

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

- - -

GCE GAS CONTROL EQUIPMENT INC.,:

Petitioner, :

vs. : Case No.

VBOX, INC. : IPR2023-00326

Patent Owner. :

- - -

Inter Partes Review No. IPR2023-00326

Patent No. 11,389,614

August 25, 2023

Deposition of

KENT S. KNAEBEL, Ph.D.

a witness herein, called by the
Patent Owner for cross-examination under the
applicable Rules of Civil Court Procedure,
taken before me, Rebecca Williams, a
Professional Reporter and Notary Public in and
for the State of Ohio, taken by agreement and
notice, at the Hilton, 402 North High Street,
Columbus, OH 43215, on Friday, August 25, 2023,
commencing at approximately 9:14 a.m., and
concluding at approximately 11:17 a.m.

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GCE Gas Control Equipment Inc. v. VBOX, Inc.

IPR2023-00326

VBOX, Inc. - Exhibit 2003 - Page i

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1 APPEARANCES:

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1 Friday Morning Session
2 August 25, 2023
3 9:14 a.m.

4 - - -

5 STIPULATIONS

6 It is hereby stipulated by and between
7 counsel for the respective parties herein that
8 this deposition of KENT S. KNAEBEL, Ph.D. may
9 be taken at this time by the Notary; that said
10 deposition is being taken BY AGREEMENT AND
11 NOTICE; that said deposition may be reduced to
12 writing in stenotypy by the Notary, whose notes
13 may thereafter be transcribed out of the
14 presence of the witness; that proof of the
15 official character and qualifications of the
16 Notary, the time and place of the taking of
17 said deposition are hereby waived.

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I N D E X

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KENT S. KNAEBEL, Ph.D.	Page
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E X H I B I T S

KENT S. KNAEBEL, Ph.D. DEPOSITION EXHIBITS
MARKED

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1 P R O C E E D I N G S

2 - - -

3 KENT S. KNAEBEL, Ph.D., being by me
4 first duly sworn, as hereinafter certified,
5 deposes and says as follows:

6 CROSS-EXAMINATION

7 BY MR. ATALLAH:

8 Q. Good morning, Dr. Knaebel.

9 A. Good morning.

10 Q. My name is David Atallah. I
11 represent React -- or I'm sorry, VBOX in this
12 matter, the patent owner. Can you state your
13 full name for the record, please?

14 A. Kent Schofield Knaebel,
15 S-C-H-O-F-I-E-L-D. Knaebel is K-N-A-E-B-E-L.

16 Q. Have you ever had your deposition
17 taken before?

18 A. Yes.

19 Q. Okay. About how many times?

20 A. Around ten.

21 Q. So you've been through this before?

22 A. Yes.

23 Q. All right. So I'm just going to lay
24 out some general ground rules I follow and make
25 sure we're on the same page. Sound okay?

1 A. Yes.

2 Q. So, obviously, the court reporter is
3 here taking down a record, so we need to speak
4 one at a time. So I will -- if you could let
5 me finish my question before answering, and I
6 will also try to let you finish your answer
7 before I ask my next question. Does that sound
8 okay?

9 A. Yes.

10 Q. And you seem to know this already,
11 but we need verbal answers, not nods of the
12 head, uh-huhs, et cetera.

13 A. Yes.

14 Q. From time to time, your attorney may
15 object. Unless he instructs you not to answer,
16 you can then answer my question, okay?

17 A. Yes.

18 Q. If I ask you a question that you
19 don't understand, please let me know, and I'll
20 try to clarify it or ask a better question; is
21 that fair?

22 A. Yes.

23 Q. Okay. But if you answer my
24 question, I'm going to assume that you
25 understood it. Also fair?

1 A. Yes.

2 Q. If you need a break at any time,
3 please let me know. We'll finish up the
4 questions we're on and take a break, okay?

5 A. Yes.

6 Q. Any reason that you can't testify
7 truthfully today?

8 A. No.

9 Q. All right. And we'll mark this as
10 Exhibit 1.

11 - - -

12 Thereupon, a document was marked for
13 purposes of identification as Exhibit 1 by the
14 reporter.

15 - - -

16 Q. Okay. I'll hand you what I'm
17 marking as Exhibit 1. Have you seen that
18 document before?

19 A. Yes.

20 Q. Okay. Is that the notice of your
21 deposition that you're here for today?

22 A. Yes.

23 Q. And it's for Inter Partes Review No.
24 IPR 2023-00326?

25 A. Yes.

1 Q. And that relates to U.S. Patent
2 11,389,614?

3 A. Yes.

4 Q. Okay if I refer to that patent as
5 the 614 patent today?

6 A. Yes.

7 Q. Now, you're aware that this
8 proceeding is -- relates specifically to that
9 614 patent, correct?

10 A. Yes.

11 Q. Are you aware of co-pending
12 litigation between the patent owner and GCE as
13 well?

14 A. Peripherally.

15 Q. Have you been asked to give any
16 opinions in that case?

17 MR. GILL: Objection to the extent
18 it calls for attorney work product, but you can
19 answer.

20 A. No.

21 Q. What is -- what is your peripheral
22 understanding of that case?

23 A. That there's other litigation going
24 on and similar, you know, topics, but I don't
25 know any details.

1 Q. Okay. When were you first
2 approached by GCE regarding this IPR we're here
3 for today?

4 A. Do you want the exact date or --

5 Q. Ballpark.

6 A. About a year ago.

7 Q. So, roughly, August of 2022?

8 A. That's right.

9 Q. Did someone from the company
10 approach you, as opposed to the lawyers?

11 A. I was approached by the lawyers.

12 Q. Did you have any relationship with
13 GCE prior to being approached?

14 A. None.

15 Q. Now, you mentioned you had been
16 deposed about ten times before?

17 A. Yes.

18 Q. Okay. Were you in those -- was that
19 ten different lawsuits?

20 A. I believe so. There might have been
21 two depositions for one, but --

22 Q. A number of lawsuits?

23 A. Yes.

24 Q. Okay. And what types of lawsuits
25 were those?

1 A. Patent infringement, industrial
2 accidents, things like that.

3 Q. Were you retained as an expert in
4 those matters?

5 A. Yes.

6 Q. When was the last case prior to this
7 one that you were deposed in?

8 A. Before COVID, I think probably in
9 2014.

10 Q. Okay. And did you write an expert
11 report in that case?

12 A. Yes.

13 Q. Was that a -- was the last case that
14 you just referenced, was that a patent
15 infringement case?

16 A. I believe so.

17 Q. Okay. And did you represent the
18 patent owner or the defendant?

19 A. I'm sorry; I can't answer.

20 Q. You wrote an expert report in that
21 case?

22 A. I believe so, yes.

23 Q. Was that -- what was the subject
24 matter of the expert report generally?

25 A. I didn't review it prior to coming

1 here today, so I can't give you a summary of
2 what's in that report.

3 Q. So you don't remember?

4 A. It's been several years.

5 Q. Do you remember who the parties in
6 that case were?

7 A. I do not.

8 Q. Do you know what the technology at
9 issue was?

10 A. No.

11 Q. How about what do you remember about
12 that case?

13 A. I'm not sure why that's a topic of
14 discussion here today.

15 Q. I'm just trying to understand your
16 experience. So what -- the previous patent
17 infringement case that you were deposed in and
18 wrote an expert report in, can you tell me
19 about what you remember about it?

20 MR. GILL: I'll just interject here.
21 If you're concerned about revealing or
22 breaching some type of confidentiality
23 obligation that you have with respect to that
24 lawsuit, you can raise that concern.

25 A. That is the case.

1 Q. Okay. Without getting into any
2 confidential information, I'm not asking you to
3 breach any agreement you may have. I would
4 imagine it's a publicly filed case, so the
5 parties wouldn't be -- or just generally the
6 technology it's dealing with wouldn't be
7 confidential. Is that something you could tell
8 us about, without any detail, just what it is?

9 A. No.

10 Q. About how many patent infringement
11 lawsuits have you participated in, other than
12 the one we were just talking about?

13 A. I believe four.

14 Q. Did you write -- were you an expert
15 in each of those?

16 A. Yes.

17 Q. Did you write an expert report in
18 each of those?

19 A. I believe so.

20 Q. Did any of those cases have to do
21 with oxygen concentrators?

22 A. No.

23 Q. Have you ever been an expert in
24 inter partes review proceedings?

25 A. Once.

1 Q. Prior to this?

2 A. Prior to this, yes.

3 Q. Do you remember what matter that was
4 or -- let me ask you a better question.

5 Do you remember who the parties to
6 that IPR were?

7 A. I do.

8 Q. Can you tell me who they were?

9 A. Again, I'm not sure if it is covered
10 by a confidentiality agreement, so --

11 Q. I can represent to you that inter
12 partes review proceedings, while some piece,
13 very small piece, may be kept confidential,
14 they are publicly filed, so --

15 MR. GILL: Well, if you were a
16 testifying expert and the declaration was filed
17 with the patent office, then you can discuss
18 that.

19 A. Okay. So it was Atlas Copco versus
20 Kaeser Compressors.

21 Q. And just from those -- it had
22 something to do with compressors?

23 A. It does.

24 Q. Okay. Not oxygen concentrators?

25 A. I'm going to go a little farther

1 than I hoped to, but it had to do with a
2 pressure swing adsorption system.

3 Q. Okay.

4 A. Maybe we could abbreviate that as
5 PSA.

6 Q. For which party were you an expert?

7 A. Atlas Copco.

8 Q. And just for the record, how do you
9 spell Copco?

10 A. C-O-P-C-O.

11 Q. Thank you. And in that IPR, was
12 Atlas the patent owner, or were they the
13 petitioner, if you recall?

14 A. The petitioner.

15 Q. Okay. You took steps to prepare for
16 this deposition?

17 A. Yes.

18 Q. Okay. How long did you spend
19 preparing for the deposition?

20 A. Between 20 and 40 hours, I suppose.

21 Q. And other than your attorneys, did
22 you speak to anyone else about the deposition?

23 A. No.

24 Q. Okay. And did you review materials
25 to prepare for your deposition?

1 A. Uh-huh.

2 Q. Sorry. Did you review materials to
3 prepare for your deposition?

4 A. Yes.

5 Q. Generally, what materials did you
6 review?

7 A. My declaration, the exhibits.

8 Q. Anything else?

9 MR. GILL: Objection to the extent
10 it calls for attorney work product.

11 Q. Beyond anything -- any -- I'm not
12 asking about any communications with your
13 attorneys or anything like that. Just the
14 materials generally beyond what you just said,
15 is there anything else that you reviewed?

16 A. That covers the vast majority, yes.
17 So this document should be put in a stack?

18 Q. You can just keep it right there.
19 Those will be the --

20 I'm going to hand you what I'm
21 marking as Exhibit 2, and I will note for the
22 record Exhibit 2 is GCE Exhibit 1001 in the
23 proceeding.

24 - - -

25 Thereupon, a document was marked for

1 purposes of identification as Exhibit 2 by the
2 reporter.

3 - - -

4 Q. Dr. Knaebel, you've seen this
5 before, this document?

6 A. Yes.

7 Q. It's the 614 patent we referenced?

8 A. Yes.

9 Q. You've reviewed this patent?

10 A. Yes.

11 Q. When did you first become aware of
12 this patent?

13 A. In August of 2022.

14 Q. When you were approached for this
15 case?

16 A. Yes.

17 Q. Now, if we go to the last couple
18 pages of this exhibit, that's where the claim
19 set is. Do you see that?

20 A. Yes.

21 Q. And you've given some opinions in
22 this case about that claim set, correct?

23 A. Yes.

24 Q. So you were able to understand these
25 claims, correct?

1 A. Yes.

2 Q. And what those claims covered?

3 MR. GILL: Objection to the extent
4 it calls for a legal conclusion.

5 Q. Go ahead.

6 A. Yes.

7 Q. Okay. And with your experience
8 reading these claims, you're able to make a
9 determination of what these claims cover or
10 don't cover, correct?

11 A. Yes.

12 Q. On the front page, it lists an
13 applicant. Do you see that?

14 A. I'm sorry?

15 Q. I'm sorry. On the front page of
16 Exhibit 2, it lists an applicant. Do you see
17 that?

18 A. Yes.

19 Q. VBOX, Incorporated; do you see that?

20 A. Yes.

21 Q. Prior to being retained, had you
22 heard of VBOX?

23 A. No.

24 Q. How about 3B Medical?

25 A. No.

1 Q. All right. I'm going to mark as
2 Exhibit 3 -- I'll hand you this.

3 - - -

4 Thereupon, a document was marked for
5 purposes of identification as Exhibit 3 by the
6 reporter.

7 - - -

8 Q. All right. Dr. Knaebel, have you
9 been able -- is Exhibit 3 the declaration you
10 prepared in this matter?

11 A. Yes.

12 Q. And for the record, Exhibit 3 is
13 also GCE Exhibit 1003 in the proceeding. And
14 so that declaration runs from -- it's marked
15 from Page 1 to Page 262; is that correct?

16 A. Are you omitting the --

17 Q. Oh, I'm sorry. I'm using the page
18 numbers at the bottom that are marked as the --

19 A. Oh, I see. Those are the official
20 page numbers.

21 Q. Yeah. So they're marked Exhibit
22 1003, Page 1, all the way to Page 262 --

23 A. Yeah; I see that.

24 Q. And is that your complete
25 declaration?

1 A. Yes.

2 Q. Okay. If we could turn to -- using
3 the page numbers at the bottom, Page 242.

4 MR. GILL: You're using the page
5 number of the declaration or the stamp?

6 MR. ATALLAH: I'm sorry; I'm using
7 the page number of the stamp, I believe,
8 Exhibit 1003, Page 242.

9 MR. GILL: Okay.

10 Q. All right. And, sir, this is
11 Appendix 2 to your declaration?

12 A. Yes.

13 Q. All right. And it lists materials
14 that were considered in preparing this
15 declaration?

16 A. Yes.

17 Q. So you considered all of these
18 materials, I guess, 68 different documents?

19 A. Yes.

20 Q. And was that the full extent of the
21 information you considered in preparing this
22 declaration?

23 A. Well, except for some decades of
24 work in the field of pressure swing adsorption.

25 Q. Let me ask a better question. Was

1 this the extent of all the documents you
2 considered in preparing the declaration?

3 A. Yes.

4 Q. Turn to -- so if you could turn --
5 again, using the stamped date number, Exhibit
6 1003, Page 231, you have a section here labeled
7 Background?

8 A. Yes.

9 Q. And that's your background in the
10 field?

11 A. Yes.

12 Q. And it references Appendix 1, which
13 I believe starts on Page 234; is that right?

14 A. Yes.

15 Q. And Appendix 1 is your CV?

16 A. Yes.

17 Q. Is that -- is that CV still an
18 up-to-date version of your current resume? Let
19 me ask a better question. Have there been any
20 changes to this resume since December of 2022?

21 A. No.

22 Q. Okay. Now, in your background
23 section in your resume, you mention you're the
24 president of Adsorption Research, Inc.

25 A. Yes.

1 Q. Is that a consulting company? Or
2 what does Adsorption Research, Inc. do?

3 A. Well, we have done primarily
4 research and development for a number of years,
5 but currently, we are designing and selling
6 what are called turnkey plants for upgrading
7 renewable actual gas.

8 Q. Okay. So Adsorption Research, Inc.
9 now develops and sells products of some sort,
10 not in this space, but --

11 A. Well --

12 Q. Related?

13 A. Well, they rely on pressure swing
14 adsorption.

15 Q. I should say it better. Not in the
16 portable action concentrator space?

17 A. Correct.

18 Q. And in your background section in
19 your CV, you mention that you've done contract
20 work for Inogen; is that right?

21 A. That's true.

22 Q. Around what timeframe did you work
23 with Inogen?

24 A. 2004, plus or minus a year.

25 Q. And did that continue for a number

1 of years?

2 A. No. It was really roughly a
3 three-year span, from 2003 to 2005.

4 Q. Okay. Do you consider Inogen a
5 market leader in portable oxygen concentrators?

6 A. I don't know much about the market.
7 If you ask me what their sales are, I have no
8 idea, but I believe they are.

9 Q. Okay. Inogen has filed patents
10 regarding technology, correct?

11 MR. GILL: Objection. Outside the
12 scope.

13 A. Yes.

14 Q. And your declaration discusses some
15 of those patents?

16 A. Yes.

17 Q. Given your work with Inogen, you
18 would agree that Inogen wouldn't license
19 invalid patents, correct?

20 MR. GILL: Objection; relevance,
21 outside the scope.

22 MR. ATALLAH: I can ask it a
23 different way.

24 A. Too many negatives in that sentence.

25 Q. Would it make sense -- given your

1 experience with Inogen, would it make sense to
2 you that Inogen would take a license on a
3 patent that is invalid?

4 MR. GILL: Same objections; plus
5 calls for speculation, plus calls for a legal
6 conclusion.

7 A. I believe they would not license an
8 invalid patent.

9 Q. Okay. Now, the patent in this case
10 is -- I think we have it in front of you as
11 Exhibit 2. It's U.S. Patent 11,389,614,
12 correct?

13 A. Yes.

14 Q. Okay. Are you also familiar with
15 another patent in the patent family of the 614
16 patent 10,357,628?

17 A. Yes.

18 Q. They're in the same family of
19 patents?

20 A. Yes.

21 Q. Are you aware that Inogen has taken
22 a license from 3B for Inogen's POC products
23 regarding patent families, including U.S.
24 Patent Numbers 10,357,628 and 7,604,005?

25 MR. GILL: Objection. Outside the

1 scope.

2 A. I am not aware.

3 Q. So that's not something you
4 considered in your opinion, in your
5 declaration?

6 A. Could you please clarify?

7 Q. Sure. That is not a fact that you
8 were aware of in forming the opinions in your
9 declaration?

10 A. And to be sure whether Inogen
11 license some or at least one patent from VBOX?

12 MR. ATALLAH: Can you just read back
13 the question I had --

14 Q. I'll just ask it again. We'll go
15 through it again. So what I asked was -- I
16 asked are you aware that Inogen has taken a
17 license from 3B for Inogen's POC products
18 regarding patent families, including U.S.
19 patent numbers 10,357,628 and 7,604,005?

20 A. I am not aware.

21 Q. Okay. That's all I was asking -- so
22 that is not a fact that you considered in
23 forming the opinions in your declaration,
24 correct?

25 A. Correct.

1 Q. Now, what did you do -- in the
2 three-year span that you worked with Inogen,
3 what did you do for them?

4 A. Unfortunately, some of that -- most
5 of that I think is proprietary.

6 Q. Can you describe for me generally
7 what you did for them?

8 A. Yes. We helped them develop a
9 pressure swing adsorption cycle, including the
10 operating conditions for a portable oxygen
11 concentrator.

12 Q. Okay. Why did you stop working with
13 Inogen?

14 A. We achieved success.

15 Q. Meaning you had come up with a
16 product or Inogen had?

17 A. I'm just going to say that's not the
18 way I would have described what I meant by we
19 achieved success, but I think that's true. We
20 did not come up with a product. They did. We
21 gave them some technology with which to do it.

22 Q. And when you said "we achieved
23 success," do you mean you had completed your
24 portion of the project?

25 A. Yes. We were asked to do certain

1 things. We did those. We achieved success.

2 Q. Okay. And that would have ended
3 roughly around 2005?

4 A. I believe so.

5 Q. Give or take? What interactions
6 have you had since that time with Inogen?

7 MR. GILL: Objection; relevance,
8 scope.

9 A. I would say incidental.

10 Q. What are -- what are incidental
11 interactions?

12 A. Well, I visited them, and at some
13 point, probably around 2010 or '12, a friend of
14 mine became quite ill with chronic obstructive
15 pulmonary disease, and I mentioned to them a
16 connection with a company that makes portable
17 oxygen concentrators. So I called some of the
18 people I worked with and asked them would it be
19 possible for me to arrange to buy one for my
20 friend.

21 Q. Okay. And putting aside the 20- --
22 the personal items in 2010, 2012, you said you
23 visited them. Was that separate from that?

24 A. Yes; it was prior to that. I
25 believe, 2008, maybe.

1 Q. Was that -- again, I'm not trying to
2 have you -- if there's any kind of
3 confidentiality issue, let me know, but was
4 that regarding a different project?

5 A. No; it was perhaps to discuss
6 possibilities, but no work for us came out of
7 it.

8 Q. Okay. Do you receive any royalties
9 from Inogen?

10 MR. GILL: Objection; relevance,
11 scope.

12 A. No.

13 Q. And did you have any agreements --
14 let me start back, when you worked with Inogen,
15 did you have any agreements in place with
16 Inogen?

17 MR. GILL: Objection; relevance,
18 scope.

19 A. Like a confidentiality agreement?

20 Q. Or any type of agreement of some
21 sort?

22 A. Yes.

23 Q. There was a confidentiality
24 agreement?

25 A. Yes.

1 Q. Any other agreements beyond that?

2 MR. GILL: Same objections.

3 A. I don't believe so.

4 Q. Did the confidentiality agreement
5 require you to assist Inogen?

6 MR. GILL: Objection; relevance,
7 legal conclusion.

8 A. I'm not sure what form of assistance
9 you mean, but, generally, it only covered
10 confidentiality.

11 Q. Okay. I'm going to mark -- what are
12 we on? 4?

13 - - -

14 Thereupon, a document was marked for
15 purposes of identification as Exhibit 4 by the
16 reporter.

17 - - -

18 Q. I'm going to mark as Exhibit 4 --
19 I'll mark as Exhibit 4 and hand that to you,
20 and just for the record, this is BCI Exhibit
21 1004. I'm also -- at the same time, I'm going
22 to mark as Exhibit 5.

23 - - -

24 Thereupon, a document was marked for
25 purposes of identification as Exhibit 5 by the

1 reporter.

2 - - -

3 Q. I'm going to hand you what's been
4 marked as Exhibit 5, which is just a public
5 article called From Drawing Board to Design
6 Excellence. Do you see that?

7 A. Yes.

8 Q. Okay. And going back, Exhibit 4 --
9 you've seen Exhibit 4 before, correct?

10 A. Yes.

11 Q. And that is -- that's a reference
12 that you're opining on in this IPR?

13 A. Yes.

14 Q. And that was -- or I'm sorry, that
15 reference, Exhibit 4, is an Inogen reference,
16 correct?

17 A. Yes.

18 Q. And is that -- is that what you
19 helped them -- your work, did it center around
20 what is disclosed here?

21 A. Oddly not.

22 Q. Now -- okay. Now, I'm going to
23 focus on Exhibit 5 for a second. Have you seen
24 Exhibit 5 before?

25 A. I believe so.

1 Q. A while ago?

2 A. Not quite 20 years ago.

3 Q. Okay. This article is dated, it
4 looks like, May of 2006; is that right?

5 A. Yes.

6 Q. And it's paginated at the bottom
7 Pages 1 through 7, so I'm starting on Page 6 of
8 this exhibit. And this portion of the article
9 is talking about the Inogen one, oxygenated
10 concentrator. Do you see that?

11 A. Yes.

12 Q. Now, near the bottom of Page 6,
13 there's some quotes of Rex Bare. Do you see
14 that?

15 A. Yes.

16 Q. Do you know Mr. Bare?

17 A. I don't believe so.

18 Q. If you look at Exhibit 4, is Mr.
19 Bare listed as a inventor on that -- on Exhibit
20 4?

21 A. Yes.

22 Q. And Mr. Bare appears to be the
23 president of Omnica, according to this article,
24 Exhibit 5, correct?

25 A. Yes.

1 Q. On Page 7 of this article, Mr. Bare
2 is quoted as saying, "Larger products in this
3 category are sort of a plumber's nightmare."

4 Do you see that?

5 A. Yes.

6 Q. Do you agree with that statement?

7 A. No.

8 Q. You disagree with Mr. Bare?

9 A. I do.

10 Q. Why do you disagree with Mr. Bare?

11 A. Because that's our business.

12 Q. What do you mean?

13 A. We design and build pressure swing
14 adsorption systems, and if they were a
15 nightmare, we would never sell one.

16 Q. So if you read the rest of the
17 paragraph there, it looks like Mr. Bare is
18 talking about the complexity of designing
19 pieces of this system, like the manifold. Do
20 you see that?

21 A. Yes.

22 Q. Taking that quote from the
23 perspective of talking about designing the
24 system itself, would you agree with that
25 statement?

1 A. Only in a lighthearted sort of
2 flippant manner, but not literally.

3 Q. Okay. Is it your opinion -- let me
4 back up.

5 The work that you did for Inogen
6 brought Inogen value, correct? There was value
7 in the work you provided --

8 A. I believe so, yes.

9 MR. GILL: Objection; scope,
10 relevance.

11 Q. The product that you worked on -- or
12 the project that you worked on with them, that
13 wasn't a simple project, correct?

14 MR. GILL: Same objection.

15 A. I don't want to be difficult, but to
16 say it's not simple is putting that sort of on
17 a spectrum. It's one of the simpler projects
18 we've ever done.

19 Q. So then why did Inogen need to go to
20 not only your company, but Omnica as well, to
21 design it?

22 A. I can't say I know the facts behind
23 it, but I've got an opinion.

24 Q. Okay. What's your opinion?

25 A. It does take a fair amount of

1 knowledge and skill, training and so on to
2 design and build a pressure swing adsorption
3 unit regardless of its size, and my
4 understanding is that the early employees of
5 Inogen were fresh out of college. They had
6 gone to the University of California at Santa
7 Barbara, I understand, and they had no
8 background in building simple devices.

9 Q. So for them, it was very complex,
10 and they needed help creating their product?

11 A. Yes.

12 Q. Okay. And in the article -- in the
13 article, it talks about your work as well,
14 correct?

15 A. Yes.

16 Q. You say, "The challenge was how to
17 make a small lightweight and therefore portable
18 pressure swing adsorption PSA system that could
19 deliver enough oxygen and sufficient purity for
20 a patient having COPD." Is that your quote?

21 A. You left out the quantity, but --

22 Q. I think I was reading the quote
23 before that says --

24 A. Oh, okay; sorry. Yes, that quote is
25 correct.

1 Q. Okay. So you were helping them? I
2 mean, putting a PSA system into something small
3 and lightweight was a challenge at that time?

4 A. Yes.

5 Q. Sir, the declaration you prepared
6 marked as Exhibit 3, I think, how much time did
7 you spend preparing that declaration?

8 A. At least 40 hours.

9 Q. Is that a reasonable ballpark, give
10 or take, five hours or --

11 A. No; that was only the lower limit.
12 Between 40 and a hundred hours.

13 Q. And in preparing the declaration,
14 other than your lawyers, did you speak to
15 anybody for purposes of preparing the
16 declaration?

17 A. No.

18 Q. Now, you offer a number of opinions
19 in your declaration, correct?

20 A. Yes.

21 Q. Explain to me your understanding of
22 what it means for a claim to be obvious.

23 MR. GILL: Objection to the extent
24 it calls for a legal conclusion.

25 A. I actually have a section in my

1 declaration that covers that topic.

2 Q. Okay.

3 A. Would you like me to read it or --

4 Q. I mean, is that -- I just would like
5 to know what your understanding of what it
6 means to be obvious is.

7 A. Part of my declaration explains it,
8 is what I understand it.

9 Q. Okay. Where -- what part of your
10 declaration are you referring to?

11 A. It's towards the end. So it starts
12 on your Page No. 253.

13 Q. And that is a portion of Appendix 4,
14 it looks like. So can you summarize for me
15 what your understanding is?

16 A. So a summary could be a
17 one-sentence, one paragraph or one-hour long
18 explanation, and I don't know what type of
19 summary you want.

20 Q. I'm just trying to understand what
21 your understanding, in your own words, of what
22 it is for a claim to be obvious. Can you put
23 it in your own words or summarize it for me?

24 A. Well, the declaration does the most
25 complete job that I composed at the time, but

1 -- and I would be glad to read that for you,
2 really a lot of care went into that.

3 Q. Well, the Appendix 4 says that these
4 were legal principles provided to you by
5 counsel, so I'm just trying to understand your
6 understanding of them.

7 A. So I think the term obvious has a
8 fairly simple definition that means that by
9 seeing or hearing or reading about something
10 that has certain features, one of ordinary
11 skill in the art can discern whether the
12 features are novel, useful, and obvious or
13 non-obvious.

14 And the obvious part is if
15 synthesizing prior art, for example, using 23,
16 even more contributions from other examples,
17 it's possible to basically come up with what
18 amounts to only a combination of other's ideas,
19 and those would be considered obvious.

20 And where novelty comes in is a
21 little bit subjective, but it requires
22 something that when other people in the field
23 had been tasked with considering the same
24 subject, they missed it somehow, so it is
25 possible to come up with novel ideas. It's not

1 exactly a scientific undertaking, though. In
2 other words, you don't follow a formula to come
3 up with an invention.

4 Q. So if you're analyzing obviousness,
5 you're looking at a claim and a patent, and
6 then going to -- using those claims as sort of
7 a road map and going to the prior art to see if
8 you can find those elements --

9 MR. GILL: Objection; misstates
10 testimony, calls for a legal conclusion.

11 A. Yes.

12 Q. And that's what you did in this
13 declaration, correct?

14 MR. GILL: Objection. Misstates
15 testimony.

16 A. Yes.

17 Q. Now, we were looking at -- is it
18 okay if I refer to the Deane reference Exhibit
19 4?

20 A. Yes.

21 Q. So in your opinions -- or in your
22 declaration, you analyze the Deane reference,
23 correct?

24 A. Yes.

25 Q. Now, is it your understanding, for

1 purposes of your opinion, that you can only
2 rely on what this Deane reference actually
3 shows, as opposed to going beyond what it
4 actually shows?

5 A. If by that you'll exclude ordinary
6 synthesis of ideas by one skilled in the art,
7 then I would say no, that in order to
8 appreciate what is covered here, one would have
9 to include what's obvious or nearly synthesized
10 ideas of, for example, the Deane patent or
11 application.

12 Q. And I'll refer to the Deane
13 reference.

14 A. Okay.

15 Q. In the Deane reference, are you
16 saying that you can go beyond what's actually
17 in the disclosure in forming your opinions
18 relating to this Deane reference, or are you
19 limited to what's in the Deane reference?

20 A. It's a fuzzy boundary, and, for
21 example, no patent that I've ever seen has
22 included, for example, instructions for
23 assembly and disassembly of a laptop computer,
24 and, you know, a wagon.

25 Instead they show the assembled

1 object, and then a person who's skilled in the
2 art would look at the assembled object and be
3 able to make certain deductions about how it's
4 assembled or disassembled. For example,
5 certain assumptions about materials of
6 construction that might not be mentioned.

7 Q. So using your example, if they
8 reference and disclosed those instructions, I
9 think you said --

10 A. Yes.

11 Q. -- is it your testimony that you
12 could still rely on that reference as having
13 disclosed those instructions?

14 MR. GILL: Objection. Misstates
15 testimony.

16 A. That's not what I said. Well, I
17 understood your question to be are you limited
18 to what's printed in the document for what the
19 content is, and I tried to explain that there's
20 a wealth of information present, particularly
21 in the figures that is not written, but yet can
22 be understood by one just observing what is
23 printed in the diagram.

24 You couldn't say, for example, what
25 the adsorber walls are made of, but one skilled

1 in the art could say, you know, suitable
2 materials for that would be, for example,
3 aluminum or magnesium or some other lightweight
4 metal that would have the strength and also low
5 density to be able to withstand the stresses,
6 but yet remain light in weight.

7 Q. So, of course, you're going to -- a
8 person of ordinary skill will look at a
9 reference, right, to understand it?

10 A. Yes.

11 Q. You would agree with that?

12 A. Yes.

13 Q. But for purposes of applying --
14 actually, let me back up. When I say
15 anticipation, do you know what I -- legally
16 what I'm talking about?

17 A. I believe so.

18 Q. And what is it to be anticipated in
19 the context of invalidity of a patent claim?

20 MR. GILL: Objection to the extent
21 it calls for a legal conclusion.

22 A. I'm not a lawyer, but my opinion is
23 the anticipation generally then would refer to
24 something that is more literal that is stated
25 or shown and not involving engineering skill or

1 scientific skill to deduce what must be part of
2 the patent or idea.

3 Q. In your declaration, you do give
4 opinions about whether something anticipates
5 claims, right?

6 A. Yes.

7 Q. So I just want to make sure I
8 understand how you're applying that in your
9 declaration. So to anticipate would be the
10 circumstance where it's -- something is
11 explicitly disclosed in the reference, right?

12 A. Well, shown in some manner, either
13 verbal or via illustrations.

14 Q. Meaning -- you said verbal, but I
15 assume you meant --

16 A. Yes.

17 Q. -- meaning written or in
18 illustration?

19 A. Yes.

20 Q. Okay. If you could go -- I'm just
21 going to turn to Exhibit 3, your declaration.
22 And I'm just going to go by reference to
23 paragraph numbers, if that's okay?

24 A. Yes.

25 Q. So could you turn to Paragraph 349.

1 I'm going to refer to 349 and 350, so if you
2 want to take a look at those, feel free.

3 So in Paragraph 350, there's an
4 annotated set of figures. Do you see that?

5 A. Yes.

6 Q. Okay. And is that set of drawings
7 that was put together, did you prepare those
8 drawings?

9 A. I did not do the drawings
10 themselves.

11 Q. What about the annotations?

12 A. No, but they would reflect my ideas.

13 Q. Okay. Now, looking, do you see the
14 green line there?

15 A. Yes.

16 Q. Now, can you -- can you show me or
17 identify for me any way to draw that green line
18 in the feed tube that you're saying -- or
19 you're alleging is the inlet here without
20 touching adsorbent material?

21 MR. GILL: Objection; vague and
22 ambiguous.

23 A. Are you talking about Figure 7A or
24 6?

25 Q. I'm asking -- looking at what you

1 have in your declaration here, and I'm
2 asking -- can you show me a way to draw that
3 green line without touching adsorbent material
4 in that feed tube?

5 MR. GILL: Same objection.

6 A. So the purpose, I understand it, of
7 Figure 7A is only schematic, to show how the
8 fluid generally flows, and during the feed step
9 at that. Figure 6 shows the apparatus, and so
10 the green line in that figure shows what
11 amounts to a tube that passes down the outside
12 of the, what I call the adsorber, the
13 cylindrical closure that holds the adsorbent.
14 The tube on the outside does not intersect the
15 adsorbent.

16 Q. So, let me ask my question again, so
17 -- and I'll ask it -- ask one intervening
18 question. So you would agree with me that
19 Figure 7 -- of the two figures you have here,
20 the only one that actually shows the adsorbent
21 material explicitly is Figure 6, correct?

22 A. Well, there's an arrow pointing to
23 where the adsorbent is in Figure 7A.

24 Q. But if you look at -- let's take a
25 look at Exhibit 4, where these drawings come

1 from.

2 A. Take a look at?

3 Q. Exhibit 4, which is the Deane
4 reference. Now, if we look at Figure 7A and
5 the actual Deane reference, the adsorbent
6 material is not called out, correct?

7 A. No.

8 Q. Because 7A is just showing flow
9 paths, correct?

10 A. Okay.

11 Q. Is that correct?

12 A. Yes.

13 Q. Okay. So going back to your
14 declaration, you would agree with me that
15 Figure 6 is the only figure in what you're
16 relying on here from the Deane reference that
17 actually shows the adsorbent material?

18 A. Of these two, you mean?

19 Q. Of these two, correct.

20 A. Yes.

21 Q. Now, so then I'm going to go back to
22 the question I asked, which is, in looking at
23 these -- in your declaration in Paragraph 350,
24 those figures in Figure 6, in particular where
25 you have the green line, if I were to hand you

1 a pen, which I'm happy to do, could you draw
2 that green line to -- without touching
3 adsorbent material to show the fluid going
4 through the feed tube into the second part
5 where the blue line is, as you've opined?

6 A. So I'm not sure what you're driving
7 at, but if it's because the illustration 6 is a
8 cutaway of the adsorbent column, in other
9 words, for the artist version of it here, he's
10 basically cut out some of the metal that
11 comprises the wall of the adsorber so that you
12 can see, as if you have x-ray vision, what's
13 inside the adsorber.

14 Q. So -- and I'll come back to that,
15 but, again, I was just hoping to get an answer
16 to my question, which is can you draw that
17 green line to the feed tube without touching
18 adsorbent material?

19 A. Yes.

20 Q. How? Here --

21 A. So the diagram is an artist's
22 rendition of what this three-dimensional object
23 is. I'm sure the artist, you know, who, you
24 know, created this did not think about the
25 operation of a pressure swing adsorption system

1 when creating the drawing. They were just
2 trying to show the parts.

3 Q. So are you saying Figure 6 is
4 inaccurate?

5 A. I'm saying Figure 6 is an artist's
6 rendition of the physical device meant to show
7 the internal parts and the external parts, and
8 the only way to show the internal parts is to
9 basically pretend they don't exist as if you
10 have x-ray vision, so you can look inside and
11 see the adsorbent and the disc that holds back
12 adsorbent at the top and the spring. Those are
13 not visible.

14 If we had an Inogen one here and
15 took the shell off, we would not see a spring
16 of the disc holding the adsorbent or the
17 adsorbent itself.

18 Q. So -- and, again, all I can rely on
19 is what's in the Deane reference, and you would
20 agree with me that this figure, whether you
21 want to say the artist got it wrong, but what's
22 shown here, I'm asking, again, are you able to
23 draw that green line without touching adsorbent
24 through the feed tube, just as Figure 6 is
25 drawn?

1 MR. GILL: Objection; incomplete
2 hypothetical.

3 A. Well, one who is skilled in the art
4 would not look at this drawing and think, oh,
5 the line that's now been -- on which the green
6 line has been superimposed must pass through
7 the adsorbent.

8 To the contrary, it's the tube that
9 starts at the top, the circular opening that's
10 marked as outlet, the tube that starts to the
11 right of that passes down the outside,
12 vertically downwards and gets to the bottom,
13 and we don't see what happens to the flow path
14 there, but we see it in Figure 7A.

15 Q. So -- and I'm going to move to
16 strike that as non-responsive.

17 I'm asking -- I can see what was
18 annotated for you here in Paragraph 350. Now,
19 I'm just asking what I think is a pretty simple
20 question. Figure 6, as shown in Deane, are you
21 able to draw a green line similar to the one
22 you've drawn here, that shows the flow going
23 through the feed tube without touching the
24 adsorbent material?

25 MR. GILL: Objection; asked and

1 answered.

2 A. This is not a drawing to show the
3 flow path. It's to show the internal parts of
4 the adsorber, as well as the external parts.

5 Q. So is that a no?

6 A. It's a no, but it's not an
7 appropriate diagram on which to show the flow
8 path.

9 Q. Now, sir, you, in your declaration
10 here, you rely on that figure to show the flow
11 path, correct? It's right here in the
12 annotations, right?

13 A. Well, one skilled in the art can
14 clearly see that the green path is not
15 obstructed by adsorbent.

16 Q. Sir, again, you rely on that figure
17 to show the flow paths you annotated in your
18 declaration, correct?

19 A. Yes.

20 Q. And certainly, the green line you
21 drew here is touching adsorbent material,
22 right?

23 A. It is not.

24 Q. As shown right here in the figure,
25 you're saying --

1 A. It's a two-dimensional drawing of a
2 three-dimensional object.

3 Q. Okay. So, again -- I'm asking again
4 -- we'll come back to that, but in your drawing
5 right here, is it your testimony that that
6 green line is not touching what is illustrated
7 as adsorbent material?

8 A. Well, it does in two dimensions, but
9 it would not in the three-dimensional reality.

10 Q. Okay. So in your drawing, it does?

11 A. It's two-dimensional.

12 Q. Okay. Is that a yes, in your
13 drawing, it does?

14 MR. GILL: Objection; asked and
15 answered.

16 A. Yes.

17 Q. Okay. Now, can you -- and you have
18 the Deane reference in front of you there. I
19 think it's Exhibit 4, correct? Can you -- and
20 take as much time as you need.

21 Can you point me to any description
22 of Figure 6 or any other written description in
23 that reference that says -- that states there
24 is no adsorbent in the feed tube?

25 A. Might take a while.

1 Q. Take your time.

2 A. So in Paragraph 67, it describes
3 this feed tube. It doesn't mention anything
4 about adsorbent being in the feed tube. It
5 says it has an internal diameter of about .125
6 inches and the fact is that the adsorbent beads
7 are smaller than that, but if it were filled or
8 even partly blocked with adsorbent beads, the
9 flow through that tube would be seriously
10 impacted, such that the unit would not operate.

11 Then it goes on to say that the
12 adsorbent bed also shown in Figure 6 -- this is
13 Paragraph 68 -- and it describes where the
14 adsorbent is relative to discs, the upper and
15 lower restraining discs, as well as a spring.
16 And then it -- there it describes what the
17 adsorbent material is and granular materials,
18 such as zeolite, that can be easily dislodged.
19 So that's the reason for the filter discs above
20 and below to restrain the adsorbent.

21 Q. Okay. Anything else?

22 A. Is that enough?

23 Q. So I'm curious because the two
24 paragraphs -- you said Paragraph 67 and 68 of
25 the Deane reference. I don't see either of

1 those paragraphs saying that there is not
2 adsorbent in the feed tube. Do they say those
3 --

4 A. It also says -- does not say that
5 there is not -- let's say axle grease in the
6 feed tube or in the random debris in the feed
7 tube. That would be obvious to one skilled in
8 the art that you don't want something in an
9 8-inch inner diameter tube obstructions, say,
10 of beads that are roughly a half millimeter in
11 diameter to obstruct the flow through that
12 tube.

13 MR. GILL: We've been going a little
14 over an hour. Is now a good time for a break?

15 MR. ATALLAH: Let me finish up this
16 line.

17 Q. So getting back, Dr. Knaebel, again,
18 the disclosure doesn't say -- doesn't say that
19 it's not there. And it doesn't say that it's
20 there, correct? Explicitly either way in the
21 written disclosure?

22 A. I agree.

23 Q. Okay. So all we have to rely on is
24 the figure, correct?

25 A. And the skill and the art.

1 Q. Okay. Now, sir, real quickly, you
2 mentioned an inner diameter in Paragraph 67.
3 You have patents, correct?

4 A. I do.

5 Q. Okay. And is it -- obviously, in
6 Paragraph 67, that's describing an example of
7 diameters. You're not actually contending that
8 Inogen's patent would be limited to a feed tube
9 that only had a diameter of that size, right?

10 A. It says "about."

11 Q. It says in one embodiment?

12 MR. GILL: Objection; calls for a
13 legal conclusion.

14 Q. I'll read the sentence of Paragraph
15 67 I think you're referring to, and tell me if
16 it's the wrong sentence. "In one embodiment,
17 the feed tube 608 has an internal diameter of
18 about 0.125 inch and the adsorbent housing,
19 602, has a diameter of about 1.5 inch." Is
20 that the sentence you're referring to?

21 A. Yes.

22 Q. So it's saying in one embodiment,
23 correct?

24 A. Yes.

25 Q. Meaning it's not limited to that?

1 A. That's right.

2 Q. So it could be narrower? It could
3 be wider?

4 A. Yes.

5 Q. Okay. Okay. We can take a break.

6 (Recess is taken.)

7 Q. If I could ask you, in Exhibit 3,
8 your declaration, could you turn to Paragraph
9 322.

10 A. Okay.

11 Q. Now, here in Paragraph 322 -- and if
12 you look on the next page, that paragraph
13 continues with two partial figures of Figures 5
14 and 6 of Deane. Do you see that?

15 A. Yes.

16 Q. Okay. So in this paragraph, you are
17 giving the opinion that the Deane reference
18 includes that an integrated manifold, that at
19 least partially contains adsorbent housing 602,
20 adsorbent columns 508 A, 508 B, and you go on
21 to say, "Via the connective structure of
22 manifold 512, which at least partially contains
23 the end of adsorbent housing 602/adsorbent bed
24 columns. 508 A, 508 B, around periphery, as
25 shown by comparing Figures 5 and 6, as shown in

1 the partial reproduction that follow." Do you
2 see that?

3 A. Yes.

4 Q. Okay. So now, you go on in that
5 paragraph and you cite -- it looks like you're
6 citing portion of Deane with some quotes. Do
7 you see that?

8 A. Is that a question?

9 Q. Is that accurate? You're citing
10 portions of Deane with some quotes?

11 A. Yes.

12 Q. Now, the specification of Deane or
13 the disclosure of Deane that we've been talking
14 about, which is Exhibit 4, doesn't actually
15 explicitly say, through the manifold, it
16 partially contains the adsorbent housing and
17 bed columns, correct?

18 A. Yes.

19 Q. It just says that it's not that the
20 manifold is mounted, right?

21 A. Yes.

22 Q. So you then look at Figure 5 and 6;
23 is that right?

24 A. Yes.

25 Q. And point to those as showing that

1 the manifold partially -- you allege shows,
2 though, the manifold partially contains the
3 beds and bed housing; is that right?

4 A. Yes.

5 Q. So you are relying on, in this
6 instance, the accuracy of Figure 6 to support
7 your opinion, right?

8 A. Did you say at least partly?

9 Q. I said you're relying on the
10 accuracy of Figure 6 to support your opinion?

11 A. At least partly.

12 Q. And Figure 5?

13 A. Yes.

14 Q. Yet when we talked about the
15 adsorbent shown in Figure 6 earlier, you were
16 saying that was inaccurate?

17 MR. GILL: Objection to the extent
18 it misstates testimony.

19 Q. Correct?

20 A. I believe I said it's an artist's
21 rendering of this three-dimensional object.

22 Q. So how do we determine what portions
23 of Exhibit 6 are accurate and what portions are
24 just an artist rendition in your opinion, or is
25 that just something that depends on what we're

1 trying to show?

2 That's a bad question. Let me ask a
3 better question.

4 So in one instance, with regards to
5 this manifold, you're relying on the accuracy
6 of Exhibit 6, and in another instance, you're
7 saying one time with the adsorbent, that's just
8 an artist rendition, correct?

9 A. I didn't say it was wrong.

10 Q. So Deane correctly shows adsorbent
11 carrying over into the feed tube in Figure 6?

12 MR. GILL: Objection. Objection.
13 Misstates testimony.

14 Q. You're saying the figure is
15 accurate, correct?

16 A. I said it's an artist rendering of
17 this three-dimensional object in two
18 dimensions, and I don't know how many times
19 I've looked at Figure 6 in its entirety. Never
20 once would I imagine that the adsorbent shown
21 could be construed to be also in the feed tube.

22 Q. But that's how it's shown if we just
23 look at Figure 6 literally?

24 A. I don't know of a single engineer
25 from any university that would look at that

1 diagram and think that adsorbent was in that
2 tube.

3 Q. Well, the adsorbent is these little
4 dots in Figure 6, right, of Deane?

5 A. Yes.

6 Q. And that's over in the feed tube,
7 right, at least as shown?

8 A. You're looking at a cutout of a
9 three-dimensional object. This is in the
10 artist -- I think skillful rendition of it.

11 Q. So is that a yes, but we're looking
12 at a cutout?

13 MR. GILL: Objection; misstates
14 testimony.

15 A. The adsorbent is not in the down
16 tube. The extent to which the diagram could be
17 misconstrued to make someone think that there's
18 adsorbent in the down tube, I believe is low,
19 but given that some people can look at that
20 diagram and think oh, that adsorbent must be in
21 the down tube, then the drawing could be
22 improved, or the text could be supplemented to
23 clarify that there's no adsorbent in that down
24 tube.

25 Q. But that text does not exist in this

1 reference?

2 A. That's right.

3 Q. And the figure as shown does show
4 those beads, those little dots, carrying over.
5 Whether you think that's correct or not, that's
6 what's there?

7 A. I don't believe it shows the dots in
8 the tube. I believe it shows the tube being
9 figuratively erased and you're seeing that
10 beads in the adsorbent column behind the tube.

11 Q. Sir, you keep -- you've referenced
12 Figure 6 as a cutout a couple of times.

13 A. Yes.

14 Q. Can you show me where in the Deane
15 disclosure it calls Figure 6 a cutout?

16 A. No.

17 Q. It doesn't -- it's not in there --

18 A. I don't think it uses that term, no.

19 Q. Now, we've talked a little bit about
20 the fluid, the flow path through the Deane --
21 through what's disclosed of the device in the
22 Deane reference?

23 A. Yes.

24 Q. You would agree that both the feed
25 tube and the main column would be gas

1 passageways, right? Gas would be passing
2 through them?

3 A. The feed tube and --

4 Q. The feed tube and the main column
5 would both be gas passageways, correct?

6 A. In a manner of speaking.

7 Q. I'm sorry, is that a yes, or is that
8 a -- I just want to make sure I have your
9 answer correct.

10 A. I would not use passageway, but I
11 could see how some people might use that term.

12 Q. Because gas flows through both of
13 them?

14 A. Yes.

15 Q. Now, if you could turn back to
16 Exhibit 4, the Deane reference. I'm just --
17 and we'll stick with our Figure 6 here.

18 Now, sir, Deane does not -- so Deane
19 discloses a spring, correct?

20 A. Yes.

21 Q. It does not disclose two springs,
22 right?

23 A. Do you mean two springs in an
24 adsorber?

25 Q. Sure. It does not -- that's a fair

1 clarification.

2 In this column that we're seeing
3 where -- in Figure 6, where the spring is
4 shown?

5 A. One spring, yes.

6 Q. There's one spring. There are not
7 two springs in that column?

8 A. Correct.

9 Q. Okay. Now, spring -- would you
10 agree that springs naturally introduce some
11 dead volume into the column?

12 A. Not exactly.

13 Q. Why not exactly?

14 A. I would word it differently.

15 Q. And how would you word it?

16 A. I would say that in order to place a
17 spring inside a column, some volume must be
18 allowed for the spring, but the spring actually
19 occupies part of that volume. So if anything,
20 it reduces the dead volume. If you left that
21 space open with no spring in it, there would be
22 more dead volume than if you put the spring
23 inside.

24 Q. Now -- so let's take a look in the
25 disclosure of Deane, which is Exhibit 4. And

1 real quick, to clarify that last line of
2 questioning -- or the last question we were
3 talking about, you're saying there is some dead
4 volume; it's just that the spring takes up some
5 of that? Am I saying that right? I just want
6 to make sure I understand it.

7 A. I agree.

8 Q. Okay. Now, if we take a look at
9 Paragraph 35 of Deane Exhibit 4, there's some
10 discussion. It starts with the PSA unit 108.
11 Do you see that?

12 A. Yes.

13 Q. Now -- and if you go -- if you go to
14 the previous page, this is under a section of
15 this reference titled Detailed Description of
16 Preferred Embodiments. Do you see that?

17 A. Yes.

18 Q. At the very end of Paragraph 35,
19 there's a sentence. It says, "Additional
20 background information on PSA technology is
21 described in U.S. Patent NO. 5226933, which is
22 hereby incorporated by a reference." Do you
23 see that?

24 A. Yes.

25 Q. When this document talks about

1 something being incorporated by a reference, do
2 you understand what that means?

3 A. Yes.

4 Q. Okay. Do you understand that that
5 means that what's being incorporated is as if
6 it were actually in this disclosure?

7 A. Yes.

8 Q. Okay. Are you familiar with that
9 patent that's referenced there?

10 A. Not by its number alone.

11 Q. What's the last one I gave you? Is
12 it five?

13 A. That's five.

14 Q. Okay. I'm going to mark as Exhibit
15 6 a document. It is U.S. Patent 5226933.

16 - - -

17 Thereupon, a document was marked for
18 purposes of identification as Exhibit 6 by the
19 reporter.

20 - - -

21 Q. Sir, you're familiar with this
22 document?

23 A. Yes.

24 Q. Okay. It is a patent titled
25 Pressure Swing Adsorption System to Purify

1 Oxygen?

2 A. Yes.

3 Q. And you are listed as an inventor on
4 this?

5 A. Yes.

6 Q. Now -- so in this Deane reference,
7 Inogen, Incorporated, by reference your patent,
8 to describe further information about the PSA
9 process, right?

10 A. Yes.

11 Q. And if we take a look from your
12 patent that's incorporated into Deane, I'm
13 looking at Column 2. There is a section titled
14 Brief Description of the Invention. Do you see
15 that?

16 A. Yes.

17 Q. And starting at line -- I believe
18 it's 57. Do you see where it says -- starts
19 with, "First a feed gas"?

20 A. Yes.

21 Q. It says, "First a feed gas supplied
22 to a PSA column through a feed end thereof.
23 The column includes a bed of an adsorbent that
24 it selectively adsorbs argon, such as silver,
25 mordenite, AgM (18)."

1 It says, "The feed gas may
2 compromise air, or in the alternative, the
3 predominantly oxygen/Aragon product remaining
4 after nitrogen has been separated out." Did I
5 read that correctly?

6 A. Yes.

7 Q. So you can -- you could refer to gas
8 that has nitrogen removed as feed gas, correct?

9 A. Yes.

10 Q. And, in fact, you described that
11 very thing in your patent that's incorporated
12 into Deane?

13 A. Yes.

14 Q. Now, is one way that you might
15 selectively remove something such as nitrogen
16 to proceed with feed gas a pre-bed?

17 A. A pre-bed?

18 Q. Yes. Actually, I should back up.
19 Are you familiar with the term pre-bed?

20 A. The only instance I've run into a
21 term like that has been for what's better known
22 as a pre-purifier for removing things like
23 carbon dioxide and molecular organic compounds
24 from air prior to it going to be liquified in a
25 cryogenic plant.

1 Q. Okay. So if I use the term pre-bed,
2 is it -- do you understand what I'm referring
3 to or not really?

4 A. Not really.

5 Q. Okay. I'm going to mark as Exhibit
6 7 a document titled Pressure Swing Adsorption,
7 and it is, for the record, GCE Exhibit 1068 to
8 the IPR.

9 - - -

10 Thereupon, a document was marked for
11 purposes of identification as Exhibit 7 by the
12 reporter.

13 - - -

14 Q. Sir, are you familiar with this
15 document --

16 A. Yes.

17 Q. -- slash book? You're an author of
18 it?

19 A. Yes.

20 Q. Now, there are a couple of other
21 authors that worked on this with you?

22 A. Yes.

23 Q. So if you turn to Page 127 --

24 A. Okay.

25 Q. -- there's discussion of --

1 actually, I'll just let you read that piece at
2 the top and then I'll ask you a couple
3 questions.

4 A. I'm sorry; did you say to read the
5 paragraph ahead of this page?

6 Q. Oh, yeah. Sure. You can start with
7 the 6.4 on 126, but -- and then I'll ask you a
8 couple questions about it.

9 A. Okay.

10 Q. Okay. On Page 127, there is a
11 discussion of a pre-bed for impurity removal.
12 Do you see that?

13 A. Yes.

14 Q. Okay. So when I refer to pre-bed,
15 does that ring a bell now?

16 A. Well, this is part of -- this is
17 extracted from a patent. It would probably be
18 better to look at the patent than this excerpt
19 of it.

20 Q. Okay. Well -- and all I have is
21 what was submitted here, so do you know what
22 patent that came from?

23 A. I would have to look at the
24 references, but -- it looks like 4013429.

25 Q. What page are you on?

1 A. Oh, sorry; 156.

2 Q. Oh, reference 16 to Air Products?

3 A. I believe so, yes.

4 Q. Are you familiar with Air Products?

5 A. I am.

6 Q. Is that just another company that
7 was working in this space?

8 A. It's a very large industrial gas
9 company.

10 Q. Okay. So in the article back in --
11 I'm sorry; not in the article.

12 In this document, back on Page 127,
13 it discusses a pre-bed for interior removal?

14 A. Yes.

15 Q. So is that -- so the pre-bed is
16 taking out some component of air; is that
17 right?

18 A. Yes.

19 Q. Okay. And then a pre-bed isn't
20 going to do everything a main column within an
21 adsorbent bed would do, correct?

22 A. I think the purpose of the pre-bed
23 bed or pre-purifier is to remove more strongly
24 adsorbed components that would just
25 contaminate, say, the nitrogen from a process

1 such as this.

2 Q. Okay. So removing some component
3 before something else is removed?

4 A. Yes.

5 Q. Okay. Now, by 20- -- pardon me.

6 This document that you were an
7 author on is dated in 1984, it looks like.
8 Does that sound right?

9 A. Sounds about right.

10 Q. So by 2004/2005, pre-beds were
11 commonly known, correct?

12 A. I wouldn't say they were common, but
13 they were known.

14 Q. And now -- are there a variety of
15 arrangements where a pre-bed could be used,
16 meaning a variety of ways that a pre-bed could
17 be used in relation to a main adsorbent bed or
18 some other column?

19 A. I don't want to put words in your
20 mouth, but for it to be called a pre-bed or a
21 pre-purifier, it has to come first.

22 Q. Okay. So it has to come before
23 whatever is coming out of it would go into a
24 main bed?

25 A. Yes.

1 Q. Okay. Now, we've looked at that
2 Deane reference a number of times, correct?

3 A. Yes.

4 Q. Can you point me to anything in the
5 Deane disclosure that would prevent the use of
6 a pre-bed?

7 A. That's a good question. Prevent? I
8 can't think of anything that would prevent it,
9 but there would be engineering or marketing or
10 some such factors that would weigh on whether
11 one would use it or not.

12 Q. Okay. The first named inventor on
13 the Deane reference that we've been referring
14 to is Jeffrey Deane?

15 A. Yes.

16 Q. Have you ever met Dr. Deane?

17 A. I have.

18 Q. Is that when you were working at
19 Inogen?

20 A. Yes.

21 Q. Did you interact with him fairly
22 regularly?

23 A. Did I?

24 Q. Yes.

25 A. I would say for roughly a year,

1 probably every week, but then it diminished.

2 Q. I assume you've never discussed with
3 Dr. Deane anything about this case?

4 MR. GILL: Objection to the extent
5 it calls for attorney work product. I would
6 just caution the witness.

7 Q. Without disclosing any conversations
8 with attorneys.

9 A. I have not spoken to Jeffrey Deane.

10 Q. Okay. Sir, you -- what is your
11 standard rate for consulting?

12 A. I'm billing \$400 per hour.

13 Q. In this matter?

14 A. Yes.

15 Q. Is that your standard rate?

16 A. Yes.

17 Q. And that's -- so the \$400 an hour is
18 what you're referring to in Paragraph 470 of
19 your declaration?

20 A. Yes.

21 Q. Let's take a quick break.

22 (Recess is taken.)

23 Q. Dr. Knaebel, I appreciate your time.
24 I don't have any further questions, unless your
25 attorney does.

1 MR. GILL: That's it for the day?

2 MR. ATALLAH: Yeah.

3 MR. GILL: Just give me a minute.

4 MR. ATALLAH: Sure.

5 MR. GILL: No questions. He will
6 sign.

7 (Signature not waived.)

8 - - -

9 Thereupon, the deposition concluded
10 at approximately 11:17 a.m.

11 - - -

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AFFIDAVIT/ERRATA SHEET

STATE OF OHIO:

SS:

COUNTY OF FRANKLIN:

GCE GAS CONTROL EQUIPMENT, INC. vs. VBOX,
INCORPORATED

I, KENT S. KNAEBEL, Ph.D., do hereby
certify that I have read the foregoing
transcript of my deposition given on August 25,
2023, and wish to make the following additions,
corrections, amendments, or deletions:

PAGE NO.	LINE NO.	CHANGE AND REASON FOR CHANGE:
----------	----------	----------------------------------

In all other respects, the transcript is true
and correct.

KENT S. KNAEBEL, Ph.D.

Subscribed and sworn to before me this ___ day
of _____, 2023.

NOTARY PUBLIC, STATE OF OHIO
My Commission Expires:

C E R T I F I C A T E

- - -

THE STATE OF OHIO:

SS:

COUNTY OF FRANKLIN:

I, Rebecca Williams, a Professional Reporter and Notary Public in and for the State of Ohio, do hereby certify that before the taking of her said deposition, the said KENT S. KNAEBEL, Ph.D. was first duly sworn by me to tell the truth, the whole truth, and nothing but the truth;

That said deposition was taken in all respects pursuant to the stipulations of counsel heretofore set forth; that the foregoing is the deposition given at the said time and place by the said KENT S. KNAEBEL, Ph.D.;

That I am not an attorney for or relative of either party and have no interest whatsoever in the event of this litigation.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal of office at Columbus, Ohio, this 1st day of September, 2023.

Rebecca Williams

Rebecca Williams
Notary Public, State of Ohio

My Commission Expires: June 7, 2027.

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