 Q Can it connect to anything else?
14 A **Could connect to a Y-arm adapter, multiarm**
15 **adapter that's then connected to the catheter.**
16 Q And then if you look at the top of page 40, now
17 you're pointing to the other end 45 in Figure 1, and I
18 don't know if it's labeled in the other one, but let's say
19 276 or 117, that general area. And you've labeled that
20 the receiving member. Do you see that?
21 A **Yes.**
22 Q And you see the language just below the figures,
23 you've quoted from Schaffer, The receiving member 45 is,
24 in one option, configured to connect to a fluid or gas
25 delivery system or device such as a syringe. Do you see

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1 that?
2 A **Yes.**
3 Q So between these two figures, it's my
4 understanding you're trying to depict that the device of
5 Schaffer could be used for aspiration. Is that fair?
6 A **Yes. It certainly could be attached -- a**
7 **catheter would be attached on the Luer -- I'll say the**
8 **distal end, the connecting member as shown on page 37.**
9 **And a vacuum source or another Luer connector could be**
10 **connected on the receiving member end. That's the end**
11 **that a syringe could be attached or another Luer-type**
12 **adapter.**
13 Q So then is it fair to say your understanding of
14 the valve of Schaffer that's depicted in Figures 1 and 31
15 here could be used for aspiration by attaching a catheter
16 to one end and some vacuum source to the other end such as
17 a syringe?
18 A **Well, the vacuum source should be attached to a Y**
19 **adapter that's on the Luer, the connecting member, which**
20 **was typically a Luer type, rotating Luer connector.**
21 **L-u-e-r.**
22 Q Is your answer complete?
23 A **I think so.**
24 Q All right. So this language that says the
25 receiving member could be attached to a syringe, that you

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1 quote just below the figures on page 40, that's not how
2 you would use the valve of Schaffer for aspiration,
3 correct, you would attach it somewhere else, the syringe
4 someplace else or the vacuum source somewhere else,
5 correct?
6 MR. STOWELL: Objection. Misstates testimony.
7 THE WITNESS: It could be attached at the proximal
8 end. A Y-arm adapter could be attached to the receiving
9 member labeled 45. The Y-arm portion could be attached to
10 your vacuum source. And the, you know, more proximal
11 portion could be -- it would allow you to insert another
12 catheter within the aspiration catheter.
13 BY MR. HAMILTON:
14 Q And so where would the source of aspiration be
15 connected to this valve shown in Figures 1 or 31?
16 A **Let me look at... I'd like to look at the**
17 **Garrison reference.**
18 Q Is that because Garrison actually shows
19 aspiration and Schaffer does not?
20 MR. STOWELL: Objection --
21 THE WITNESS: No.
22 BY MR. HAMILTON:
23 Q Does Schaffer disclose aspiration?
24 A **I'll look at the language in Schaffer but... to**
25 **confirm where they say it. I mean, Schaffer certainly**

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1 says it's used for fluid (indiscernible utterance) stasis
2 valve for use with catheters --
3 THE STENOGRAPHIC REPORTER: I'm sorry. You're
4 speaking a bit fast.
5 THE WITNESS: Sorry.
6 THE STENOGRAPHIC REPORTER: It's used for fluid. What
7 was that?
8 THE WITNESS: Schaffer says in the paragraph 2 that
9 the application relates to catheters, in particular to a
10 composite fluid stasis valve for use with catheters. The
11 next paragraph talks about they're commonly used to
12 prevent loss of fluids from insertion site of a catheter
13 or interventional system.
14 So it's not limited to aspiration catheters.
15 It's more general for many types of catheters.
16 BY MR. HAMILTON:
17 Q And it doesn't say specifically it could be used
18 with an aspiration catheter; isn't that correct?
19 A **I didn't see the aspiration word in there, but**
20 **catheter's more general than aspiration catheter.**
21 Q And then as I understand what you've written here
22 on page 40 of your declaration, you're explaining that the
23 valve in Schaffer could be used with an aspiration
24 catheter because a syringe could be connected to Item 45.
25 Is that correct?

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1 **A In one option, a syringe could be connected to**
2 **receiving member 45.**
3 Q And the quote from Schaffer is not related to
4 aspiration, is it, it's about fluid or gas delivery, isn't
5 that correct?
6 **A I'd have to look at the Section 47.**
7 Q What do you mean Section 47? You mean
8 paragraph 49 that's cited by you?
9 **A 49, sorry.**
10 **Yeah, says what I said in the declaration, that**
11 **the receiving member 45 is in one option configured to**
12 **connect to a fluid or gas delivery system or device such**
13 **as a syringe, intravenous system or the like. The syringe**
14 **can be used for aspiration.**
15 Q Schaffer discloses the syringe is used for fluid
16 or gas delivery, doesn't it?
17 **A And a syringe can be used for aspiration.**
18 Q Schaffer doesn't say that, though, correct?
19 **A I'd have to look at every word in Schaffer again**
20 **or do a word search to find out if they used those terms.**
21 Q Okay. Let's limit it to this statement here.
22 This statement does not say that, does it, your quote from
23 paragraph 49 of Schaffer on page 40 of your declaration?
24 **A It's -- In one option, configured to connect to a**
25 **fluid or gas delivery system such as a syringe. And**

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1 **syringe can also create a vacuum.**
2 Q So this quote from paragraph 49 says, A fluid or
3 gas delivery system. And it gives examples, Such as a
4 syringe, intravenous system or the like. Is that correct?
5 MR. STOWELL: Objection. Misstates document.
6 THE WITNESS: In one option configured to connect to a
7 fluid or gas delivery system or device such as a syringe,
8 intravenous system or the like. That's what it says.
9 BY MR. HAMILTON:
10 Q And that connection is made at receiving member
11 45; is that correct?
12 **A In this option that they're describing.**
13 Q Does Figures 1 or 31 show any place else where
14 you could attach a syringe?
15 **A It doesn't show it.**
16 Q If you could take a look at page 47 of your
17 declaration. You see the figure on page 47?
18 **A Yes.**
19 Q Is that figure from another Schaffer reference,
20 and we'll -- you've referred to it as Schaffer 616. So
21 just to be clear, as we're talking now, if I'm going to
22 refer to this other Schaffer reference, I'm going to use
23 your nomenclature 616. And if I say Schaffer, we mean
24 Exhibit 1005. Is that fair?
25 **A Yes.**

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1 Q Okay. And this disclosure of a figure from
2 Schaffer 616, does that show a way to compress a lumen to
3 prevent flow or to seal the lumen?
4 MR. STOWELL: Objection. Vague.
5 THE WITNESS: Figure 1 there shows a -- the form of a
6 portion, a valve that can be collapsed to include the
7 lumen of the hub, denoted as catheter hub 24 in the
8 figure.
9 BY MR. HAMILTON:
10 Q Please, go on if you have more.
11 **A And prevent blood or fluid from leaking during**
12 **intravascular procedures.**
13 Q So does this show another way to compress a
14 lumen, to seal the lumen besides a U-shape member, a
15 string or a wire?
16 MR. STOWELL: Objection. Vague.
17 THE WITNESS: The mechanism in there is a simple, kind
18 of a pinch valve mechanism.
19 BY MR. HAMILTON:
20 Q And that's different from a U-shape member in
21 Schaffer, a wire, or a string; is that correct?
22 **A It would seem to be a different mechanism than**
23 **the filaments compressing a central tubular member.**
24 Q And this time, you said filaments. You mean the
25 U-shape member in Schaffer, the wire in Hartley and the

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1 string of Eller, is that correct, when you say filaments?
2 MR. STOWELL: Objection. Asked and answered.
3 THE WITNESS: I'm using the term filament in general
4 for those members that can compress the central lumen,
5 including the U-shape members in Schaffer that could be
6 called filaments also.
7 BY MR. HAMILTON:
8 Q Okay. And then this Schaffer 616 shows another
9 way to compress the lumen compared to those three ways in
10 Schaffer, Hartley, and Eller; is that correct?
11 **A It's a different mechanism of action to compress**
12 **the tubular member.**
13 Q If you could turn to page 62 of your declaration,
14 Exhibit 1003.
15 **A Okay.**
16 Q This figure that you've created at the top of
17 page 62, do you see that?
18 **A Yes.**
19 Q Do you understand what's depicted there?
20 **A Yes.**
21 Q Is this a view of your interpretation of Schaffer
22 Figure 31 looking down the axis of the -- the lumen in
23 Schaffer?
24 **A Well, it's just -- it's showing just the**
25 **components of the collapsable tubular member and the**

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1 **filaments or actuators.**
2 Q So is it fair to say this is not a perpendicular
3 cross-section of those components? And by perpendicular,
4 I mean perpendicular to the axis of the lumen.
5 MR. STOWELL: Objection. Vague.
6 THE WITNESS: I might call it perspective view so you
7 could see both -- both U-shape actuators in the same view.
8 So it's not a cross-section.
9 BY MR. HAMILTON:
10 Q Okay. If you could turn to page 73 of your
11 declaration and then just kind of set that aside. And
12 then let's also pick up Exhibit 1005. That's Schaffer.
13 **A Okay.**
14 Q Exhibit 1005, paragraph 83 on page 27 discloses a
15 method of manufacturing the embodiments shown in Figures
16 30 through 34; is that correct?
17 **A Paragraph 83?**
18 Q That's right.
19 **A Yeah.**
20 **Yes.**
21 Q Now, I want you to compare that to what you
22 disclose the method of manufacturing a valve if Schaffer's
23 U-shape members were replaced with Hartley's string. And
24 that starts middle of the page, Notably, I believe.
25 **A Middle of page 73?**

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1 Q Yes.
2 **A Okay.**
3 Q So first, this paragraph 83 in Schaffer, are you
4 aware of any other disclosure in Schaffer regarding how to
5 manufacture the valve of Figures 30 through 34 other than
6 paragraph 83?
7 **A Yeah, with respect to assembling the final -- the**
8 **final full system, I think this is the paragraph that**
9 **gives, you know, examples of how to do that.**
10 Q Okay. And then on page 73 of your declaration,
11 you suggest how one would manufacture a valve if
12 Schaffer's U-shape members were replaced by a string. Is
13 that a fair characterization of the bottom half of
14 paragraph 73?
15 **A Yes. I say that, A person of ordinary skill**
16 **would have known of many ways to assemble the valve using**
17 **a string. For example, a tapered fixture could be used,**
18 **and alternatively, the order of operation could be changed**
19 **such that the string is looped around the seal module**
20 **prior to connecting the springs and the buttons.**
21 Q And all those ways that you disclose here on
22 page 73, those are different from how the valve is
23 manufactured as set forth in paragraph 83 in Exhibit 1005,
24 correct?
25 **A The first example I give that a person of**

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1 **ordinary skill might think of is using a tapered fixture,**
2 **cone-shaped tip on a fixture to go through the two loops**
3 **and then insert the valve within that fixture behind that**
4 **fixture. So that would use a similar order of operations**
5 **just adding a fixture to help place the tube through the**
6 **loops of the sutures.**
7 Q Is that fixture disclosed in Schaffer?
8 **A I don't believe they mention of any fixtures.**
9 Q Would that fixture be necessary if the U-shape
10 members held their shape in Schaffer, they were rigid,
11 they weren't a string?
12 MR. STOWELL: Objection. Vague.
13 THE WITNESS: Well, depending how rigid is rigid, if
14 they held their shape when the buttons were compressed,
15 then it's possible that their manufacturing steps listed
16 wouldn't require any additional tapered fixture that I'm
17 mentioning here.
18 BY MR. HAMILTON:
19 Q And the purpose of that tapered fixture is so
20 that the string holds its shape as the device is
21 assembled; is that correct?
22 **A Yeah, the tapered fixture would spread open the**
23 **strings so that the tube could be inserted within.**
24 Q The bottom of page 73, you have another method, I
25 believe, starting with, Alternatively. Is that another

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1 way you believe the valve of Schaffer could be
2 manufactured if the Schaffer's U-shape members were
3 replaced with a string?
4 **A This is an alternative that I think a person of**
5 **ordinary skill could easily come up with to change the**
6 **order of operation and loop the string, first, around the**
7 **seal member and then install the springs and buttons**
8 **after.**
9 Q And again, that alternative is also different
10 from the way that Schaffer discloses manufacturing or
11 assembling its valve, correct?
12 **A It is a different order of operations. As I**
13 **state in -- on page 74, a person of ordinary skill would**
14 **reasonably expect success and could probably come up with**
15 **several other options of how to assemble a valve with a**
16 **string.**
17 Q And those options that you just mentioned, those
18 several unnamed options those would also be different from
19 the method of assembling the valve as disclosed in
20 paragraph 83 of Schaffer, correct?
21 **A They would likely be different if it was a very**
22 **flexible string versus a relatively rigid U-shaped**
23 **actuators.**
24 Q If you go to the next page, paragraph 102,
25 page 74 of your declaration. And third line up from the

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1 bottom, you have the phrase, These finite predictable
2 options. And you can take a minute to read that, but what
3 I'm going to ask you is by these finite predictable
4 options, are you referring to Schaffer's U-shaped members,
5 Hartley's string, and Eller's wire?
6 **A Did you say bottom of 75?**
7 Q Bottom of 74.
8 **A Sorry.**
9 **So can you reask the question?**
10 Q So by these finite predictable options set forth
11 at the bottom of page 74, are you referring to Schaffer's
12 U-shape members, Hartley's string, and Eller's wire
13 member?
14 **A I think it's broader than that. The beginning of**
15 **102 -- Section 102, Schaffer states that valves generally**
16 **comprise a resilient material in compression with a**
17 **housing and a clamping member. There were a finite number**
18 **of ways to compress the resilient material. So... as you**
19 **noted there are several other clamping-type mechanisms**
20 **shown in Schaffer including Schaffer 616.**
21 **So I'm referring to the fact that there are**
22 **several known finite predictable options that could be**
23 **used to compress a tubular member.**
24 Q So there are more options than just Schaffer's
25 U-shape member, Hartley's string, and Eller's wire member,

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1 correct?
2 **A There are, shown in Schaffer and other places, in**
3 **Schaffer 16, other methods of compressing a tube and**
4 **creating a hemostatic valve.**
5 Q There are many other ways, aren't there?
6 MR. STOWELL: Objection. Vague.
7 THE WITNESS: There are several other ways.
8 BY MR. HAMILTON:
9 Q So at least there are several other ways in
10 Schaffer, right?
11 **A Yes.**
12 Q And there's another way, at least one, in
13 Schaffer's 616, correct?
14 **A Yes.**
15 Q We found another one in -- or at least two in
16 Wong, right?
17 **A Clamping, similarly clamping tubing together I**
18 **think similar to how some of the Schaffer's designs work,**
19 **but similar clamping mechanisms.**
20 Q As we sit here can you think of any other ways?
21 **A Well, we did use a simple hemostatic-type clamp**
22 **in some prototype that I worked on in the past. So simple**
23 **external clamp on a tube has been used for a long time to**
24 **create hemostasis.**
25 Q Any other ways you can think of as you sit here?

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1 **A That's what I can think of so far.**
2 Q Do you think there's other ways that exist?
3 MR. STOWELL: Objection. Vague.
4 THE WITNESS: Could be other ways that exist.
5 BY MR. HAMILTON:
6 Q How many other?
7 **A I don't know.**
8 Q So when you say, These finite predictable
9 options, you don't know how many other finite predictable
10 options there are; is that correct?
11 MR. STOWELL: Objection. Misstates testimony.
12 THE WITNESS: I don't know how many options could be
13 used to compress a tube.
14 BY MR. HAMILTON:
15 Q I'd like to mark a new exhibit, Exhibit 2006.
16 (Whereupon Deposition Exhibit 2006
17 was marked for identification.)
18 BY MR. HAMILTON:
19 Q I'm going to represent Exhibit 2006 is
20 Publication U.S. 2008/0087853 with the inventor name Kees,
21 K-e-e-s.
22 Do you recognize Exhibit 2006?
23 **A No, I don't believe I've seen it before.**
24 Q So as you sit here today, you don't believe
25 you've ever reviewed Exhibit 2006?

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1 **A Does not look familiar to me.**
2 Q Does 2006 show another way to seal a lumen, to
3 compress a lumen to seal it in a hemostasis valve?
4 MR. STOWELL: Objection. Outside the scope. Lack of
5 foundation.
6 THE WITNESS: So not having seen this or read it in
7 great detail, the abstract describes it as a pinch valve,
8 compressing a hose-like valve member. Which I'm going to
9 call a tubular member. And the pinching action is
10 actuated by an annular actuating ring that moves the
11 pinching elements axially to compress and uncompress the
12 central lumen.
13 BY MR. HAMILTON:
14 Q So is this another finite predictable option to
15 compress the lumen and seal the hemostasis valve?
16 MR. STOWELL: Objection. Vague.
17 THE WITNESS: It's still compressing a flexible tube.
18 The mechanism of moving the compressing members is
19 different than the one shown in Schaffer and Schaffer 616
20 that we've discussed so far.
21 BY MR. HAMILTON:
22 Q Is it similar to Schaffer's U-shape member?
23 **A I would characterize it as a different mechanism.**
24 Q Okay. So this is another finite predictable
25 option that's different from Schaffer's two U-shaped

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1 actuating members, Hartley's string, and Eller's wire
2 member, correct?
3 MR. STOWELL: Objection. Vague.
4 THE WITNESS: I believe it uses a different mechanism
5 to cause the pinching. The basic point of compressing a
6 tubular member is similar among, really, all of these, all
7 of these design options.
8 BY MR. HAMILTON:
9 Q So this is actually similar to Schaffer's
10 compression. Is that what you're saying?
11 **A I'm saying it's a different mechanism of action**
12 **to create the pinch force. It's a pinched valve coming in**
13 **on two sides. But the mechanism of pinching is a sliding**
14 **actuator, it appears.**
15 Q And Schaffer discloses a sliding actuator as
16 well, doesn't it?
17 **A Schaffer and the '012 patent describe a different**
18 **direction of actuating the actuator, actuating the**
19 **filament and compressing the lumen whereas this actuator's**
20 **acting longitudinally, to move the pinching elements to a**
21 **tighter location.**
22 Q And both include a sliding actuator, though,
23 correct? Schaffer and Kees?
24 MR. STOWELL: Objection. Vague.
25 THE WITNESS: Well, I would characterize the actuator

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1 in the '012 patent and in Schaffer as being linear
2 actuators. They're acting perpendicular to the direction
3 of the tubing. This actuator's actuating parallel to the
4 direction of the tubing. So it's -- I would characterize
5 it as a different mechanism to cause the pinch force.
6 BY MR. HAMILTON:
7 Q So is Exhibit 2006 an example of another option
8 for compressing a tubular member that is not a U-shaped
9 actuating member, not a string, and not a wire?
10 **A Seems to be another option to compress a tube to**
11 **create hemostasis.**
12 Q So this is an example of another -- what you
13 would call finite predictable option that you didn't think
14 of when I asked you for other ones, isn't it?
15 MR. STOWELL: Objection. Vague. Misstates testimony.
16 THE WITNESS: I did mention a pinch valve, and the
17 first line here is, A pinch valve. The mechanism of
18 actuating the pinch valve is different than what I might
19 have seen before.
20 BY MR. HAMILTON:
21 Q All right. Let's take a look at Exhibit 1009.
22 Is this the Schaffer 616 referenced in your
23 declaration?
24 **A Yes.**
25 Q If you look at Figures 3 to 6, does this show

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1 other ways of compressing a lumen besides Schaffer's
2 U-shape member, Eller's wire member, Hartley's string?
3 **A Yes. It shows a clamping mechanism. I would**
4 **characterize it also as a pinch valve mechanism.**
5 Q I'm going to hand you what's been previously
6 marked as Exhibit 1012. Do you recognize Exhibit 1012?
7 **A Yeah, it's Myers patent that I refer to in my**
8 **declaration.**
9 Q Does this show another way to compress a lumen in
10 a hemostasis mechanism?
11 MR. STOWELL: Objection. Vague.
12 THE WITNESS: Yeah, Myers discloses a pressure
13 responsive seal for the hemostasis mechanism, essentially
14 using bladder, let's say, to add pressure -- pressure
15 between the bladder and the outer frame in order to
16 compress the through-lumen or collapsible lumen.
17 BY MR. HAMILTON:
18 Q So is this another way different from the
19 previous ways of compressing the lumen we've discussed
20 today?
21 MR. STOWELL: Objection. Vague.
22 THE WITNESS: I would describe it as a different
23 mechanism of action to compress a lumen.
24 BY MR. HAMILTON:
25 Q Okay.

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1 **A Yeah.**
2 Q And this is not a U-shaped member or a wire or a
3 string, isn't it?
4 **A It is not.**
5 Q I'm going to hand you what's been previously
6 marked Exhibit 1014. Do you recognize Exhibit 1014?
7 **A Yes.**
8 Q Is this the Exhibit 1014 referenced in your
9 declaration?
10 **A Yes.**
11 Q Does this disclose the hemostasis valve?
12 **A Yes.**
13 Q Does it disclose a method of compressing a lumen
14 in a hemostasis valve?
15 **A If I can read the description in more detail...**
16 **so question again?**
17 Q Does Exhibit 1014 disclose yet another method of
18 compressing a lumen in a hemostasis valve?
19 MR. STOWELL: Objection. Vague.
20 THE WITNESS: I would characterize it as a rotating
21 hemostatic valve, where the cap is rotated to compress a
22 compressible member that creates hemostasis. So... it's
23 similar to most historical -- the vast majority of
24 hemostatic valves in used today, I think are rotating
25 hemostasis valves, and this is an early example of that.

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1 BY MR. HAMILTON:
2 Q And this method disclosed in Exhibit 1001 --
3 excuse me, 1014 is not a U-shape member of Schaffer, it's
4 not a wire as Eller, it's not a string as Hartley,
5 correct?
6 **A It's not those things. I agree.**
7 Q So this is another way to compress a lumen in a
8 hemostasis valve beyond those three, correct?
9 **A Yes.**
10 Q I'm going to hand you another one, Exhibit 1015.
11 Do you recognize Exhibit 1015?
12 **A Yes.**
13 Q Is this the Exhibit 1015 referenced in your
14 declaration?
15 **A Yes.**
16 Q Does this Exhibit 1015 disclose the hemostasis
17 valve?
18 **A The abstract calls it, A hemostasis valve,**
19 **including a collapsible membrane and the portion of the**
20 **through-lumen. Fluid pressure in a chamber surrounding**
21 **the membrane assists in sealing the collapsible membrane**
22 **around the device.**
23 Q So does Exhibit 1015 disclose yet another method
24 of sealing a lumen that is not Schaffer's U-shape members,
25 Hartley's string, and Eller's wire?

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1 **A Well, that is pressure-based collapse which I**
2 **believe was also in one of the prior ones that we just**
3 **looked at, Myers. I would characterize them as very**
4 **similar to Myers where pressure is being used to collapse**
5 **the sleeve.**
6 Q Okay. So this is similar to Myers, but it's not
7 similar to Schaffer, Hartley, or Eller, correct?
8 MR. STOWELL: Objection. Vague.
9 THE WITNESS: I would agree it's a different method
10 of... different mechanism of action than those three you
11 mentioned.
12 BY MR. HAMILTON:
13 Q Does this reference disclose any other method of
14 collapsing a lumen besides pressure? I'll just point you
15 to Figure 3, if that's okay.
16 **A Figure 3 is a perspective view of the clamp used**
17 **in the hemostasis valve of Figure 2. Well, to my quick**
18 **reading of the descriptions, it seems like Figure 2 really**
19 **is just combining two prior mechanisms we talked about,**
20 **like a pinch valve shown in 60, possibly with the...**
21 **pressurizing the lumen. But it's not totally clear if**
22 **this is just a pinch valve to me.**
23 **But if it is a pinch valve, we've talked about**
24 **pinch valves before.**
25 Q Is Schaffer's embodiment Figures 30 through 34 a

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1 pinch valve?
2 MR. STOWELL: Objection. Vague.
3 THE WITNESS: Not in my understanding. And how we've
4 discussed it today, where a pinch valve usually has two
5 solid members compressing on the tubular member.
6 BY MR. HAMILTON:
7 Q Does Schaffer have two members that compress a
8 tubular member in Figures 30 through 34?
9 **A It is compressing -- those two actuating members**
10 **or filaments are compressing the central lumen, collapsing**
11 **the central lumen, yes.**
12 Q Do they pinch the central lumen?
13 **A I wouldn't call it a pinch valve. I think of a**
14 **pinch valve as coming from two sides, one or two sides.**
15 Q Did the U-shape members pinch the central lumen
16 embodiment shown in Figures 30 through 34?
17 **A They encircle and change the area as they move**
18 **outward.**
19 Q Well, in fact, they're side by side. They're
20 parallel so they can't pinch, can they?
21 MR. STOWELL: Objection. Vague.
22 THE WITNESS: In the pinch valves we've been
23 discussing, it's a rigid member that flattens a tube, is
24 how I'm using the term pinch valve. And I think most of
25 the other examples that I've characterized as pinch valves

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1 really are flattening a tube, not encircling to compress
2 the tube.
3 BY MR. HAMILTON:
4 Q And in those pinch valves, the two members are
5 opposite each other on the lumen, correct?
6 MR. STOWELL: Objection. Vague.
7 THE WITNESS: In some embodiments -- I'll look at
8 Schaffer. I believe they discussed at least one -- at
9 least one side can be compressed. It's shown in
10 Figure 26. Excuse me.
11 BY MR. HAMILTON:
12 Q And so for the embodiment, Figures 30 through 34,
13 the two U-shape members are not opposite each other.
14 They're parallel to each other. Is that correct -- I'll
15 withdraw the question.
16 Let's go back to paragraph 102. So we've just
17 discussed many different ways to compress a resilient
18 material in a hemostasis valve. Is that fair?
19 MR. STOWELL: Objection. Vague.
20 THE WITNESS: You said page 102?
21 BY MR. HAMILTON:
22 Q Paragraph 102, page 74 --
23 **A Sorry. We've discussed several different**
24 **mechanisms of action that are shown in several different**
25 **patents that are doing the same -- accomplishing the same**

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1 **end result of compressing a tubular member.**
2 Q And those are different from using a U-shape
3 member as in Schaffer, a string as in Hartley, and a wire
4 as in Eller, correct?
5 MR. STOWELL: Objection. Vague.
6 THE WITNESS: Can you list those three again? Sorry.
7 BY MR. HAMILTON:
8 Q U-shape members in Schaffer, string in Hartley,
9 and a wire in Eller.
10 **A I would characterize the mechanism of action as**
11 **being different for most of these that we've reviewed that**
12 **have a pinch valve or an inflatable tubular member.**
13 Q Did any of those references include a U-shape
14 member as disclosed in Schaffer?
15 **A The references we just looked at, no. I think**
16 **the '012 patent is the closest. But...**
17 Q I guess the closest in the references we just
18 looked at was the V-shape member in one of them, right?
19 MR. STOWELL: Objection. Vague.
20 THE WITNESS: I would still characterize it as a
21 different mechanism. More like a pinch valve.
22 BY MR. HAMILTON:
23 Q Did any of those references disclose a string
24 like Hartley?
25 **A I don't believe they did.**

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1 Q Did any of those references disclose a wire like
2 Eller?
3 **A No.**
4 Q Okay. So I just want to be clear. On page 74
5 when you say, These finite predictable options, you're not
6 listing all the options in this paragraph; is that
7 correct?
8 **A Well, as I said earlier, there are a finite**
9 **number of -- there were a finite number of ways to**
10 **compress the resilient material in a hemostasis valve.**
11 **Hartley and Schaffer disclosed two of them, U-shape**
12 **members versus strings. I would still say that those are,**
13 **you know -- the few other types that we've talked about**
14 **today are still a finite number. There's not an infinite**
15 **number of ways to compress a piece of tubing.**
16 Q And you don't know what that finite number is as
17 you sit here today, do you?
18 **A I don't.**
19 Q If you can turn to the next page 76 -- not the
20 next page but two pages later. And I want to ask about
21 this figure on page 76 of your declaration, Exhibit 1003.
22 **A Okay.**
23 Q So I just want to understand in this figure, this
24 is -- this is Figure 32 from Schaffer that has some
25 changes to it. Is that correct?

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1 **A Figure 32 from Schaffer, where I've sketched in**
2 **Hartley's string or filament showing it going through the**
3 **cap on each end and secured with a knot on the outside of**
4 **the actuator button -- not cap, actuator button.**
5 Q So is this a representation of what one skilled
6 in the art would come up with in combining Schaffer and
7 Hartley?
8 **A I believe it's a reasonable...**
9 Q This is your opinion, isn't it, this is the
10 combination of those two references?
11 **A Yes. That is a person of ordinary skill would**
12 **have recognized that it uses similar mechanisms to**
13 **compress the seal. And replacing it with a string would**
14 **be a reasonable change that a person of skill in the art**
15 **would consider.**
16 Q And in this proposed combination, just to be
17 clear, you've depicted a single continuous string that
18 goes from one button around the lumen and to the other
19 button; is that correct?
20 **A That's what it shows.**
21 Q And if you could turn to page 89. I got the same
22 questions about your combination of Schaffer and Eller.
23 So is this a depiction of your -- what you believe a
24 person of skill in the art combining Schaffer and Eller,
25 this is what that device would look like?

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1 **A I think it's one simple option of what a person**
2 **of skill in the art might find was easy to implement and**
3 **workable.**
4 Q And this is the only option in your declaration,
5 isn't it?
6 **A This is the only image I provided, yeah.**
7 Q Are there any other options in the combination
8 you provide in your declaration?
9 **A I don't believe so.**
10 Q And then in this combination, this depicts, just
11 like in the last figure, a single wire that runs from one
12 button around the lumen and to the other button; is that
13 correct?
14 **A Yes.**
15 Q If you could turn to page 118 of your
16 declaration. There's paragraph 49.
17 **A If we're going to be going much longer, can we**
18 **take a break?**
19 Q Let's take a break, perfect.
20 **A Yeah.**
21 THE VIDEOGRAPHER: We are going off the record at
22 1408.
23 (Recess taken.)
24 THE VIDEOGRAPHER: We are back on the record at 1417.
25

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1 BY MR. HAMILTON:
2 Q Do you understand you're still under oath?
3 **A Yes.**
4 Q Did you communicate with anyone regarding the
5 substance of your testimony here today during the break?
6 **A No.**
7 Q Review any documents?
8 **A No.**
9 Q Read anything related to the case?
10 **A No.**
11 Q All right. If you could go now back to that
12 paragraph... page 118, paragraph 149. Let me know when
13 you're ready for a question.
14 **A Okay.**
15 Q So I understand paragraph 149 to be your
16 testimony that if Schaffer's valve Figures 30 through 34
17 didn't form an adequate seal when there was a pressure
18 differential across the valve, there would be a couple of
19 simple options to adjust the valve that one skilled in the
20 art would do. Is that a fair statement?
21 **A Yeah, as I said, in paragraph 149, a person of**
22 **ordinary skill had several simple options to adjust the**
23 **seal, including adjusting Schaffer's spring strength,**
24 **adjusting the resilience or compressibility of the seal**
25 **module, adjusting the shape, flexibility, and/or**

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1 **dimensions of the actuating members to more closely**
2 **conform to the shape of the seal module and any tools**
3 **inserted through the valve.**
4 Q And this paragraph talks about if there wasn't a
5 sufficient seal with a pressure differential, but these
6 options would apply if there wasn't a sufficient seal, if
7 there was a vacuum, or in any other circumstances. Is
8 that fair?
9 **A Yes. If the valve wasn't sealing as designed or**
10 **as desired as necessary, then I think an engineer would**
11 **make -- would have options to adjust different aspects of**
12 **this design to enhance that sealing capability.**
13 Q And you identified -- you just read for the
14 record. You've identified here three options; is that
15 correct?
16 **A I mentioned as examples, some simple options,**
17 **spring strength, resilience of the seal module,**
18 **compressibility of the seal module, basically mechanical**
19 **characteristics of the seal module. Shape, flexibility,**
20 **dimensions of the actuating members are the three or four**
21 **things I've mentioned. Those are the primary components**
22 **that create the seal.**
23 **So that's what an engineer would focus on, I'm**
24 **sure.**
25 Q All right. Let's take the first one: Adjusting

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1 Schaffer's spring strength to apply additional force to
2 seal the valve. Would adjusting Schaffer's spring
3 strength to apply additional force to seal the valve
4 require any other modifications to Schaffer's design?
5 **A It would depend on the tubular member, the**
6 **actuating, the U-shape actuating members, you know, how**
7 **strong each of those members are. So could be just**
8 **adjusting the spring, and it could be adjusting other**
9 **aspects of the mechanism.**
10 Q And by other aspects, do you mean the strength of
11 the materials so they don't have an issue with the
12 additional spring strength, is that what you mean by that?
13 **A Well, changing the spring strength, it may be**
14 **less or more spring strength, is more effective. So as**
15 **the spring strength adjusts, it's possible that the**
16 **compression tube might need to get thinner or thicker.**
17 **Might use a harder or softer material. Might use a**
18 **material that has better recovery properties, better shape**
19 **(indiscernible utterance) memory properties.**
20 THE STENOGRAPHIC REPORTER: I'm sorry. Better shape?
21 What was that?
22 THE WITNESS: Shape memory properties.
23 THE STENOGRAPHIC REPORTER: Thank you.
24 BY MR. HAMILTON:
25 Q Okay. And I noticed in that list, you talked

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1 about changing materials, but you didn't talk about
2 changing the configuration or the arrangement of
3 components in the embodiment disclosed in Figures 30
4 through 34. Those would stay the same, correct?
5 **A I certainly think an engineer could make a wide**
6 **range of sealing capabilities by adjusting those**
7 **components. Because those components really create the**
8 **mechanism of action. There probably wouldn't be a need to**
9 **change the Luer, for instance, or the buttons necessarily.**
10 **Unless from a user standpoint, the button's size might**
11 **need to be different, but...**
12 Q Okay. And then with that adjustment to spring
13 strength, would the method of assembling the device set
14 forth in paragraph 83 that we previously discussed apply
15 to that modification, you could still manufacture or
16 assemble a device based on that method?
17 **A I would assume that would be still a reasonable**
18 **option, reasonable order of operations to assemble.**
19 Q Okay. Let's talk about --
20 **A This valve.**
21 Q Sorry.
22 **A Assemble this valve.**
23 Q Okay. So let's talk about the next item here:
24 Adjusting the resilience and compressibility of the seal
25 module that forms the valve's lumen. What does that

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1 phrase mean?
2 **A The material choice for that tubing, the**
3 **mechanical characteristics of that tubing, the wall**
4 **thickness of that tubing, the resilience meaning like**
5 **shape memories, so it recovers back in the uncompressed**
6 **configuration.**
7 Q Would one way to adjust the resilience and
8 compressibility of the seal module that forms the valve's
9 lumen be to include third seal member 165, would that
10 improve the seal?
11 MR. STOWELL: Objection. Vague.
12 THE WITNESS: I don't know what the mechanical
13 characteristics are of seal member 165.
14 BY MR. HAMILTON:
15 Q Does Schaffer disclose any characteristics of
16 third seal member 165?
17 **A They give options for I think only shore hardness**
18 **options but no other characteristics that would be helpful**
19 **in determining what the mechanical characteristics are of**
20 **that tube.**
21 Q And that third seal member 165, that's included
22 in Schaffer to form a complete seal; isn't that correct?
23 MR. STOWELL: Objection. Vague.
24 THE WITNESS: I believe they showed it only as seal
25 module 100 in these figures. And one of the three... I'll

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1 take that back. I'm going to look at the terms in -- the
2 terms that they use in Schaffer.
3 Let's see. Yeah, as it says on paragraph 75, The
4 seal module 100 is formed of one or more seal members, as
5 discussed above. So I believe it's using one of the
6 materials that they talk about very broadly in this
7 patent.
8 BY MR. HAMILTON:
9 Q So wouldn't including third seal member 165
10 improve the sealing of the seal module?
11 MR. STOWELL: Objection. Vague.
12 THE WITNESS: I don't know what the characteristics
13 are of that 165 module.
14 BY MR. HAMILTON:
15 Q Isn't third seal member 165 a member that is used
16 to seal in Schaffer, isn't that the point of seal member
17 165 -- third seal member 165?
18 MR. STOWELL: Objection. Vague.
19 THE WITNESS: I think a person of skill in the art
20 would be able to find an appropriate material, and that
21 material isn't really specified directly or clearly in the
22 Schaffer patent.
23 BY MR. HAMILTON:
24 Q So your issue with third seal member 165 is you
25 don't know what material would form a better seal, if 165

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1 was made of that material, you wouldn't know what material
2 to choose; is that right?
3 MR. STOWELL: Objection. Vague. Compound.
4 THE WITNESS: What's your question?
5 BY MR. HAMILTON:
6 Q I'll withdraw the question.
7 Let's look at paragraph 60 of Schaffer. Schaffer
8 says the highly -- excuse me, paragraph 60 says, The
9 highly compliant third seal member 165 seals around a
10 variety of profile shapes and diameters 194 of the lumen
11 193. Do you see that?
12 **A Sorry. Was that 58?**
13 Q 60.
14 **A Sorry. I see that.**
15 Q So doesn't Schaffer disclose a third central seal
16 member 165 that improves the seal of Schaffer?
17 MR. STOWELL: Objection. Vague.
18 THE WITNESS: They're describing a highly compliant
19 seal member. I don't know if it would improve the seal or
20 not improve the seal.
21 BY MR. HAMILTON:
22 Q So as you read that sentence, you don't know the
23 purpose of that third central seal member 165 in Schaffer?
24 **A Well, purpose of all these is to seal.**
25 Q And the purpose of 165 is specifically to seal,

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1 correct?
2 MR. STOWELL: Objection. Vague.
3 THE WITNESS: They use it in the central member for
4 some of the earlier iterations or earlier design options.
5 And once again, it's not shown in 30 through 34 figures.
6 BY MR. HAMILTON:
7 Q So I think -- I won't discuss whether it's shown
8 or not, but let's just talk about if it's included, it
9 improves the seal, correct?
10 MR. STOWELL: Objection. Vague. Asked and answered.
11 THE WITNESS: All right. I don't know if it improves
12 the seal or not.
13 BY MR. HAMILTON:
14 Q The point of the third seal member is to improve
15 the seal, isn't it?
16 MR. STOWELL: Objection. Vague. Asked and answered.
17 THE WITNESS: I don't know about improve the seal.
18 The point of the tubular member is to be able to create a
19 seal within these designs.
20 BY MR. HAMILTON:
21 Q And including the third seal member 165 allows
22 that seal module to seal around a variety of profile
23 shapes and diameters, doesn't it?
24 **A They show that in some of the figures in... some**
25 **of the earlier figures in Schaffer --**

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1 Q So --
2 **A -- sealing around profile shapes shown in Figures**
3 **18, 19.**
4 Q So wouldn't the simplest way to improve any seal
5 in Schaffer would be just to include the third seal member
6 165 that's already disclosed in Schaffer?
7 MR. STOWELL: Objection. Vague.
8 THE WITNESS: I don't believe that they describe the
9 material choice in enough detail with wall thickness,
10 hardness. Durometer is one thing they list and give a
11 wide range of, such that a person of skill in the art
12 would know to go and order that piece of tubing to put it
13 in.
14 BY MR. HAMILTON:
15 Q So are you saying with the description of the
16 third seal member in Schaffer, one skilled in the art in
17 2017 couldn't pick a material that would allow Schaffer to
18 seal, is that your testimony?
19 MR. STOWELL: Objection. Misstates testimony.
20 THE WITNESS: I think they gave a wide range of one
21 parameter, shore hardness. They list some potential
22 materials as examples and hardness ranges as examples. I
23 think a person skilled in the art might have a starting
24 point. But to really make it work in the first place or
25 to make it work better, probably experimentation and

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1 engineering, judgment, and work is involved.
2 BY MR. HAMILTON:
3 Q And that would be undue experimentation in your
4 mind, you couldn't figure that out from Schaffer, a person
5 of skill in the art?
6 MR. STOWELL: Objection. Misstates testimony.
7 THE WITNESS: I think it would be fairly simple to
8 specify and order different hardnesses, different wall
9 thicknesses of flexible tubing to be able to optimize a
10 design.
11 BY MR. HAMILTON:
12 Q Okay. So a person of ordinary skill in the art
13 in 2017 could include a third seal member 165 to ensure
14 that Schaffer seals, correct?
15 MR. STOWELL: Objection. Vague.
16 THE WITNESS: I don't know the definition of 165 or
17 its material properties. I think an engineer would be
18 able to find a piece of tubing that would work well. I'm
19 not convinced that 165 is some special magic tubing that's
20 well-delineated in this document.
21 BY MR. HAMILTON:
22 Q So someone skilled in the art could figure out
23 what to use to get a good seal; is that right?
24 **A I believe a person skilled in the art would be**
25 **able to find the right material, wall thickness, other**

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1 **physical parameters in order to create an adequate seal.**
2 Q So in your declaration, you say just that,
3 someone will be able to adjust the resilience and
4 compressibility of the seal module that forms the valve's
5 lumen, yet you're telling me that someone couldn't figure
6 out how to do that based on Schaffer's disclosure of 165
7 that actually gives you materials to make the seal module,
8 right?
9 MR. STOWELL: Objection. Misstates testimony.
10 Compound. Argumentative.
11 BY MR. HAMILTON:
12 Q It gives you ranges of properties for the
13 materials. Right?
14 **A It lists one property, shore hardness.**
15 Q It gives you things that the materials can be
16 compounded with, correct?
17 **A Yeah, it lists some that could be modified by**
18 **compounding them. Such materials are commonly known as**
19 **C-Flex or Kraton. There's two materials they listed.**
20 THE STENOGRAPHIC REPORTER: I'm sorry. You said
21 C-Flex or what?
22 THE WITNESS: C-Flex or Kraton, K-r-a-t-o-n.
23 And a wide range of 5 to 15 in the shore A
24 hardness, so they're providing a range of options. It's
25 not a specific mandatory, this is a tube that works, and

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1 we know it works.
2 BY MR. HAMILTON:
3 Q And it also says you could use modified vinyl,
4 silicone, polyurethane or a combination thereof, right,
5 there's more materials provided, correct?
6 **A There are more materials provided. Mm-hmm.**
7 Q Now, let's contrast this. This is where I'm
8 having trouble. This is a description of a seal module
9 that you say you wouldn't know if it would work or not,
10 and you don't know if someone skilled in the art could
11 make one that would seal. Yet in your declaration, you
12 give the simple statement, Adjusting the resilience and
13 compressibility of the seal module that forms the valve
14 lumen.
15 You don't give examples of any materials, any
16 properties, or anything else, and yet you say it would be
17 simple for a person of ordinary skill to do that to
18 improve the seal.
19 MR. STOWELL: Objection. Misstates testimony.
20 Compound. And I don't think there's a question pending.
21 BY MR. HAMILTON:
22 Q So is it your testimony that based on the
23 disclosure in Schaffer of the third seal member 165, one
24 couldn't manufacture something that seals properly. Yet
25 with no disclosure, just the idea that you need to adjust

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1 the seal module, someone skilled in the art could
2 manufacture something that seals properly if there is an
3 issue with sealing; is that correct?
4 MR. STOWELL: Objection. Vague. Compound.
5 THE WITNESS: Well, what I'm talking about in the
6 disclosure is if it needed adjustment, that there would be
7 fairly simple things of changing materials or the
8 properties of materials. I could have put the wall
9 thickness of the materials in there.
10 You know, something like wall thickness isn't
11 mentioned at all for that component in Schaffer. So...
12 combination of what's shown here, plus an engineer's
13 experience with these materials or other materials is
14 probably what's required to make Schaffer's design work in
15 the first place or to be optimized if it didn't work in
16 the first prototype that you build.
17 BY MR. HAMILTON:
18 Q So a person of ordinary skill in 2017 could make
19 Schaffer's device work to seal under pressure, under
20 vacuum or neither by adjusting the resilience and
21 compressibility of the seal module that forms the valve
22 lumen; is that correct?
23 **A Well, I also list other aspects of the spring and**
24 **the U-shaped actuating members. So I think altogether**
25 **these are given as examples. And when I say resilience**

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1 **and compressibility, that also involves, you know,**
2 **material choice, wall thickness. Those are affected.**
3 **Wall thickness, for instance, diameter affects resilience**
4 **and compressibility along with material choice.**
5 **So they are a number of different factors that**
6 **could be adjusted as required to optimize a design.**
7 Q So maybe I misunderstood the statement here.
8 Because you list these three phrases, and you've got an or
9 between them. Are you saying all three things would be
10 needed in order to improve Schaffer's sealing, or would
11 any one of these independently improve Schaffer's sealing
12 sufficient?
13 **A I'm not sure. It could be and/or a combination**
14 **of different aspects. Excuse me.**
15 Q You don't know of these three things, if they're
16 all required or not, is that your testimony here today?
17 MR. STOWELL: Objection. Misstates testimony.
18 Counsel, you're getting a little argumentative. Relax.
19 THE WITNESS: I think it could be, or you could adjust
20 the spring strength or the actuating members or the
21 characteristics of the seal module. It could be any one
22 of those things. It could be a combination, but I think a
23 person of ordinary skill in the art would be able to
24 figure out the appropriate steps and prototypes to make in
25 order to optimize a design if it weren't sealing

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1 perfectly, the first iteration you made.
2 BY MR. HAMILTON:
3 Q If you could turn to paragraph 38 of your
4 declaration. While you're reading that, I'll tell you
5 what my question is. I'm going to ask what you meant by
6 the uniform collapse at the end of that paragraph.
7 **A Mm-hmm.**
8 Q So what did you mean by the uniform collapse in
9 that paragraph?
10 MR. STOWELL: Objection. Misstates the document.
11 THE WITNESS: Yeah, so in the document, Column 17 for
12 the '012 patent says that, In some embodiments, an
13 elongated member could comprise (indiscernible utterance)
14 a compliant tubular structure that can be, for example, a
15 thin wall compliant tubular structure --
16 THE STENOGRAPHIC REPORTER: Sorry. You're speaking
17 really --
18 THE WITNESS: Sorry. I'm going fast. I'll slow down.
19 Sorry.
20 The thin wall structure of the elongate member
21 132 can facilitate the collapse and specifically, the
22 uniform collapse of the elongate member and the sealing of
23 the elongate member. So I'm reading that to mean the
24 uniform collapse of... for instance, if the tubular
25 member was thick on one side and thin on the other, it may

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1 not collapse uniformly.
2 So a thin wall tube tends to collapse uniformly,
3 when it's constricted as in Figure 2.
4 BY MR. HAMILTON:
5 Q Okay. So I see you were using the term collapse
6 uniformly to try to explain uniform collapse and making a
7 little hand movement. I just want to get something on the
8 record so it's in the transcript of what you mean by that.
9 So when you say uniform collapse or collapse
10 uniformly, does that mean it collapses equally around the
11 circumference?
12 MR. STOWELL: Objection. Misstates testimony.
13 THE WITNESS: I'm reading uniform collapse in the
14 segment as being that one side is not folding inward,
15 let's say, invaginating, which can happen when you
16 collapse a round tube. If a tube is thicker on one side
17 than the other, then it can be kind of nonuniform collapse
18 and the thin section collapses more easily. So I'm
19 reading the section as being it's collapsing downward as
20 it changes in circumference, area, diameter.
21 Instead of folding inward, I think invagination
22 is a common term.
23 BY MR. HAMILTON:
24 Q And would that change in circumference, area,
25 diameter have to be uniform for uniform collapse?

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1 MR. STOWELL: Objection. Vague.
2 THE WITNESS: Not so sure.
3 BY MR. HAMILTON:
4 Q Okay. So if the circumference, area, and
5 diameter doesn't change uniformly. And really, it's
6 diameter because area and circumference are going to
7 change regardless. If the diameter doesn't change
8 uniformly across the entire range of diameters of the
9 tubular member, would that be uniform collapse?
10 MR. STOWELL: Objection. Asked and answered.
11 THE WITNESS: Yeah, I think this segment is really
12 talking about the tube coming inward instead of folding
13 inward. The tube compressing inward toward the center and
14 instead of collapsing, let's say, a portion of it
15 collapsing inward or folding inward.
16 BY MR. HAMILTON:
17 Q Do you have Exhibit 1007 -- this is the Eller
18 reference -- handy, if you could open that up to -- let me
19 find a good figure.
20 Figure 10-C or 19, either one. Let's do 19. Do
21 you understand what's depicted in Figure 19?
22 **A Yes.**
23 Q Is that uniform collapse?
24 MR. STOWELL: Objection. Vague.
25 THE WITNESS: I guess I would characterize it as more

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1 of an infolding-type collapse.
2 BY MR. HAMILTON:
3 Q And what about if you look at the -- kind of the
4 serious from Figure 9-A to Figure 10-C. Is that showing
5 uniform collapse?
6 **A Well, I think the end result at 10-C with no tool**
7 **inside, is showing what I would characterize more as an**
8 **infolding collapse.**
9 Q And Figure 10-B, is that showing the start of
10 that infolding, is that fair?
11 **A I believe so.**
12 Q Why don't we -- I'm getting close to the end.
13 Why don't we take another five-minute break. We'll see if
14 I have anything else.
15 **A Okay.**
16 THE VIDEOGRAPHER: We are going off the record at
17 1452.
18 (Recess taken.)
19 THE VIDEOGRAPHER: We are back on the record at 1459.
20 BY MR. HAMILTON:
21 Q Mr. Thornton, do you understand you're still
22 under oath?
23 **A Yes.**
24 Q Did you communicate in any way with anybody
25 regarding your testimony during the break?

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1 **A No.**
2 Q Did you review any documents during the break?
3 **A No.**
4 MR. HAMILTON: I have no further questions. I'll pass
5 the witness.
6 MR. STOWELL: I have no questions for the witness.
7 MR. HAMILTON: All right. Well, thank you for your
8 time today.
9 THE WITNESS: Sure.
10 THE VIDEOGRAPHER: This marks the end of the
11 deposition of Troy L. Thornton. We are going off the
12 record at 1459.
13 (WHEREUPON THE DEPOSITION WAS
14 CONCLUDED AT 2:59 P.M.)
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1 Please be advised I have read the
foregoing deposition, pages 1 through
2 142, inclusive.
3 I hereby state there are:
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(Check one)_____ no corrections
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TROY THORNTON
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1 WITNESS'S CHANGES OR CORRECTIONS
2
3 NOTE: If you are adding to your testimony, print
the exact words you want to add. If you are
4 deleting from your testimony, print the exact
words you want to delete. Specify with "Add"
5 or "Delete" and sign this form.
6
Deposition of: TROY THORNTON
7 Case Title: IMPERATIVE V. INARI
Date of Deposition: JUNE 25, 2025
8
9 I,_____have
10 the following corrections to make to my deposition:
11 Page Line Change/Add/Delete
12
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1 CERTIFICATE OF SHORTHAND REPORTER/STENOGRAPHER
2
3 I, Christa Yan, Certified Shorthand/Stenographic Reporter
within and for the State of California do hereby certify:
4
5 That Troy Thornton, the Witness whose deposition is
hereinbefore set forth, was duly sworn by me before the
6 commencement of such deposition and that such deposition
was taken before me and is a true record of the testimony
7 given by such witness.
8 I further certify that both parties were represented by
counsel at the deposition.
9
I further certify that the deposition of Troy Thornton,
10 occurred at the offices of Knobbe Martens San Francisco on
June 25, 2025, commencing at 9:01 a.m. to 2:59 p.m.
11
12 I further certify that I am not related to any of the
parties to this action by blood or marriage, I am not
13 employed by or an attorney to any of the parties to this
action, and that I am in no way interested, financially or
14 otherwise, in the outcome of this matter.
15
16 IN WITNESS WHEREOF, I have hereunto set my hand this 2nd
day of July 2025.
17
18
19 _____
20 CERTIFIED SHORTHAND/STENOGRAPHIC REPORTER
IN AND FOR THE STATE OF CALIFORNIA
21
22
23
24
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