

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

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TENNANT COMPANY, Case IPR2021-00625  
Patent No. RE 45,415  
Petitioner,  
v.  
OXYGENATOR WATER TECHNOLOGIES, INC.,  
Patent Owner.

**COPY**

Video Deposition of  
Ralph E. White, Ph.D.  
Wednesday, February 9, 2022  
8:05 a.m.

Court Stenographer:  
Patrick J. Mahon  
Registered Merit Reporter  
Certified Realtime Reporter

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1 APPEARANCES:  
2  
3 FOR THE PETITIONER:  
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ALSO PRESENT:  
Adam Wallin, Videographer

\* \* \* \* \*

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4 By Mr. Louwagie, page 259  
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19 Tennant Bubble Size Measurements  
20  
21 \* \* \* \* \*  
22 ACCESS TO THE ELECTRONIC ORIGINAL TRANSCRIPT FILE  
HAS BEEN GRANTED TO FREDRIKSON & BYRON, P.A.  
\* \* \* \* \*

Page 5

1 DEPOSITION, held pursuant to NOTICE  
 2 OF TAKING DEPOSITION, held at the offices of Carlson  
 3 Caspers Vandenburg & Lindquist, P.A., 225 South Sixth  
 4 Street, Suite 4200, Minneapolis, Minnesota, before  
 5 Patrick J. Mahon, a Registered Merit Reporter and  
 6 Certified Realtime Reporter, and a Notary Public in and  
 7 for the County of Hennepin, State of Minnesota.  
 8 WHEREUPON, the following proceedings were  
 9 duly had:  
 10 THE VIDEOGRAPHER: We are on the record.  
 11 This is the video recorded deposition of  
 12 Dr. Ralph E. White being taken on February 9, 2022. The  
 13 time now is 8:05 a.m.  
 14 This deposition is being taken in the matter  
 15 of Tennant Company versus Oxygenator Water Technologies,  
 16 Incorporated, in the United States Patent and Trademark  
 17 Office, before the Patent Trial and Appeal Board,  
 18 Case Number IPR2021-00625.  
 19 This deposition is taking place in  
 20 Minneapolis, Minnesota.  
 21 My name is Adam Wallin. I'm the videographer  
 22 representing Twin West Reporting.

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1 Will counsel please identify themselves for  
 2 the record.  
 3 MR. JOHNSON: This is Scott Johnson, and I'm  
 4 here with my partner Adam Steinert, and we represent the  
 5 petitioner in this matter.  
 6 MR. LOUWAGIE: And this is Nathan Louwagie  
 7 from Carlson Caspers on behalf of the patent owner  
 8 Oxygenator Water Technologies, Inc., and Aaron Pederson is  
 9 here with me.  
 10 THE VIDEOGRAPHER: Will the court reporter  
 11 please swear in the witness.  
 12 (The oath was administered by the court stenographer.)  
 13 WITNESS RESPONSE: I do.  
 14 RALPH E. WHITE, PH.D.,  
 15 a witness in the above-entitled proceedings,  
 16 after having been first duly sworn,  
 17 testified under oath as follows:  
 18 EXAMINATION  
 19 BY MR. JOHNSON:  
 20 Q Good morning, Dr. White.  
 21 A Good morning, Scott.  
 22 Q Good to see you again.

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1 A You too.  
 2 Q Can you please state your name for the record, sir.  
 3 A Ralph Edward White.  
 4 Q And, Dr. White, I know we've talked to each other before,  
 5 or with each other before in the District Court  
 6 litigation.  
 7 You understand that we are here today because  
 8 there are proceedings now pending before the Patent and  
 9 Trademark Office, Patent Trial and Appeal Board?  
 10 A I understand that.  
 11 Q Okay. And you submitted a few declarations in that, what  
 12 I'm going to call the IPR proceeding; do you understand  
 13 that?  
 14 A Yes, I understand that.  
 15 Q Okay. One of those declarations has your CV attached to  
 16 it. Do you recall doing that?  
 17 A Yes.  
 18 Q Okay. And my question for you, I guess, is, has anything  
 19 on your CV changed between the time that you submitted it  
 20 to the PTAB and today?  
 21 MR. LOUWAGIE: Objection to form.  
 22 A Not that I can recall. I may have added a publication,

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1 but nothing substantial.  
 2 BY MR. JOHNSON:  
 3 Q Okay.  
 4 (Exhibit 2109 was premarked for  
 5 identification.)  
 6 BY MR. JOHNSON:  
 7 Q I'm going to hand you what's been submitted and already  
 8 marked in this IPR proceedings as your first declaration.  
 9 It's OWT Exhibit 2109. Here you go, sir.  
 10 Dr. White, can you please review that  
 11 declaration real quick, just to make sure that that is a  
 12 true and accurate copy of Exhibit 2109?  
 13 A (Reviewing.)  
 14 MR. LOUWAGIE: Objection to form.  
 15 MR. JOHNSON: Counsel, what's wrong with the  
 16 objection to form here? I'm asking him to verify what  
 17 I've just given him a copy of.  
 18 MR. LOUWAGIE: He's not aware of it. He  
 19 hasn't looked at the docket. You can ask him if it's a  
 20 true and correct copy of the declaration he submitted, but  
 21 he doesn't know the exhibit number that was --  
 22 MR. JOHNSON: It's marked by you as

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1 Exhibit 2109.

2 MR. LOUWAGIE: Not by Dr. White.

3 MR. JOHNSON: This is cross-examination. And

4 I'm going to caution you about making too many objections

5 today. I'm not going to really tolerate it too much.

6 MR. LOUWAGIE: I'm going to object as I need

7 to.

8 MR. JOHNSON: I get it, but this is cross in

9 front of the PTAB. So please keep those limited.

10 BY MR. JOHNSON:

11 Q Does that look like the declaration that you submitted

12 initially in this matter, sir?

13 A Yes, it does.

14 Q All right. And if we go back to your CV that you

15 submitted in this matter, which, I believe, starts on

16 page 30 of your declaration there, sir, do you see that?

17 A Yes.

18 Q Okay. And there are some experiences that I wanted to

19 talk to you about, I guess, on those here. Aw, maybe it's

20 not in this one. I apologize.

21 Have you given testimony in other IPR

22 proceedings, sir?

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1 A Yes, I have.

2 Q Okay. Have you been deposed in those proceedings?

3 A Yes.

4 Q Okay. Do you know if the Patent Office ever instituted

5 IPR proceedings, instituted those proceedings?

6 A Yes, I think they did.

7 Q And which side did you represent? Did you represent the

8 patent owner or the petitioner?

9 A The patent owner.

10 Q Okay. And do you recall the outcome of those IPR

11 proceedings?

12 A It was protracted, and I don't think I was ever notified

13 of the outcome.

14 Q Okay. And you've been a professor of chemical

15 engineering. You were a professor for quite some time;

16 correct?

17 A Yes, that's true.

18 Q And you are aware of water electrolysis and what that is;

19 correct?

20 A Correct.

21 Q Okay. What is water electrolysis, sir?

22 A Well, I think I talk about that in my declaration. I

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1 think we have a statement about that. Maybe I can look

2 that up if we --

3 Q Sure.

4 A -- if we have it in the first declaration. I think

5 it -- it's in the second declaration, probably in the

6 first declaration also. (Reviewing.)

7 Q Well, can you just describe it generally for me?

8 MR. LOUWAGIE: Objection to form.

9 A Well, in general, it's the process of passing a DC current

10 through an electrolyte to produce in the commercial world

11 gasses, oxygen, and hydrogen. It's the electrolysis of

12 particularly potassium hydroxide solution. That

13 electrolyte is used commercially because it has a very

14 high conductivity, but that's the commercial process of

15 electrolysis of water.

16 BY MR. JOHNSON:

17 Q And you believe that a person of -- well, let's just go

18 through your declaration here, sir.

19 Your declaration, if we look at paragraph, I

20 believe it's -- let's look at paragraph 13, for example.

21 That says that you're being compensated here today at a

22 rate of \$400 per hour; is that correct?

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1 A Yes, that's correct.

2 Q And who is paying you that money?

3 A Through Rubin Anders, I believe it is, is an expert

4 headhunter. I don't know how to describe it other than

5 that.

6 Q Okay.

7 A They contacted me, and then also I was retained by

8 counsel, but that's the entity that I bill.

9 Q And your "Prior Testimony" -- this is where I was getting,

10 and I apologize, I was just lost a little bit before.

11 In "Prior Testimony," it says that you served

12 as an expert before the United States International Trade

13 Commission; is that correct?

14 A Yes.

15 Q And that was in a case involving battery technology; is

16 that right?

17 A Correct.

18 Q Okay. Then you also served as an expert in a couple of

19 IPR proceedings. Do you see that in paragraph 15 of your

20 report, sir?

21 A Yes.

22 Q And the first one there was, I guess they're both for the

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1 same parties, SKI Innovation, Limited versus LG Chemical.  
 2 A Uh-huh.  
 3 Q Is that correct?  
 4 A Yes.  
 5 Q And you represented LG Chemical in those cases; is that  
 6 right?  
 7 A No, SKI.  
 8 Q SKI. Okay.  
 9 And do you recall what the technology was  
 10 there?  
 11 A Yes. The technology was associated with the lithium-ion  
 12 batteries that are made by those two companies. And this  
 13 was actually a case where I did not testify. I was not  
 14 deposed. I only prepared a declaration for this case  
 15 specifically on the separator in the lithium-ion battery  
 16 that was being contested in this case.  
 17 Q And the other case that's listed here is Multi Service  
 18 Technology Solutions versus Lifeshield.  
 19 Do you see that, sir?  
 20 A Yes.  
 21 Q And who were you an expert for there, sir?  
 22 A For Lifeshield.

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1 Q And do you recall the technology there?  
 2 A This was a case of what we call a pouch battery utilized  
 3 for, like, an iPad or actually a mini-iPad. The problem  
 4 was that the charging device that was used by customers  
 5 overcharged the battery and caused gas to be formed in the  
 6 pouch cell that's in the battery which caused the back of  
 7 the iPad to pop off and no longer provides service. That  
 8 was the problem with the overcharging of the cell. That  
 9 was my responsibility to talk about that.  
 10 Q And other than the cases that have been listed in  
 11 paragraphs 14 through 16 of your initial declaration here,  
 12 sir, have you provided expert testimony or declarations in  
 13 any other matters?  
 14 A I have been involved in a case that is associated with the  
 15 Tesla automobile, and I was involved as an expert for a  
 16 father on behalf of his deceased son who was killed in the  
 17 fire that pursued after crashing a Tesla into a wall. It  
 18 was a battery fire. I was deposed by Tesla, put in an  
 19 expert report and was deposed by Tesla.  
 20 Q So is it fair to say that other than the present  
 21 proceedings, every other proceeding that you've provided  
 22 expert testimony in involved some sort of battery issue?

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1 A Recently I think that would probably be correct.  
 2 Q Well, other than recently, are there any other cases that  
 3 don't involve battery technology that you've been an  
 4 expert in?  
 5 MR. LOUWAGIE: Objection to form.  
 6 A I was involved in a case associated with actually a  
 7 separator. This goes back quite some time ago, but it was  
 8 a chemical process that I was involved in. It turned out  
 9 that the company that was formed by three young men who  
 10 spun out of a large company were being sued by the large  
 11 company for infringing on their patent, the large  
 12 company's patent. Ultimately what happened is, we were  
 13 able to prevail and show that the patent was actually  
 14 invalid. So the small company was successful in obtaining  
 15 actually compensation from the large company for having to  
 16 go to court.  
 17 BY MR. JOHNSON:  
 18 Q And the chemical process that was involved in that, do you  
 19 recall what that was?  
 20 A That was cleaning up radioactive waste.  
 21 Q Did it involve water electrolysis at all?  
 22 A I don't think so directly, no, but the concept of the

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1 electrolytes and so forth in the process were, of course,  
 2 involved.  
 3 Q You understand in this case there have been embodiments of  
 4 prior art that have been created and tested by the  
 5 petitioner's expert; is that right?  
 6 MR. LOUWAGIE: Objection to form.  
 7 A I understand that.  
 8 BY MR. JOHNSON:  
 9 Q Have you yourself done any testing in this case?  
 10 A No.  
 11 Q Have you tried to recreate any prior art in this case?  
 12 A No.  
 13 Q Have you asked to see any of the embodiments that were  
 14 created by petitioner so that you could review those or  
 15 test those?  
 16 A I think I did ask to see the devices that were tested, but  
 17 I think I wasn't able to see them in person. As I recall,  
 18 I was able to see them when Nate and Aaron went to Tennant  
 19 via FaceTime, as I recall.  
 20 Q Okay. Have you ever observed any testing in this case?  
 21 A No.  
 22 Q So it's fair to say you never created any embodiments of

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1 prior art yourself for this case; correct?  
 2 A That's correct.  
 3 Q You never tested different types of water that could be  
 4 used in electrolysis for this case; correct?  
 5 A Correct.  
 6 Q And you never tested the effects of different voltages  
 7 that could be used in this case; correct?  
 8 A Well, when you ask me that question, I'm not sure. Are  
 9 you asking me in general have I --  
 10 Q For this case, you've ever done any testing; correct?  
 11 A Not for this case specifically, no.  
 12 Q Okay. And this initial report that you presented  
 13 and that OWT has submitted as Exhibit 2109, you signed  
 14 that on June 16th of 2021; correct?  
 15 A Correct.  
 16 Q Okay. And you understand that was before the Patent Trial  
 17 and Appeal Board gave its decision as to whether or not to  
 18 institute these proceedings; is that right?  
 19 A Correct.  
 20 Q And you understand that the Patent Trial and Appeal Board  
 21 decided to institute these proceedings; correct?  
 22 A Correct.

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1 Q And that's kind of why we're here today; right?  
 2 A That's my understanding.  
 3 Q Right.  
 4 You indicate in here that you've reviewed the  
 5 '415 patent, which is the patent at issue here today;  
 6 correct?  
 7 A That's correct.  
 8 Q All right. And you understand when I say "'415," I'm  
 9 referring to the reissued patent 45,415; is that right?  
 10 A That's my understanding.  
 11 Q Okay. And that's how I intended to, so I'll try to do  
 12 that today.  
 13 You reviewed the '415 patent and its  
 14 specification; correct?  
 15 A Correct.  
 16 Q You reviewed its claims; correct?  
 17 A Correct.  
 18 Q And you reviewed its file history; correct?  
 19 A That's correct.  
 20 Q Now, when you say you reviewed the file history, did you  
 21 review the file history of just the '415 patent, or did  
 22 you review the file history of all of the related patents

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1 to the '415?  
 2 A As I recall, just the '415.  
 3 Q Okay. You reviewed the petition that was filed in this  
 4 matter by Tennant; correct?  
 5 A Correct.  
 6 Q And then you reviewed all of the exhibits that were  
 7 attached to that petition; correct?  
 8 A Correct.  
 9 Q Okay. In paragraph 22 and 23 of your initial report, you  
 10 talk about the level of skill, of a person of ordinary  
 11 skill in the art.  
 12 Do you see that, sir?  
 13 A Yes.  
 14 Q And it's fair to say that you agree with the petitioner's  
 15 determination that a person of ordinary skill in the art  
 16 has "a degree in chemistry, chemical engineering, or a  
 17 similar discipline and at least two years of experience  
 18 with electrolysis systems." Is that right?  
 19 MR. LOUWAGIE: Objection to form.  
 20 MR. JOHNSON: Again, Counsel, what's the form  
 21 objection?  
 22 MR. LOUWAGIE: The form objection is that you

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1 paraphrased what he said, and I'm objecting to the extent  
 2 that he was trying to read it.  
 3 BY MR. JOHNSON:  
 4 Q You can proceed.  
 5 A I was just looking at paragraph 22, "presumed to have  
 6 complete knowledge of the relevant prior art and who would  
 7 think along the lines of conventional wisdom in that art."  
 8 Well, okay, I see in 23... (Reviewing.)  
 9 Okay, so "Petitioner has suggested that a" -- "a degree in  
 10 chemistry" -- "a similar"... Yes, I agree with that.  
 11 BY MR. JOHNSON:  
 12 Q Okay. And when you reviewed the '415 patent, you  
 13 understood it; correct?  
 14 A Correct.  
 15 Q And you understood that when the inventor who's listed,  
 16 the patentee of the '415 patent, made statements in there,  
 17 those statements are presumed to be correct for today;  
 18 correct?  
 19 MR. LOUWAGIE: Objection to form.  
 20 A I'm sorry, the statements where?  
 21 BY MR. JOHNSON:  
 22 Q In the '415 patent.

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