

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESMED LIMITED, RESMED INC., AND RESMED CORP.,

Petitioners,

v.

FISHER & PAYKEL HEALTHCARE LIMITED,

Patent Owner.

Case Nos.

IPR2016-01716

IPR2016-01717

IPR2016-01719

IPR2016-01725

IPR2016-01727

IPR2016-01729

IPR2016-01730

IPR2016-01731

U.S Patent Nos.

7,111,624

8,091,547

8,550,072

6,398,197

DEPOSITION OF

ALEXANDER VIRR

Wednesday, October 11, 2017

Taken By Christine K. Herman, RPR, CRR

DIGITAL EVIDENCE GROUP

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FPH EX. 2004

ResMed v. Fisher & Paykel

IPR2016-01719

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4 Virr Exhibit Number 2003

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1 THE DEPOSITION OF ALEXANDER VIRR,
2 taken on this 11th day of October, 2017, at the law
3 offices of Fish & Richardson, PC, 3200 RBC Plaza,
4 60 South Sixth Street, Minneapolis, Minnesota,
5 commencing at approximately 9:03 a.m.

6 Whereupon,

7 ALEXANDER VIRR,
8 a witness in the above-entitled matter,
9 after having been first duly sworn,
10 deposes and says as follows:

11 EXAMINATION

12 BY MR. BELLINGER:

13 Q Good morning, Mr. Virr.

14 A Good morning.

15 Q Have you had your deposition taken before?

16 A Yes.

17 Q Approximately how long ago was that?

18 A Oh, dear. I had one taken about a year
19 ago and one maybe a couple of years ago.

20 Q Okay. So you're probably familiar with
21 the process, but I'll go over some of the rules just
22 as a refresher.

1 Do you understand the court reporter will
2 be writing down everything we say here today?

3 A Yes.

4 Q Okay. And for that reason, it's important
5 that you give verbal answers to my questions, as
6 opposed to head nods or things like that. Okay?

7 A Yes.

8 Q And because the court reporter is writing
9 down everything that we say, it's important that you
10 let me finish my question before you start your
11 answer, and I'll let you finish your answer before I
12 start my next question so we're not speaking at the
13 same time. Is that okay?

14 A That's good.

15 Q Okay. If at any time you need a break,
16 just let me know. All right?

17 A Okay.

18 Q Okay. Can you describe your educational
19 background for me, please?

20 A Yes. I have two degrees. I've got a
21 bachelor's in history and political science from the
22 Australian National University, and I also have a

1 bachelor's degree in mechanical engineering from
2 New South Wales University.

3 Q When did you receive those degrees?

4 A The first one in 1987, and the engineering
5 degree in 1990.

6 Q Okay. And after receiving the history
7 degree, did you continue directly on to get your
8 engineering degree?

9 A No. I worked for approximately two years
10 in the Department of the Prime Minister and Cabinet
11 in Canberra in Australia.

12 Q And after receiving your mechanical
13 engineering degree in 1990, what's the first job
14 that you took?

15 A So my first job was with Teletronics,
16 which is like electronics with a T on the front,
17 Teletronics Pacing Systems. That was a company
18 that made implantable electronic devices for
19 treatment of heart conditions and other conditions.

20 Q And how long did you work there?

21 A Approximately two years.

22 Q And what's the next job you had?

1 A My next job was with ResMed. I joined
2 ResMed in 1996.

3 Q And how long were you employed at ResMed?

4 A I was at ResMed for 13 years.

5 Q Okay. And what types of devices -- Did
6 you work on designing devices while at ResMed?

7 A I did.

8 Q And what types of devices did you work on
9 designing?

10 A So initially I was working on components
11 of devices. I worked on fans in particular and flow
12 meters, and then more general types of components,
13 cases and that sort of thing. And then eventually I
14 worked on whole devices, so either flow generators
15 of various sorts or humidifiers.

16 Q Did any of the devices you worked on
17 result in commercial products?

18 A Yes.

19 Q And what were those products?

20 A So there would have been Sullivan 5
21 upgrade, I think it was called. There was the S7
22 humidifier, which was called H2i. There was a

1 device called CS2, which was a high-end respirator,
2 or high-end flow generator, anyway. There was a
3 humidifier called H3i. I had some involvement with
4 those, tangential, with a device called H4i, which
5 is another humidifier. And I was involved with H5i,
6 which was a humidifier and heated tube system.

7 Q And after you left ResMed in 2009, what's
8 the next job that you had?

9 A I did two things. I started my own
10 consultancy, which is called Virtex, V-I-R-T-E-X,
11 and that's a consultancy firm. And simultaneously I
12 started with a firm called PAFtec, P-A, F for Fred,
13 T-E-C.

14 Q And what type of work have you done with
15 respect to Virtex?

16 A At Virtex I've done consulting. So there
17 has been a small amount of expert witness work, like
18 this. There's been quite a lot of design work in
19 the clean energy space. There's been some in the
20 medical space, although not respirators. There's
21 been other sort of general design work.

22 Q And have you done consulting work for

1 ResMed?

2 A Yes. I produced a humidifier design
3 manual at one point, and I gave one lecture on that
4 manual. And I've also provided expert witness work
5 as part of my consulting role.

6 Q What was the humidifier manual you worked
7 on? What product was that for?

8 A It wasn't that type of manual. It was
9 like a design guide, how to design humidifiers and
10 that sort of thing.

11 Q And when, approximately, did you do that
12 work?

13 A Very approximately, three to four years
14 ago. I'm guessing there. I'm afraid I'd have to
15 check.

16 Q And you also mentioned expert witness
17 work. Apart from the present matter, have you done
18 other expert witness work for ResMed?

19 A Yes. So there's this matter for expert
20 witness, and there's also an ongoing matter to do
21 with masks.

22 I should probably clarify. Also for

1 Virtex, I've done work as an inventor on ResMed
2 patents, so I wasn't appearing as an expert witness.
3 I was appearing as an inventor, but I was still
4 compensated for my time.

5 Q When you say appearing as an inventor, was
6 it for design work you did for ResMed while at
7 Virtex?

8 A No.

9 Q What did that patent work relate to?

10 A This was patent work relating to early
11 patents at ResMed in a matter with BMC.

12 Q Okay. When you say patent work, do you
13 mean obtaining patents, or enforcement, litigation
14 efforts?

15 A So the matter with BMC was a legal dispute
16 with BMC, and I was -- I was being deposed because I
17 was an inventor on one of the patents at issue.

18 Q Other than what you've told me, have you
19 done any other consultancy work for ResMed since
20 leaving in 2009?

21 A I don't believe so.

22 Q With respect to the other company, PAFtec,

1 what's the nature of its business?

2 A PAFtec makes what's called a trade
3 respirator, so it's a device for people working in
4 very dusty or poisonous gas environments: Miners,
5 welders, builders, that sort of thing. It's a
6 different device from what we're discussing in this
7 sort of case. It's more a filtration device. It's
8 a powered machine which draws air through a HEPA
9 filter, normally very fine filter, and supplies it
10 to a mask. And that's worn while on the job.

11 Q I see you brought a couple of documents
12 with you today. Are those copies of your two reply
13 declarations in these IPR proceedings?

14 A Yes, they are.

15 Q And in the IPR proceedings, you've offered
16 opinions as to the obviousness of certain claims of
17 the Fisher & Paykel's patents; is that correct?

18 A That's correct.

19 Q Okay. And how did you start your
20 obviousness analysis for those claims?

21 A So I reviewed the various documents, and I
22 also reviewed other material which was provided to

1 me as being relevant, and I also just thought back
2 about my experience during that time.

3 Q All right. Well, in forming opinions as
4 to specific claims of the Fisher & Paykel patents,
5 did you start by looking at the claim language?

6 A Yes.

7 Q And did you then look to see if you could
8 find elements of those claims in the prior art?

9 A Yes.

10 Q Okay. And how did you decide what
11 potential prior art references to review as part of
12 your analysis?

13 A For the most part, the prior references
14 were provided by counsel. I'm broadly familiar with
15 other patents from that time, so I could have asked
16 for those, but I think in this case I didn't have
17 to.

18 Q Do you recall any prior art references you
19 relied upon that you located on your own?

20 A No. Not for this case.

21 Q Did you place any constraints on the type
22 of potential prior art that you were willing to

1 review and consider?

2 MR. KANE: Object to the form.

3 A Not in this case, no.

4 Q (BY MR. BELLINGER) So was it your
5 understanding you were free to consider any prior
6 patent or printed publication as prior art in
7 connection with your analysis?

8 A I don't know the legalities of it. On the
9 face of it -- well, no. I'm not sure of the law in
10 that case.

11 Q So you're not sure what you were allowed
12 to look at or not look at in terms of references?

13 A The question hasn't arisen, so I haven't
14 asked.

15 Q Now, you've defined the person of ordinary
16 skill in the art in these proceedings, correct?

17 MR. KANE: Counsel, the deposition today
18 is with respect to the second declarations, and it
19 seems like you're outside of that.

20 MR. BELLINGER: I don't believe I am. I'm
21 here to address the obviousness of the claims.

22 MR. KANE: Well, can you point me in the

1 declaration where you define the person of ordinary
2 skill?

3 Q (BY MR. BELLINGER) Did you offer your
4 opinions in your second declaration through the eyes
5 of a person of ordinary skill in the art?

6 A Yes.

7 Q Okay. And did you define that to be a
8 person with a bachelor's degree in mechanical
9 engineering, biomedical engineering, or related
10 discipline, and at least five years of relevant
11 product design experience in the field of medical
12 devices or respiratory therapy, or an equivalent
13 advanced education?

14 A Which document are you referring to?

15 Q The definition you provided you didn't
16 repeat in the second declaration, but it was in one
17 of your prior ones. Would you like to see it?

18 A Yes, please.

19 Q Okay. So before you is what's been
20 previously marked as Exhibit RMD1003 in IPR
21 proceeding 2016-01719. And if you look at paragraph
22 22, which is on -- there's two sets of page numbers,

1 but going by the larger page number, it's page 9.

2 Are you there?

3 A Yes.

4 Q Okay. And does that paragraph set forth
5 the level of skill in the art that you applied?

6 A Yes, it does. I see it says, in my
7 opinion, a person of ordinary skill in the art at
8 the time of the effective filing dates of the
9 application that led to the '197 patent in this case
10 would have had a bachelor's degree in mechanical
11 engineering, biomedical engineering, or a related
12 discipline, and at least five years of relevant
13 product design experience in the field of medical
14 devices or respiratory therapy, or an equivalent
15 advanced education.

16 Q And that's the level of skill you applied
17 when preparing your reply declarations; is that
18 true?

19 A It is.

20 Q All right. And why did you require design
21 experience in the field of medical devices or
22 respiratory therapy?

1 A Although a competent mechanical engineer
2 could design one of these devices, they wouldn't
3 normally be charged with that in a larger, reputable
4 company until they'd had some experience. They
5 would have some guidance. You know, it's like any
6 other field. There's some level of experience
7 required.

8 Q And when you say medical devices, do you
9 mean FDA-approved medical devices?

10 A No. Not necessarily.

11 Q All right. Well, when you say medical
12 devices, do you mean devices such as CPAP devices?

13 A That would be an example.

14 Q All right. And when you talk about, in
15 your definition, relevant product design experience,
16 would that include CPAP devices?

17 A CPAP devices would be relevant, yes.

18 Q Humidifiers for use with medical devices?
19 Would that be relevant?

20 A Experience with design of humidifiers
21 would be relevant, certainly.

22 Q Anything else that you can think of that

1 would constitute relevant product design experience?

2 A Not offhand.

3 Q I've placed before you what's previously
4 been marked as Exhibit 1001, which is a copy of
5 U.S. Patent No. 6,398,197. And is this one of the
6 patents about which you've opined about in your
7 reply declarations?

8 MR. KANE: Object to the form.

9 A Yes.

10 Q (BY MR. BELLINGER) All right. And on the
11 front page of the patent there's two columns of
12 text. Do you see that?

13 A I do.

14 Q And if you'd look at the left-hand column,
15 there's a series of parenthetical numbers on the far
16 left. Do you see that?

17 A I do.

18 Q If you can go down to the one -- the
19 parenthetical number 52, do you see that?

20 A Yes.

21 Q And beside that number it says, U.S. Cl.
22 Do you see that?

1 A I do.

2 Q Do you know what that means?

3 A No.

4 Q Are you familiar with the patent office
5 classification system for categorizing patents and
6 patent applications?

7 A No.

8 Q Do you know what class the '197 patent was
9 classified in by the patent office?

10 A I don't.

11 Q All right. Did you consider any
12 classification information in forming your opinions
13 in this matter?

14 A No.

15 Q Beneath -- in the line beneath that
16 there's a line designated by parenthetical number
17 58. Do you see that?

18 A I do.

19 Q And to the right of that there's text that
20 says, Field of Search. Do you see that?

21 A Yes.

22 Q Do you know what that means?

1 A I don't.

2 Q If you turn to column 1 of the patent --
3 Before I ask you questions about this, are you a
4 named inventor on any patents of your own?

5 A Yes.

6 Q And approximately how many?

7 A I don't know offhand.

8 Q Okay.

9 A It's several.

10 Q All right. Are you a named inventor on
11 any U.S. patents?

12 A Yes. I believe so.

13 Q Okay. Do you know how many of those?

14 A No. Keeping track of the numbers is a bit
15 tricky, because they have different filings and
16 things, but I think I have several.

17 Q And are you generally familiar with the
18 process for obtaining a patent in the United States?

19 A Very broadly.

20 Q If you look at column 1 of the '197
21 patent, at about line 5 there's a heading that says,
22 Field of the Invention. Do you see that?

1 A I do.

2 Q Okay. And do you have an understanding of
3 what the purpose of that section of the patent is,
4 the Field of the Invention section?

5 MR. KANE: Object to the form.

6 A I don't, beyond reading what it says.

7 Q (BY MR. BELLINGER) Okay. Well,
8 continuing on, at around lines 6 through 8, it says,
9 the present invention relates to water chambers for
10 gases humidification and in particular to water
11 chambers for "slide-on" humidifiers and CPAP
12 machines.

13 Is your understanding that is describing
14 the field of invention of the '197 patent?

15 MR. KANE: Object to the form.

16 A It's written under a heading that says
17 Field of the Invention, so putting any sort of legal
18 complexities aside, I imagine that's probably true.

19 Q (BY MR. BELLINGER) And if you look at --
20 go to column 3 of the patent, and if you go down to
21 the bottom, to claim 1. Do you see that?

22 A I do.

1 Q And that's one of the claims about which
2 you offered opinions, correct?

3 A Offhand I don't remember the numbers, but
4 I think that's one of them.

5 Q And do you agree that claim 1 is claiming
6 a water humidification chamber?

7 MR. KANE: Object to the form.

8 A I see it says what is claimed is, 1, In a
9 water chamber adapted for use in conjunction with a
10 heater base and having a horizontally oriented gases
11 inlet in a wall thereof the improvement comprising
12 an elongate flow tube extending into said water
13 chamber from the inner periphery of said gases
14 inlet, an inlet end of said elongate flow tube
15 covering said inlet and an outlet end of said flow
16 tube being spaced from the wall of said chamber,
17 said flow tube in use receiving, at said inlet end,
18 gases supplied to said gases inlet, said gases
19 passing through said flow tube and exiting said flow
20 tube at said outlet end distant from wall.

21 Q (BY MR. BELLINGER) And so having read the
22 claim, do you agree that claim 1 is claiming a water

1 humidification chamber with the various elements and
2 features that you just read?

3 MR. KANE: Object to the form.

4 A I wouldn't choose to characterize. I
5 think it's there in plain language. It's not really
6 for me to interpret it.

7 Q (BY MR. BELLINGER) Okay. Will you agree
8 the first part of the claim says, In a water chamber
9 adapted for use in connection with a heater base?
10 Do you see that?

11 MR. KANE: Object to the form.

12 A That's the first -- those are the first
13 words of the sentence, yes.

14 Q (BY MR. BELLINGER) All right. And do you
15 agree that claim 1 is claiming, at least in part, a
16 water chamber adapted for use in connection with a
17 heater base?

18 MR. KANE: Object to the form.

19 A Again, I don't think it's for me to
20 characterize. The words are there, plain to read.

21 Q (BY MR. BELLINGER) I'll give you a copy
22 of Exhibit RMD 1026, which is the second declaration

1 of Alexander Virr in IPR2016-01719. If you'd turn
2 to paragraph 16 of your declaration, please.
3 There's two sets of page numbers on this document.
4 I'm going to refer to the larger numbers that are
5 nearest to the text.

6 So if you look on -- near the bottom,
7 three lines down on page 14, in paragraph 16, you
8 state, Rather, it is clear that a POSITA -- person
9 of ordinary skill in the art -- would have
10 recognized that the '197 patent is directed to at
11 least two problems which are less specific. And you
12 say, 1, noise that results from air delivery to the
13 water chamber.

14 Do you see that part of the sentence?

15 A I do.

16 Q Okay. And after that you cite to a
17 portion of the '197 patent. Is that true?

18 A Yes. That's correct.

19 Q And you're citing to, in support of your
20 statement about noise, to column 1, lines 17 through
21 42. Is that right?

22 A That's correct. Yes.

1 Q Okay. So let's look at column 1, line 17.

2 Beginning at line 17 of column 1, it reads,

3 Humidifier chambers of this type are also now used

4 in compact and portable ventilation machines, for

5 example machines intended for the home treatment of

6 obstructive sleep apnea (CPAP machines). These

7 machines pose a particular difficulty as the air

8 flow is delivered directly to the humidification

9 chamber from the air blower of the CPAP machine and

10 this can generate an annoying noise level within the

11 humidifier chamber.

12 Do you see that?

13 A I do.

14 Q Okay. And isn't it true, that, within

15 column 1, lines 17 through 42, the discussion of

16 noise relates to noise within a CPAP humidifier

17 chamber?

18 A Sorry. Can you repeat the question?

19 Q Sure. Isn't it true that the discussion

20 in the '197 patent of noise that's contained within

21 column 1, lines 17 through 42, relates to noise

22 within a CPAP humidifier chamber?

1 MR. KANE: Object to the form.

2 A So the type of noise that's discussed has
3 to do with air flow directly from -- air flowing
4 directly to the humidifier chamber from the air
5 blower of the CPAP machine.

6 Q (BY MR. BELLINGER) Right. And so this
7 part of the patent is discussing noise in a CPAP
8 humidifier chamber, correct?

9 MR. KANE: Object to the form.

10 A It's discussing noise created by air
11 flowing into the CPAP humidifier chamber.

12 Q (BY MR. BELLINGER) And then, returning to
13 your second declaration, Exhibit 1026, the top of
14 page 15, continuing on with the sentence I was
15 reading before, you identify a second problem, 2,
16 spillage from tipping the water chamber.

17 Do you see that?

18 A I do.

19 Q And in support of that, you also cite to a
20 portion of the '197 patent, correct?

21 A Yes.

22 Q And there you're citing to column 1, lines

1 24 through 34? Do you see that?

2 A I do.

3 Q Okay. And if you can return back to the
4 '197 patent, and at lines 24 through 34 of column 1,
5 do you agree that text is addressing spillage in a
6 CPAP humidifier?

7 MR. KANE: Object to the form.

8 A So I see it says, Furthermore where the
9 CPAP machine is adapted for use with slide-on
10 humidifier chambers, and the connection of the
11 chamber to the machine is accomplished within the
12 single sliding movement, the air inlet -- the inlet
13 air port is consequently provided horizontally
14 through a side of the chamber.

15 And how far do we go? Thirty-four.

16 Locating the inlet port in the side of the
17 chamber significantly increases the likelihood of
18 water spillage from the chamber if the chamber is
19 tilted with water therein. This can be of
20 particular disadvantage where the water may flow out
21 through the inlet port and into the air blower of
22 the CPAP machine.

1 Q (BY MR. BELLINGER) So the portion of the
2 '197 patent that you cite in your declaration,
3 column 1, lines 24 through 34, do you agree that's
4 describing a spillage issue in a CPAP humidifier?

5 MR. KANE: Object to the form.

6 A Yeah. I think what I wrote in my
7 declaration is right. It's spillage from tipping
8 the water chamber.

9 Q (BY MR. BELLINGER) And it's a water
10 chamber of a CPAP device as described in the patent,
11 correct?

12 A It says that it may be particularly
13 disadvantageous where the water flows into the
14 blower of the CPAP machine.

15 Q Correct. And it's discussing a CPAP
16 device. True?

17 A Well, see, it says at the top, Furthermore
18 where the CPAP machine is adapted for use with a
19 slide-on humidifier. That appears to be about
20 humidifiers, at least primarily, for CPAP machines.

21 Q Are you familiar with the term low-profile
22 humidifier?

1 MR. KANE: Object to the form.

2 A I'm not immediately familiar with having a
3 particular meaning beyond the normal meaning of the
4 words.

5 Q (BY MR. BELLINGER) I'm going to show you
6 what's been marked as Exhibit 1004 in IPR2016-01719,
7 which is a copy of the Hebblewhite patent. And are
8 you familiar with this patent?

9 A I am.

10 Q If you go to column 1, if you could read
11 for me out loud lines 27 through 33.

12 A 27 through 33. When a humidifier is used
13 with a CPAP device? Is that where you want me to
14 start?

15 Q Yes, please.

16 A When a humidifier is used with a CPAP
17 device, it is convenient to be able to place the
18 CPAP device on top of the humidifier. In this case,
19 it is desirable that the humidifier is designed so
20 as to form a low, generally flat base for supporting
21 the CPAP device. Such a humidifier is known as a
22 low-profile humidifier.

1 Q Okay. Is that consistent with your
2 understanding of a low-profile humidifier?

3 MR. KANE: Object to the form.

4 A I don't have any -- I don't believe that
5 low-profile has any particular meaning in relation
6 to humidifiers that it doesn't have in relation to
7 anything else.

8 Q (BY MR. BELLINGER) Do you agree that
9 Hebblewhite is describing and shows in Figure 1 a
10 low-profile humidifier?

11 A I don't know that there's any indication
12 that what he shows in -- I don't think he
13 necessarily specifies that what is shown in Figure 1
14 is a low-profile device. He's talking, in the
15 paragraph I just read, about a low-profile
16 humidifier.

17 Q Do you believe that the device shown in
18 Figure 1 of Hebblewhite is a low-profile device?

19 MR. KANE: Object to the form.

20 A So my understanding of low-profile means
21 that it's either generally flat or it's a lower
22 profile than other related devices. And what he

1 shows is a relatively flat, broad device.

2 Q (BY MR. BELLINGER) And so would you agree
3 that what's shown in Figure 1 is a low-profile
4 humidifier?

5 MR. KANE: Object to the form.

6 A As I say, I don't believe there's a
7 particular accurate meaning to it. It's certainly a
8 device that is significantly larger in the two
9 horizontal dimensions than it is in the vertical
10 dimension.

11 Q (BY MR. BELLINGER) And the device, as
12 shown in Figure 1, is designed to have the CPAP
13 blower be positioned on top of the humidifier. Is
14 that right?

15 A Well, not necessarily. The way these
16 types of humidifiers were used, in my experience,
17 the designer liked to believe that the CPAP device
18 would be placed on top. And sometimes it was and
19 sometimes it wasn't. In the designer's mind, that
20 was a neat way of doing things, but the patient just
21 did what they wanted, really.

22 Q Did you understand the intent of the

1 design shown in Figure 1 was to have the CPAP blower
2 rest on top of the humidifier?

3 MR. KANE: Object to the form.

4 A No. I think that's overcharacterizing it.
5 I think it was felt that it might be convenient.
6 There was nothing, really, about the functionality
7 of it that required the blower to be in any
8 particular place.

9 Q (BY MR. BELLINGER) All right. If you
10 turn to your declaration, Exhibit 1026, and if you
11 look at paragraph 6, the portion that begins on the
12 top of large page number 5, the first sentence there
13 reads, Specifically, a person of skill in the art
14 would have understood that a tube was not necessary
15 at Hebblewhite's inlet due to Hebblewhite disclosing
16 a stand-alone humidifier with the blower being above
17 the blower. Then it continues on.

18 What did you mean by "blower being above
19 the blower"?

20 A Yes. That's clearly a typographical
21 error. It's meant to say, I believe, disclosing a
22 stand-alone humidifier with the blower being above

1 the humidifier.

2 Q So you're stating in your declaration, the
3 design of Hebblewhite was intended to have the
4 blower being above, as you've corrected the text,
5 the humidifier chamber. True?

6 A That's correct.

7 Q Now, in Figure 1 of Hebblewhite --

8 A Can I just add to that?

9 Q Sure.

10 A Okay. So what is functionally important
11 here is that the inlet -- sorry -- the outlet of the
12 blower is physically above the inlet of the
13 humidifier, the reason being that water doesn't then
14 readily travel from the humidifier back to the
15 blower.

16 What you asked about earlier was whether
17 the blower was physically placed on top of the
18 humidifier, and the opinion I expressed was that,
19 while that was a design intent, sometimes that was
20 the case and sometimes it wasn't.

21 However, I should point out that the types
22 of blowers we're talking about were -- at least with

1 the early blowers, they were very tall, and that,
2 regardless of whether the blower was placed directly
3 on top of the humidifier or next to it on the table,
4 the relevant portion of the blower, which is the air
5 outlet, would be substantially higher than
6 Hebblewhite's inlet.

7 Q Going to paragraph 6 in your declaration,
8 back to page 4, about halfway down, you state, I
9 agree with Dr. Schneider that, quote, any spillage
10 of water into the air inlet of Hebblewhite's water
11 chamber would be unlikely to reach the CPAP device
12 or its blower because of its location on top of the
13 humidifier chamber. It continues on.

14 Is that your opinion?

15 A This is essentially stating the same point
16 that I made in my comments a moment ago, my last
17 comments. It's a simple point. The point is that
18 the -- regardless of where the blower is physically
19 placed, because of its greater height, if water were
20 to flow into the inlet of Hebblewhite's water
21 chamber, it would then be required to flow uphill in
22 order to get into the outlet of the blower.

1 Q Returning to Hebblewhite, Exhibit 1004, if
2 we look at Figure 1, Figure 1 shows a tube extending
3 from the air outlet, correct?

4 MR. KANE: Object to the form.

5 A I don't really understand. There's an air
6 outlet 42, and it has a tube extending outwards from
7 that 6? Is that the one you mean, or do you mean --
8 there's a dotted one that is 50 -- or 40.

9 Q (BY MR. BELLINGER) Hebblewhite shows a
10 tube extending from the air outlet and into the
11 water chamber. Correct?

12 A Yes.

13 Q All right. Hebblewhite does not show, in
14 Figure 1, a tube extending from the air inlet and
15 into the water chamber. True?

16 A That's correct.

17 Q And Hebblewhite does not describe
18 positioning a tube extending into the water chamber
19 from the air inlet. Correct?

20 A That's correct.

21 Q And I believe, as you already testified,
22 water entering the air inlet of Hebblewhite would

1 not have been problematic due to its design. True?

2 MR. KANE: Object to the form.

3 A So what I've suggested is that it's less
4 likely than other devices because of the fact that
5 that water would then, typically, have had to flow
6 uphill to get into the flow generator.

7 Q (BY MR. BELLINGER) Which is unlikely to
8 occur. True?

9 MR. KANE: Object to the form.

10 A I don't think I've offered an opinion on
11 that, but I think what I've said is clear.

12 Q (BY MR. BELLINGER) And it's your opinion
13 it wasn't necessary to place a tube at the air inlet
14 of Hebblewhite in order to prevent damage to the
15 CPAP blower from water entering the inlet, correct?

16 MR. KANE: Object to the form.

17 A So prevent is a difficult word in terms of
18 humidifier design. You're not eliminating the risks
19 here. But in a humidifier, you have a lot of
20 different requirements, and they have to be
21 balanced, and you have to balance the cost and
22 complexity of things against the requirement.

1 There would be advantages in any
2 humidifier in increasing a spill-back protection.
3 But in this particular case, the chance of water
4 getting back into the blower is relatively low, and
5 so it probably doesn't justify the cost.

6 Q (BY MR. BELLINGER) And it's your opinion
7 it was not necessary to place a tube extending into
8 the chamber at Hebblewhite's inlet, correct?

9 MR. KANE: Object to the form.

10 A I don't think I've opined on whether it's
11 necessary or not.

12 Q (BY MR. BELLINGER) Well, if you go back
13 to your declaration, to 1026, paragraph 6, the top
14 of page 5, you state, in part, Specifically, a
15 person of skill in the art would have understood
16 that a tube was not necessary at Hebblewhite's
17 inlet.

18 Do you see that?

19 A I do.

20 Q Is that your opinion?

21 A Yes. Specifically, a person of skill in
22 the art would have understood that a tube was not

1 necessary at Hebblewhite's inlet due to Hebblewhite
2 disclosing extend line humidifier with the blower
3 being above, as I said, the humidifier.

4 Q And for those reasons, it was not
5 necessary to have a tube at Hebblewhite's inlet,
6 correct?

7 MR. KANE: Object to the form.

8 A So as I've indicated, it's not a need.
9 It's not necessary, I guess. It's not saying that
10 it wouldn't have been helpful in some way, but
11 it's -- it's not necessary in that particular case.

12 Q (BY MR. BELLINGER) If you look at column
13 3 of Hebblewhite, and if you could read out loud the
14 paragraph that's located at lines 34 through 40.

15 A When the air flow? That one?

16 Q Yes, please.

17 A When the air flow within the passageway
18 creates waves on the surface of the water, if it's
19 being found that the water has a tendency to splash
20 against the end wall of the passageway, resulting in
21 a danger of water spilling into the air outlet, it
22 has been found that by, spacing the air outlet

1 aperture away from the end wall, the danger of water
2 spilling into the air outlet is greatly reduced.

3 Q And does that passage accurately describe
4 the splashing issue that Hebblewhite is addressing?

5 MR. KANE: Object to the form.

6 A I don't particularly feel I should comment
7 what was in Hebblewhite's mind. He describes a
8 splashing issue that occurs with flow of water over
9 the -- flow of air over the water. But that's the
10 only issue he's addressing. I don't know.

11 Q (BY MR. BELLINGER) All right. Well,
12 setting aside what might have been in his mind but
13 not put in the patent, with respect to what was
14 placed in the patent, do you agree that the passage
15 you read describes the splashing issue that the
16 patent is addressing?

17 MR. KANE: Object to the form.

18 A No. What I agree is that in this passage
19 he is describing a splashing issue.

20 Q (BY MR. BELLINGER) And it's the splashing
21 issue, as described in that paragraph, that the tube
22 is intended to address, correct?

1 MR. KANE: Object to the form.

2 A What he says about the tube is that it
3 addresses this splashing issue. It may well address
4 other issues. I don't know.

5 Q (BY MR. BELLINGER) All right. But as far
6 as what's described in the patent, are you aware of
7 any other issue described in the patent that the
8 tube is intended to address, other than the portion
9 you just read for me?

10 A I don't know. He describes a tube, and he
11 says that it has beneficial effects in relation to
12 splashing. Offhand, I don't know whether there are
13 other aspects -- other functions of it that he finds
14 valuable.

15 Q And as described in this paragraph, the
16 splashing issue is caused by air flow through the
17 chamber. True?

18 A That's correct.

19 Q And the splashing is a potential issue in
20 Hebblewhite due to the proximity of the outlet to
21 the water surface. Correct?

22 MR. KANE: Object to the form.

1 A No. No. I don't agree with that.

2 The primary reason why splashing is an
3 issue for him is the length of the flow path. He
4 talks about the elongated passageway.

5 You have to recall that Hebblewhite is an
6 unpowered humidifier, and unpowered humidifiers
7 suffer from the weakness that, as the air passes
8 over the water, it cools it, and as the water is
9 cooled, it becomes less and less inclined to produce
10 water vapor, and so a -- the normal course of
11 things, an unpowered humidifier, although it might
12 have reasonable output for the first few minutes,
13 that output rapidly diminishes.

14 So in order to overcome that, I think
15 Hebblewhite has created a very long flow path, what
16 he calls an elongated flow path, with the hope of
17 picking up -- by virtue of a very large water
18 surface, picking up more humidity.

19 The trouble with a very long water
20 surface, a very long passageway like this, is that
21 the waves have a long what's called fetch. They
22 move a long way across the water, and they can build

1 up over a long distance. And so the reason he's
2 particularly concerned with splashing is that he has
3 this long -- elongated passageway, and it's
4 particularly likely to build up wave action.

5 Q (BY MR. BELLINGER) So the elongated
6 passageway is one of the causes of the waves. True?

7 A That's correct.

8 Q Okay. And the reason that the waves could
9 splash into the outlet opening, if not for the tube,
10 was due, in part, to the positioning of the outlet
11 relative to the water surface. Correct?

12 MR. KANE: Object to the form.

13 A No. I don't really agree with that.

14 So you can see that, while most of
15 Hebblewhite is low profile, as you described it,
16 it's a flat structure, not much -- what I imagine is
17 not much higher than the water level. At the inlet
18 and outlet, he's done his best to raise it up, so --
19 and you can see that the outlet is actually placed
20 as high above the water as he's been able to.

21 And I think what that tells you is that,
22 in this particular case, the waves were unusually

1 large. So he's done quite well. He's placed it
2 high up above the water surface, but, even so, he's
3 had trouble with splashing.

4 Q (BY MR. BELLINGER) Right. And if the
5 tube wasn't there, water could enter the outlet due
6 to the distance between the outlet and the water
7 surface, correct?

8 MR. KANE: Object to the form.

9 A So this is the tube. I mentioned it's 48,
10 the tube that's on the outlet. Is that what you're
11 saying?

12 Q (BY MR. BELLINGER) Yes.

13 A So you're saying, if that tube were
14 removed, that there would be more chance of water
15 splashing.

16 Q Well, is that your opinion or not?

17 A Well, I don't think I give an opinion
18 about it, but I think Hebblewhite describes it. It
19 has been found, he says -- this is at line 38,
20 roughly, of column 3 -- It has been found that, by
21 spacing the air outlet aperture away from the end
22 wall, the danger of water spilling into the air

1 outlet is greatly reduced.

2 Q Hebblewhite does not describe splashing
3 occurring at the air inlet, then, correct?

4 A Offhand, I don't know. I'm not aware of
5 it.

6 Q And with respect to the tube extending
7 into the chamber at the outlet end -- I'm talking
8 about 44. Do you see that?

9 A Is it 44?

10 Q Or 48. That's fine.

11 A Okay.

12 Q And that's shown extending generally
13 horizontally into the water chamber, correct?

14 A I don't know. It's a little, tiny
15 isometric view with a dotted line on it. I don't
16 know whether it's horizontal or it's in line with
17 the surface 40.

18 Q Well, if you look at Figure 2, what's your
19 understanding of what's shown in Figure 2?

20 A I think 2, to me, appears to be a
21 slightly -- Figure 2. Figure 2. Without reading
22 the text, I don't know what Figure 2 means.

1 Does Figure 2 purport to be the outlet?

2 Q Do you agree that Figure 2 shows the
3 pieces fitting generally horizontally or in line
4 with one another?

5 MR. KANE: Object to the form.

6 A So those two things are quite different.
7 It appears that the component, which I suppose you'd
8 call 6, maybe, and the component 44 -- there's no
9 axis drawn, but on the face of it, they appear to be
10 aligned. I don't think there's any indication of
11 which direction those are pointing from Figure 2.
12 At least I can't see one.

13 Q (BY MR. BELLINGER) All right. Well, if
14 you look at element 48 in Figure 2 --

15 A Yes.

16 Q -- do you agree that corresponds to
17 element 48 in Figure 1?

18 A That seems likely, yeah.

19 Q And then in Figure 1, do you agree that
20 what I call the roof of the chamber slopes downward
21 as it moves away from the air outlet?

22 MR. KANE: Object to form.

1 A So this is the surface 40 that we're
2 talking about?

3 Q (BY MR. BELLINGER) Yes.

4 A Yes. It appears that 40 is higher at the
5 outlet end than it is at the other end.

6 Q And the slope of that roof downward would
7 limit the distance that tube 48 could extend into
8 the chamber. True?

9 MR. KANE: Object to the form.

10 A I don't know. So there's two things we'd
11 need to know. One is the distance between the
12 little tube, 44, I suppose it is, and the roof. And
13 that's shown here schematically, I think, so there's
14 really no indication of how far that is. So you can
15 imagine, if that was -- if that was -- if 44 was no
16 higher than 32, which is the bottom corner of the
17 sloped surface, then you would only be limited by
18 the end wall.

19 Alternatively -- I agree that Figure 2
20 shows an angle between the tubes and the surface 40,
21 but that angle is not specified. So without knowing
22 that angle -- and you can't know how far you could

1 extend 48. It's broadly the case that you couldn't
2 extend 48 infinitely, but I think, from these
3 pictures, it would be dangerous to speculate on how
4 far you could extend it.

5 Q (BY MR. BELLINGER) You agree that
6 Figure 1 shows roof 40 sloping downward. True?

7 MR. KANE: Object to the form.

8 A So roof 40 appears to be higher at the
9 device outlet than it is at the other end of third
10 point 32.

11 Q (BY MR. BELLINGER) And you agree that the
12 slope of the roof would impact the distance that
13 tube 48 could extend horizontally into the chamber.
14 True?

15 MR. KANE: Object to the form.

16 A Well, again, that would depend on the
17 angle, the actual angle -- not the assumed angle --
18 the actual angle between this tube, 48, and the
19 roof. What you need to know is whether, given that
20 angle, you run into the roof first or you run into
21 the end wall first, and without some sort of more
22 accurate drawing, I wouldn't want to speculate on

1 that.

2 Q (BY MR. BELLINGER) So to quantify the
3 exact distance, you would need to know -- that the
4 tube could extend, you would need to know the exact
5 angle of the roof slope. Is that what you're
6 saying?

7 MR. KANE: Object to the form.

8 A So it's just a geometry problem. You need
9 to know the angle between the tube and the roof, and
10 then you need to know the distance below the roof
11 that the tube starts, and then you can calculate how
12 far you can extend the tube.

13 Q (BY MR. BELLINGER) Okay. And the greater
14 the angle of the slope, the less distance the tube
15 can extend into the water chamber. Right?

16 MR. KANE: Object to the form.

17 A It's not the slope. It's -- remember,
18 it's the angle between the tube and the roof. So it
19 would only be the slope if you assumed that the pipe
20 is horizontal, and there's really nothing to
21 indicate that.

22 Q (BY MR. BELLINGER) Okay. Well, the

1 greater the slope, the less distance the tube could
2 extend into the water chamber. True?

3 MR. KANE: Object to the form.

4 A No. That's the same question. So what's
5 important here, remember, is the angle between the
6 tube and the roof. And I don't accept that the tube
7 is specified to be horizontal. So it's the angle
8 between the tube and the roof and then the
9 distance -- the starting distance from the tube
10 below the roof.

11 Q (BY MR. BELLINGER) Well, if the tube
12 extending into the chamber was not horizontal but
13 was angled toward the water surface, would that make
14 it easier for water to enter the tube?

15 MR. KANE: Object to the form.

16 A I don't believe so. Remember, now you'd
17 be asking the water to flow uphill.

18 I think what Hebblewhite says is that it's
19 the act of moving the aperture away from the wall
20 that causes the reduction in wave action. I believe
21 that's -- or the reduction of water splashing into
22 the tube. He doesn't opine on whether happens in

1 the tube after the aperture makes any difference.

2 And I would -- in my judgment, that's
3 correct. I don't think it makes any difference. I
4 don't think that the slope of the tube after the
5 aperture would materially affect its tendency to
6 keep the water out.

7 MR. BELLINGER: We've been going for an
8 hour. Take a short break here?

9 MR. KANE: Sure.

10 (Whereupon, the proceedings were in recess
11 at 10:01 a.m. and subsequently reconvened at
12 10:14 a.m., and the following proceedings were
13 entered of record:)

14 Q (BY MR. BELLINGER) I've placed before you
15 what's been marked as Exhibit 1015, which is the
16 HC200 series user manual. And if you could turn --
17 at the bottom center, there's a series of
18 page numbers, and if you turn, using those
19 page numbers, to page 7, to the page titled
20 Important Parts of your HC200 System.

21 Do you have that page?

22 A I do.

1 Q All right. And this page shows -- one of
2 the components shown is a humidification chamber.
3 Correct?

4 A That's correct.

5 Q And it shows an inlet port. Do you see
6 that?

7 A I didn't.

8 Q And the inlet port is positioned near the
9 top of the humidification chamber, as shown in this
10 drawing. Correct?

11 A Yes. That's correct.

12 Q Now, if the water chamber were tipped in a
13 direction away from the inlet port --

14 A Yes.

15 Q -- would the water level on the side of
16 the chamber that the inlet port is located lower?

17 MR. KANE: Object to the form.

18 A I think I understand the question, but let
19 me check. So you're saying, if we were to tip the
20 chamber so it would be anticlockwise about the point
21 where the line that comes from chamber base
22 finishes, so on the left-hand side of the bottom of

1 the chamber -- if we were to tip it anticlockwise,
2 would the water level on the inlet port side of the
3 chamber fall? Is that the question?

4 Q (BY MR. BELLINGER) Yes.

5 A That's correct.

6 Q And tipping in that direction would not
7 result in water potentially spilling from the inlet
8 port. True?

9 MR. KANE: Object to the form.

10 A If it was a smooth tip, and say you just
11 had one movement of the water, that's correct. The
12 trouble with water is, it has a bit of a tendency to
13 slop around, so you might even then -- if you create
14 a big wave, you might put something out the inlet
15 port. But if it was a very smooth action, that's
16 correct.

17 Q (BY MR. BELLINGER) And, similarly, if you
18 tipped the chamber in a direction coming out of the
19 page -- Are you with me?

20 A So are you saying the top of the chamber
21 would move out of the page?

22 Q Yeah.

1 A Yes.

2 Q And tipping in that direction would not
3 cause water to approach the inlet port. True?

4 MR. KANE: Object to the form.

5 A No. That's incorrect.

6 So you can see that -- we don't have the
7 dimensions of the tub here. And so what you'd need
8 to determine whether the water would reach the inlet
9 port is the knowledge of the dimension in and out of
10 the page, of the tub, and the overall volume, and
11 also the water volume.

12 So you can imagine it would be entirely
13 possible to design a tub in which -- a tub and a
14 water level such that, when you tipped out of the
15 page, in fact, the water would exit both the inlet
16 and outlet ports. It's a matter of the relative --
17 the volumes and the relative dimensions, which we
18 don't have any information on here.

19 Also, you said, if it was tipped that way,
20 the water wouldn't approach the inlet port. But my
21 understanding of that picture is that, in fact --
22 say if you tipped to 90 degrees, the water would be

1 substantially closer to the inlet port than it is in
2 the picture that we have here.

3 Q (BY MR. BELLINGER) What if you turned it
4 all the way upside down? Would water flow out the
5 inlet port?

6 MR. KANE: Object to the form.

7 A It would flow out both the inlet port and
8 the outlet port, yes.

9 Q (BY MR. BELLINGER) And if you turned it
10 all the way upside down, would the water level be
11 above the inlet port?

12 MR. KANE: Object to the form.

13 A I don't have the volumes here. But, most
14 likely, the water would be covering the hole of the
15 inlet port. It would certainly be covering some of
16 the inlet port.

17 Q (BY MR. BELLINGER) And even if a tube
18 extended -- were added that extended into the
19 chamber from the inlet port, if one were to turn the
20 chamber upside down, water could still flow to the
21 inlet port, correct?

22 MR. KANE: Object to the form.

1 A So that is something people have tried.

2 And, in fact, if the tube is angled downwards, such
3 that it's at -- it finishes somewhere near the
4 geometric center of the tub, you can actually
5 achieve a situation in which, when the tub's
6 inverted, water or substantial amounts of water
7 don't exit the tub.

8 So it's a matter of where that tube
9 finishes in the tub and how much water is in the
10 tubs, because what you need to know is the water
11 level, once the tub's inverted, relative to where
12 the aperture of the end of the tube is.

13 Q (BY MR. BELLINGER) Let's focus on if you
14 added a tube extending horizontally from the inlet
15 port. If the chamber were turned upside down, water
16 would still be able to flow out of the inlet port.
17 True?

18 MR. KANE: Object to the form.

19 A So if the tube is constrained to be
20 horizontal and then you invert the tub, then, mostly
21 likely, water will flow out the inlet port.

22 Q (BY MR. BELLINGER) Now, in paragraph 10

1 of your declaration, Exhibit 1026, you go to --
2 using the large page numbers, page 9. The third
3 line, there's a sentence that begins, Indeed, the
4 illustration of the HC200 spilling water at page 28
5 of the patent owner response is evidence that even
6 the relatively short tube that is shown in that
7 illustration would protect against tipping, as long
8 as the tipping was less severe than the
9 approximately 45-degree angle at which the chamber
10 is oriented in that illustration. It continues on.

11 Do you see that sentence?

12 A I see the sentence, yes.

13 Q All right. I'll show you a copy of the
14 patent owner response referenced in that paragraph
15 that's been filed with the board in IPR2016-01719.
16 If you can turn to page 28, which is the
17 page referenced in page 10 of your declaration.

18 Are you there?

19 A I am. Yes.

20 Q Okay. And even if that tube had not --
21 Well, step back.

22 Do you understand the red lines to

1 indicate a tube that has been hypothetically added
2 to the chamber?

3 A Yes.

4 Q All right. And even if that tube were not
5 present, if the chamber were tilted, say, 5 degrees,
6 the water level would not reach the inlet, correct?

7 MR. KANE: Object to form.

8 A Well, the problem I have here is that we
9 don't know the dimensions or the water volume.

10 As it's shown here, you would think that
11 5 degrees wouldn't cause the water to enter the
12 inlet with or without the tube. The problem we're
13 going to run into is, in terms of quantifying the
14 angle, there's no way we can do that, because you'd
15 need to know the volume of the tub and volume of the
16 water and the dimensions of the tub.

17 Q (BY MR. BELLINGER) And the tube doesn't
18 really come into play until you hit the tip angle
19 that's close to that shown in the schematic on
20 page 28.

21 MR. KANE: Object to the form.

22 Q (BY MR. BELLINGER) Correct?

1 A The function of the tube is fairly
2 straightforward. The longer the tube, generally,
3 the greater the angle at which you can tip before
4 the aperture at the end of the tube releases the
5 water.

6 Q With respect to the drawing as shown on
7 page 28, until you approach tip angles close to that
8 shown in the drawing, water would not exit the
9 outlet -- sorry -- the inlet, whether the tube is
10 present or not. Correct?

11 MR. KANE: Object to the form.

12 A Like I've said, this is not -- it's not an
13 engineering drawing, so the blue bit, which I take
14 to be the water, it is true that, without the tube,
15 it would exit at some angle, and then with the tube,
16 it would exit at some, in this case, slightly
17 greater angle.

18 Q (BY MR. BELLINGER) All right. Go back to
19 your declaration, to paragraph 14. And I'm on
20 page -- large page number 13. In about the middle
21 of the page there's a sentence that reads, Persons
22 of ordinary skill in the art knew that the HC200 was

1 a powerful humidifier already, at least partially
2 because Fisher & Paykel is known for its hospital
3 humidifiers, which typically require more
4 humidification than consumer devices.

5 Do you see that sentence?

6 A I do.

7 Q And was that your personal understanding,
8 that the HC200 was a powerful humidifier?

9 A That's correct.

10 Q And you mentioned persons of ordinary
11 skill in the art knew that the HC200 was powerful.
12 Which persons of skill in the art are you referring
13 to?

14 MR. KANE: Object to the form.

15 A You probably understand that manufacturers
16 of devices will routinely test most or all of their
17 competitors' devices, as well as their own, to
18 establish where they are against various measures.
19 So I would imagine that all or at least most of the
20 companies producing CPAP humidifiers in this period
21 would have tested all or most of their competitors'
22 devices for performance.

1 Certainly at ResMed that was the case. We
2 had performance data for F&P humidifiers as well as
3 our own, as well as some of the other competitors.

4 Q (BY MR. BELLINGER) And why was the HC200
5 a powerful humidifier?

6 A Well, I don't remember the exact numbers,
7 but I do remember the approximate rankings. And in
8 the CPAP humidifiers that were available at the
9 time, the HC200 was very close to the top of that
10 ranking.

11 Q And do you recall what particular features
12 made it a powerful humidifier?

13 MR. KANE: Object to the form.

14 A No.

15 Q (BY MR. BELLINGER) Was the HC200 known to
16 have other positive attributes?

17 MR. KANE: Object to the form.

18 A I don't know. It -- I recall that we --
19 No. I don't really know. Sorry. It was one of
20 many humidifiers we looked at.

21 Q (BY MR. BELLINGER) All right. So beyond
22 recalling it was a powerful humidifier, you don't

1 recall any other positive attributes of that
2 product?

3 A Nothing else stood out about it.

4 Q Was it known for being reliable?

5 A Well, I don't -- I wasn't privy to
6 reliability data. It's normally kept very close by
7 the manufacturers.

8 Q Was it known to be -- known as being easy
9 to use?

10 MR. KANE: Object to the form.

11 A No. I don't know that it was known as
12 being especially easy to use. The forces involved
13 in removing the tub and placing the tub back in were
14 quite high. And there were other issues with it as
15 well, I believe.

16 Q (BY MR. BELLINGER) In the sentence you
17 say, it was a powerful humidifier, at least
18 partially because Fisher & Paykel was known for its
19 hospital humidifiers, which typically require more
20 humidification than consumer devices.

21 Why do hospital humidifiers typically
22 require more humidification than consumer devices?

1 A Okay. That's because of the treatment
2 that's being provided. A CPAP patient, their airway
3 is complete. In other words, nobody has bypassed
4 it. So the CPAP treatment is delivered via a mask
5 or nasal pillows or something into an existing --
6 into the whole airway. So that means that it
7 includes the upper airway. And in the upper airway,
8 air that's being delivered to the patient is
9 humidified by the patient. And the body's quite
10 good at that. So that the level of humidification
11 normally provided to a patient with a CPAP, the
12 maximum level of humidification you might provide
13 would be, say, in the region of 80 to 90 percent
14 relative humidity at room temperature.

15 In contrast, a patient in a hospital, on a
16 hospital humidifier, particularly on a ventilator,
17 is -- frequently has their upper airway bypassed.
18 They've had a tube placed in their larynx instead.
19 And as a result, the body is unable to humidify that
20 air. So, typically, a hospital humidifier has to be
21 able to supply air at body temperature, 37 degrees
22 Celsius, and fully saturated. And to give you some

1 idea of the difference, that is approximately three
2 times the maximum amount of water you might need to
3 provide -- amount of water per liter of air that you
4 might need to provide in a CPAP humidifier.

5 Q Is it your understanding -- Do you have an
6 understanding as to whether the HC200 is intended
7 for home use or hospital use?

8 A I don't know if it was exclusively one or
9 the other.

10 Q Are there any other different design
11 considerations you're aware of between respiratory
12 devices intended for use in a hospital as opposed to
13 intended for home use?

14 MR. KANE: Object to the form.

15 A Sorry. Are there any other design
16 considerations between a respirator and a CPAP?

17 Q (BY MR. BELLINGER) Well, you've said that
18 the HC200 was a powerful humidifier because it was
19 used in hospitals.

20 A Yes.

21 Q You explained your perspective as to why
22 you need higher humidification in hospital-use

1 devices, correct?

2 A Correct.

3 Q Are there any other design attributes
4 you're aware of that differ between devices --
5 respiratory devices intended for use in a hospital
6 setting versus intended for use by consumers?

7 A Many, many differences. Far too many to
8 enumerate.

9 Q What are some of the most important
10 differences?

11 MR. KANE: Object to the form.

12 A So, typically, the treatment in a
13 hospital, at least the sort of device we're talking
14 about, is actually a respirator. Treatment
15 pressures are higher. Often it has -- often that
16 sort of device has both an inlet path and an outlet
17 path. In other words, it has two tubes and a lot of
18 valves to control the movement of air. Often those
19 devices are life support, which brings with it
20 requirements for greater regulation and more careful
21 development.

22 So there's a lot of crossover. People in

1 hospitals are treated with home devices, and I
2 suppose some people, at the time, are ventilated.
3 And there certainly was a lot of crossover in the --
4 at least there would appear to be crossover in the
5 construction of Fisher & Paykel's humidifiers
6 between their hospital devices and their home
7 devices, particularly in the construction of the
8 water tub and the hot plate.

9 Q (BY MR. BELLINGER) Paragraph 14 of your
10 declaration, large page number 12, the second
11 sentence reads, in part, I note that independent
12 claim 1 does not require any particular length of
13 tube and believe that at least some persons of
14 ordinary skill in the art seeking to address the
15 HC200 water spillage problem would have selected a
16 relatively short tube.

17 Do you see that?

18 A Yes.

19 Q And it continues on.

20 You say "at least some." What do you mean
21 by that? How many persons of ordinary skill in the
22 art would have selected a short tube?

1 MR. KANE: Object to the form.

2 A I'm not seeking to give you an exact
3 percentage. I suppose the point I'm making there
4 is, a humidifier has a really unusually large number
5 of requirements, and it's unusually bound up with
6 the capabilities and the strengths and weaknesses of
7 the organization that's designing it. And when
8 you're selecting something like the length of a tube
9 that's going to be within the water chamber, there
10 are a great many requirements that you're balancing.
11 You would be balancing water-spillage protection.
12 In the case of tipping, you'd be balancing
13 water-spillage protection. In the case of high
14 airflows and overfilling, you would be balancing
15 humidification output. You would be balancing noise
16 output. You would be balancing manufacturing
17 difficulty and cost. You'd be balancing, to quite a
18 large extent, cleaning difficulty.

19 And then you would also be having in mind
20 the capabilities of your organization. You might
21 have an organization that's got tremendous skill in
22 tooling, molding, that sort of thing. You might

1 have in-house toolmaking, which allows you to reduce
2 the costs. You might have none of those things.
3 You might be reliant on third-party components, for
4 instance.

5 And so it's not the case that any design
6 team will come up with a particular solution. And
7 if you were to task three design teams with picking
8 the length of the tube, I would suggest that they
9 would come up with different lengths, very likely,
10 because of the balance of the requirements and the
11 balance of their capabilities and the things they
12 thought were important.

13 So what I'm saying is that, people -- a
14 person of skill in the art seeking to address water
15 spill-back on the HC200, some would have selected
16 longer tubes and some shorter tubes. But at least
17 some of them would have felt that a short tube,
18 although it didn't entirely solve the problem -- and
19 remember, none of those spill-back solutions
20 entirely solve the problem -- that the reduction in
21 spill-back that it provided was adequate for their
22 purposes, and that maybe that gave them some other

1 benefits.

2 Q (BY MR. BELLINGER) Okay. But you're not
3 able to quantify, when you say at least some would
4 have selected a relatively short tube. You can't
5 give me a quantification of that. Correct?

6 A No. I can't do that.

7 Q All right. It's possible that some may
8 have decided not to have a tube at all, correct?

9 A Well, here's the problem: The HC200 tub
10 already has an offset that's shown and mentioned in
11 that, and that works to provide some level of
12 spill-back protection. But I think there are a
13 number of things that indicate that the spill-back
14 protection is not great.

15 There is -- there's a warning in the
16 Rev. A manual that we've -- that you showed me
17 earlier. There's a warning that says you shouldn't
18 move the device with the tub full of water, which,
19 most likely, refers to issues with getting water
20 back into the device.

21 There is -- this is not -- it's not rocket
22 science with water spilling back. Solving the

1 problem can be quite complex, but the problem itself
2 is easily stated, and that is: You have a volume of
3 water. We know that these devices are routinely
4 tipped. Anyone who's been in the industry any
5 length of time knows that routinely they're turned
6 at least 90 degrees, either during transport or
7 pulled off the side table or whatever.

8 And, essentially, then you're dealing with
9 a situation that you have water and that there's an
10 aperture below the water line, and it does what
11 water does; it flows in.

12 So, I guess, the second point is that, I
13 think someone of skill in the art, looking at this
14 device, would see immediately that it's vulnerable
15 to water spill-back.

16 And then there's also Rev. B of the
17 manual. In the normal course of things, Rev. B is
18 the issue of the manual you bring out when you've
19 learned a little bit from devices in the field, and
20 it significantly upgrades its warnings. It says,
21 should you spill water back in, this is what you
22 should do. It says, to make sure water doesn't get

1 into the device. So I think there's a lot of
2 indications that spill-back was a problem.

3 Now, if you'd elected not to put a tube
4 in, then you're essentially admitting defeat.
5 You're saying, I can't make this situation any
6 better. And I think that -- in my experience, in
7 these organizations that develop these types of
8 devices, management is unlikely to accept that.
9 After they've released a device with spill-back
10 problems, they are very unwilling to accept that you
11 can't fix it in some way.

12 Q Well, you say at least some would have
13 added a relatively short tube. But it is possible
14 that some may have not added a tube at all.
15 Correct?

16 MR. KANE: Object to the form.

17 A So as I was saying, I think if you select
18 to not add a tube at all, then you've admitted you
19 can't solve what is very likely a significant
20 problem. So I don't think that, in the long term,
21 anyone could have maintained that position.

22 Q (BY MR. BELLINGER) Let's look at

1 Exhibit 1012, which is one of the manuals you
2 referenced in your prior answer. And on the first
3 page there's a heading that says Troubleshooting.
4 Do you see that?

5 A Yes.

6 Q And the first sentence under that reads,
7 in part, In the unlikely event that you tip water
8 into the blower outlet.

9 Do you see that?

10 A I do.

11 Q And F&P chose to include the word unlikely
12 in that sentence. True?

13 A That is true.

14 Q And what does unlikely mean?

15 MR. KANE: Object to the form.

16 A So I've been in exactly the situation with
17 devices and writing manuals. This is an attempt to
18 calm the horses. So "unlikely" here is meant to
19 suggest that this won't happen. But the only reason
20 you place such a warning in the manual is because it
21 has happened and you think it might happen again.
22 So what you're trying to suggest is that, you

1 shouldn't panic, but this could happen.

2 Q (BY MR. BELLINGER) Then it tells you what
3 to do in the unlikely event water is tipped into the
4 blower. True?

5 A Yes, it does.

6 Q And it doesn't say that the blower is
7 going to be destroyed, does it?

8 A No, it doesn't.

9 Q It tells the user steps to take. Correct?

10 A So this is, again, something that happens
11 with manuals. It's like the use of the word
12 unlikely. What you're trying to convey to the user
13 is that, if water gets back into the device, they
14 have to do something. They must pay attention. And
15 you give them a step -- a set of things to do, which
16 may or may not fix the problem.

17 But the difficulty with getting water back
18 into a CPAP device is that, regardless of how much
19 protection you put in, regardless of how water --
20 for instance, if you make the motor, and if you
21 over-mold the electronics and all those things,
22 there are certain apertures -- in particular, the

1 pressure-sensing aperture -- which unavoidably have
2 to be in contact with the air path. And even with
3 the use of something like a Gortex vent -- a
4 waterproof but air-permeable membrane -- you can't
5 typically use one of those on these apertures
6 because of the speed of response that's required
7 from the pressure sense -- pressure sensor itself.

8 And so I know, from personal experience,
9 that, regardless of how much effort you put into
10 waterproofing of the inside of a CPAP, it is very
11 common for the device to be damaged or destroyed.
12 However, there's no real value in telling the
13 patient that. You might as well tell them some
14 steps to follow. And if they follow that and the
15 device is dead, then they'll ring up customer
16 service and you'll replace the device. There's no
17 particular value for the manufacturer in telling
18 them that things are going to go wrong.

19 Q So you've included no statistics in your
20 declarations about the rate at which CPAP devices
21 are damaged by users, correct?

22 MR. KANE: Object to the form.

1 A There's no statistics in the declaration,
2 no.

3 Q (BY MR. BELLINGER) And you included no
4 statistics or references to studies in your
5 declaration about the rate at which CPAP devices
6 become damaged by users, correct?

7 A That is correct. I can also tell you, as
8 someone who's designed many of these devices, that
9 the rate is high enough to give even very large
10 corporations pause, and that a very large part of
11 your time in designing literally any humidifier is
12 spent in dealing with water spill-back, how to
13 prevent it, how to lessen it, and that the
14 numbers -- because of the consequence, which is that
15 you -- regardless of what the warranty says, you end
16 up having to replace the flow generator.

17 Q But you've included no statistics in your
18 declarations on that. True?

19 A So just to finish that answer, because of
20 the fact that, as a manufacturer, you invariably
21 have to replace the flow generator -- and that's a
22 very substantial expense in comparison to the amount

1 of profit you make on the humidifier -- the rate of
2 loss is quite enough to perturb even the very large
3 corporations.

4 Q And you've included no statistics on that
5 rate in your declarations. True?

6 A There are no statistics on that in the
7 declaration. That's correct.

8 Q And returning to Exhibit 1012, the last
9 step of what to do in the unlikely event you tip
10 water into the blower outlet is reassemble and use
11 as directed. True?

12 A That's correct. And as I pointed out,
13 there's no value to the manufacturer in pointing out
14 to the user that the device may be unusable
15 afterwards. If the device is unusable, then they'll
16 ring customer service. And so you don't need to
17 prompt them on it. Whereas, if it's usable and that
18 does happen, then you've got them through the
19 problem.

20 Q And the last step in this troubleshooting
21 section is, reassemble and use as directed. True?

22 MR. KANE: Object to the form.

1 A Well, it's the last section in relation to
2 tipping water into the device. Although you'll
3 notice it says after that, if you feel your HC200 is
4 not operating correctly, consult your home care
5 dealer.

6 Q (BY MR. BELLINGER) And that's within a
7 spaced-apart section. True?

8 A There is a space between "reassemble" and
9 "use as directed" and "if you feel your HC200 is not
10 operating correctly, consult your home care dealer."
11 That's correct.

12 Q I'll show you what's marked as
13 Exhibit 1006. Are you familiar with Exhibit 1006?

14 A Yes.

15 Q And in the left-hand column there's a
16 series of bracketed numbers. Do you see that on the
17 far left?

18 A I do.

19 Q And if you go down to bracketed number
20 52 -- Do you see that?

21 A I do.

22 Q It says, U.S. Cl. Do you see that?

1 A I do.

2 Q Do you have any understanding as to what
3 classification the Gouget patent,
4 U.S. Patent No. 5,953,763, was placed by the patent
5 office?

6 A No.

7 MR. BELLINGER: We can mark this as
8 Exhibit 2003 in IPR2016-01719.

9 (Virr Exhibit Number 2003 marked for
10 identification.)

11 Q (BY MR. BELLINGER) Exhibit 2003 is titled
12 Manual of Classification, United States Patent and
13 Trademark Office. This is only an excerpt of that
14 manual. If you turn to the third page of the
15 exhibit, please. And at the top do you see a
16 heading, Class 4 Baths, Closets, Sinks and
17 Spittoons? Do you see that?

18 A I think so. Are we on the page that's
19 marked 4-1 at the top?

20 Q Yes.

21 A Yes.

22 Q Were you aware that the Gouget patent was

1 classified by the patent office in the class of
2 baths, closets, sinks and spittoons?

3 A No, I wasn't.

4 Q And on the -- returning to the front
5 page of Gouget, the U.S. classification on bracketed
6 52, do you see where it says 4-144.1?

7 A Yes.

8 Q Okay. You can return back to
9 Exhibit 2003. And turn to the page that has 4-3 at
10 the top. And if you look five lines from the
11 bottom, there's a number 144.1. Do you see that?

12 A I do.

13 Q Do you see it says urinal next to it?

14 A Yes.

15 Q And were you aware that the Gouget patent
16 was classified by the patent office as a urinal?

17 A Yes.

18 Q You were aware of that?

19 A I believe I've heard it mentioned.

20 Q And the title of Gouget is, in fact,
21 Safety Urinal. Correct?

22 A Yes.

1 Q All right. And the abstract on the first
2 page of Gouget begins by describing a urinal of
3 transparent or translucent plastic material.

4 Correct?

5 A That's right. It says, A urinal of
6 transparent -- sorry -- of transparent or
7 translucent plastic material that can endure a
8 sterilization temperature of 130 degrees C.

9 Q And if you turn to the field of invention,
10 which is in column 1 -- Do you see that?

11 A I do.

12 Q And the first line reads, The present
13 invention relates to the field of safety urinals.

14 Do you see that?

15 A Yes.

16 Q All right. And that's describing the
17 field of the described invention, correct?

18 MR. KANE: Object to the form.

19 A It says, The present invention relates to
20 the field of safety urinals.

21 Q (BY MR. BELLINGER) And that's the field
22 of the Gouget patent. True?

1 MR. KANE: Object to the form.

2 A I'm not sure of the legal significance of
3 field. It certainly says that it's related to the
4 field of safety urinals.

5 Q (BY MR. BELLINGER) And, similarly, in the
6 background of the invention section, there's a
7 discussion of existing art. Correct?

8 A Yes.

9 Q And around line 40, there's a reference to
10 U.S. Patent No. 5,358,148. Do you see that?

11 A I do.

12 Q All right. And that's an example of a
13 urine collection container. True?

14 MR. KANE: Object to the form.

15 A I don't know. I haven't seen it, but it's
16 called a urine collection container.

17 Q (BY MR. BELLINGER) All right. Continue
18 on to the next reference that's discussed, around
19 line 43, U.S. Patent No. 5,331,689. And that's
20 titled Portable Urinal. Correct?

21 A That is correct.

22 Q Going down to around line 57, the next

1 reference discussed, U.S. Patent No. 4,091,476,
2 that's also described as Portable Male Urinal.
3 Correct?

4 A That is correct.

5 Q And the next reference discussed at the
6 top of column 2, U.S. Patent No. 4,050,103, and
7 that's titled Urinating Receiver. Correct?

8 A Yes.

9 Q And then the next reference discussed at
10 line 11 of column 2, U.S. Patent No. 2,358,850,
11 that's also titled Male Urinal. Correct?

12 A It's titled Male Urinal.

13 Q And turning to the claims of Gouget, the
14 sole independent -- well, it's not the sole --
15 independent claim 1 claims a urinal, correct?

16 MR. KANE: Object to the form.

17 A So 1 is long. It starts at urinal,
18 certainly.

19 Q (BY MR. BELLINGER) Okay. And, likewise,
20 independent claim 20 also begins -- on column 12
21 also begins by claiming a urinal comprising.
22 Correct?

1 A That's how it begins, yes.

2 Q And the term urinal is used to describe
3 the device throughout the patent, correct?

4 MR. KANE: Object to the form.

5 A Without checking all of it, I'm not sure
6 if it's consistently described that way, but there
7 is certainly examples of it being described as a
8 urinal, yes.

9 Q (BY MR. BELLINGER) Sitting here, do you
10 recall it being described as anything else other
11 than a urinal?

12 A Sitting here, I wouldn't remember.

13 Q You agree that the urinal described in
14 Gouget is not a humidifier?

15 A That is correct.

16 Q And it's not intended to be used with a
17 blower, correct?

18 A That is correct as well.

19 Q And it's not a respiratory device?

20 A No, it's not a respiratory device.

21 Q And it's not concerned with the routing of
22 air over urine in the chamber, correct?

1 A In the sense of air flow over the urine?

2 Q Uh-huh. Yes.

3 A No. I don't think it contemplates
4 significant air flow over the urine.

5 Q Have you ever disclosed the Gouget patent
6 to the patent office in connection with your own
7 patents?

8 MR. KANE: Object to the form.

9 A No.

10 Q (BY MR. BELLINGER) And the urinal of
11 Gouget is intended to be used by a patient typically
12 in a bed, correct?

13 MR. KANE: Object to the form.

14 A I have no idea. I'm sorry.

15 Q (BY MR. BELLINGER) You don't know what
16 the purpose of the urinal described -- Do you know
17 what the purpose of the urinal described in Gouget
18 is?

19 A Well, without wanting to characterize the
20 purpose, your question was, is it intended to be
21 used by who is in bed.

22 Q And you said you didn't know. So now I'm

1 asking, what is your understanding of what the
2 urinal in Gouget is intended to do?

3 A So the urinal is intended to collect urine
4 and then to prevent it from spilling out of the
5 urinal.

6 Q Isn't it fair to say that a person of
7 skill in the art designing a CPAP humidifier would
8 not have looked to a urinal?

9 MR. KANE: Object to the form.

10 A I think that's how the process works. So
11 we're not talking about a person who's just
12 wandering around and one day decides to go looking
13 for urinal patents. So the particular individual
14 we're describing here has been tasked with
15 redesigning HC200 to try and overcome spill-back
16 issues. And what we're suggesting is that that
17 person has looked at Hebblewhite and has said, here
18 is a tube which appears to be useful for preventing
19 water leaving from a side opening of a container.
20 And under those circumstances, that person would be
21 looking for guidance on the optimum length of that
22 tube.

1 And when -- and that process of seeking
2 guidance would have many parts, but usually that
3 would include a patent search, and the search would
4 not necessarily be limited -- in fact, it really
5 shouldn't at all be limited to respiratory devices.
6 It's a search about how long to make tubes that are
7 intended to prevent water leaving a side opening of
8 a water chamber or a chamber.

9 So under those circumstances, I don't find
10 it at all hard to believe that that person would
11 have come across Gouget.

12 Q (BY MR. BELLINGER) What other sorts of
13 art do you think a person would have looked at?

14 A Anything to do with liquid spillage and
15 trying to prevent liquid spillage. So most likely
16 they would have come across patents for all sorts of
17 strange things.

18 There's many, many ways to prevent liquid
19 spillage. The beauty of using tubes for preventing
20 liquid spillage is that they're a tube and don't
21 have a lot of moving parts.

22 So I don't think there would be any

1 particular limits on where you'd look.

2 Q So a person of skill in the art would look
3 at any device that is intended to prevent spilling
4 in some respect? Is that your testimony?

5 MR. KANE: Object to the form.

6 A Yeah. I do. It is. And I think the
7 thing about Gouget is, although he's dealing with a
8 different liquid, he explains extremely clearly the
9 function of a tube in order to prevent liquid
10 exiting the side wall of a chamber, the opening on
11 the side wall.

12 Q (BY MR. BELLINGER) How about a kid's
13 sippy cup? That's intended to prevent spillage.
14 Would a person skilled in the art designing a CPAP
15 humidifier look at children's sippy cups?

16 A So I'm a little bit unfamiliar with sippy
17 cups, but my understanding is this is a cup with a
18 lid that's sealed to it, and it has a small opening.
19 And the opening has like a duck bill valve? It has
20 a valve, a one-way valve? Is that the type of cup
21 you're referring to?

22 Q Some do.

1 A Okay. I'm not an expert in sippy cups.

2 But to the extent that a sippy cup, whatever it is,
3 could teach how to prevent water leaving a
4 humidifier, yes, as a designer, I'd be interested in
5 it.

6 Q Gouget always teaches locating the end of
7 the -- Looking at Figure 1 of Gouget, it identifies
8 an anti-backflow element 5?

9 A Is that a question?

10 Q Do you see that?

11 A Yes. I see 5.

12 Q And Gouget always teaches locating the
13 tapered end of the anti-backflow element at the
14 volumetric center of the urinal, correct?

15 MR. KANE: Object to the form.

16 A I don't know if he always teaches that.
17 He says -- Figure 1 certainly shows that it's close
18 to the volumetric center.

19 Q (BY MR. BELLINGER) Well, looking at the
20 abstract of Gouget, the first sentence of that
21 teaches locating the end at the volumetric center of
22 the urinal, correct?

1 MR. KANE: Object to the form.

2 A It says, a urinal of transparent or
3 translucent plastic material that can endure a
4 sterilization temperature of 130 degrees Centigrade,
5 with a detachable anti-backflow element having an
6 interior end located at the volumetric center of the
7 urinal.

8 Q (BY MR. BELLINGER) So it's teaching
9 locating the end at the volumetric center of the
10 urinal, correct?

11 MR. KANE: Object to the form.

12 A That first sentence, that's what it's
13 teaching -- or saying, that there is an
14 anti-backflow element having an interior end located
15 at the volumetric center.

16 Q (BY MR. BELLINGER) And the figures of the
17 patent show the end of the anti-backflow element at
18 the volumetric center, correct?

19 MR. KANE: Object to the form.

20 A Well, one thing I would caution is that
21 interpreting these figures accurately is something
22 you should avoid. But I would certainly agree that

1 it's close to the volumetric center. It appears to
2 be.

3 Q (BY MR. BELLINGER) And then the field of
4 the invention in column 1 --

5 A Yes.

6 Q -- at around line 15, 16, again teaches
7 locating the end of the anti-backflow element at the
8 volumetric center of the urinal, correct?

9 MR. KANE: Object to the form.

10 A So it says, in which the interior end of
11 the system is located at the volumetric center of
12 the urinal, such that the urinal may be tilted in
13 any direction without spillage, so long as the
14 urinal is not filled beyond the fill indicator
15 level.

16 Q (BY MR. BELLINGER) So that's, again,
17 teaching locating the end at the volumetric center,
18 correct?

19 MR. KANE: Object to the form.

20 A Yeah. He's describing that. In his
21 implementation, he's put it at the volumetric
22 center.

1 Q (BY MR. BELLINGER) And, likewise, the
2 first part of the Summary of the Invention section,
3 column 2, about line 34, does that, again, also
4 teach locating the end of the anti-backflow element
5 at the volumetric center?

6 MR. KANE: Object to the form.

7 A So I'm cautious of the exact legal meaning
8 of teaching. It's certainly the case that Gouget is
9 saying that, in his implementation, at least in the
10 ones we've looked at, the anti-backflow element has
11 its interior end located at the volumetric center.

12 Q (BY MR. BELLINGER) And sitting here, are
13 you aware of any disclosure in Gouget of locating
14 the end of the anti-backflow element in any location
15 other than the volumetric center?

16 A I haven't checked the patent for that.

17 Q Sitting here now, are you aware of any
18 teaching in Gouget of locating the end of the
19 anti-backflow element at any location other than the
20 volumetric center?

21 A I'm not aware of it, but that's simply a
22 matter of saying I haven't read the patent in full

1 for some time.

2 Q When's the last time you read Gouget?

3 A Gouget in full? Some months ago.

4 Q When's the last time you read it in part?

5 A In part, I think I looked at it two days
6 ago.

7 Q What parts did you look at?

8 A I don't recall.

9 Q You don't recall any parts you looked at?

10 A I certainly looked at Figure 1.

11 Q Anything else you remember?

12 A Not offhand.

13 Q Going back to Exhibit 1015, the HC200
14 manual, returning to page 7, labeled Important Parts
15 of your HC200 System, where would the volumetric
16 center of the humidification chamber of the HC200
17 system be?

18 MR. KANE: Object to the form.

19 A So this relates to my caution about
20 undimensioned figures in exhibits. You'll notice
21 that we don't have the height or the width of the
22 chamber. In particular, we don't know the depth in

1 and out of the page. So I don't know.

2 Q (BY MR. BELLINGER) Can you tell me
3 approximately where it would be?

4 MR. KANE: Object to the form.

5 A I can tell you that, approximately, it
6 would be at half height. Is that right? So it
7 would be a little below half height, because the
8 chamber appears to be tapered.

9 Q (BY MR. BELLINGER) So about half way up
10 from the base of the chamber to the top?

11 A Well, I'm saying it would be a little
12 below that, because there's some taper, and also
13 because there are features that subtract from the
14 volume in the top surface, whereas in the bottom
15 there aren't.

16 Q And you explain in your declaration that,
17 if a tube were added to the HC200 and angled to the
18 volumetric center, it would create problems. Right?

19 A Very likely, yes.

20 Q All right. And one of the problems you
21 identify is waves. Correct?

22 A Can you refer me in my declaration to

1 where that is?

2 Q Going back to your declaration,
3 Exhibit 1026, if you go to paragraph 18.

4 A Yes. I see I address this in my
5 declaration. I wrote, Responsive to at least
6 page 41 of the patent owner's response, I disagree
7 with statements which suggest that the modification
8 to the HC200 that I discuss in my initial
9 declaration does not account for Gouget's teachings,
10 because the tube configuration that I discuss in my
11 initial declaration does not enter the volumetric
12 center of the HC200 chamber. In particular, I
13 explain in my initial declaration, paragraphs 84 to
14 85, that angling the tube so that it ends at the
15 volumetric center would promote waves.

16 Q And why would angling the tube so it ended
17 at the volumetric center of the HC200 promote waves?

18 A Well, there are two possibilities. One is
19 that the tube would end up below the water level, so
20 that when the device was filled to maximum level at
21 the beginning of the night, the air would exit
22 actually into the water, under the water surface.

1 In that case, the air would have to exit as bubbles,
2 and those bubbles would be probably quite violent
3 and would cause waves.

4 And then the other possibility is that the
5 tube would finish slightly above the maximum water
6 level. But in any case, it would be directed down
7 as a jet into the water, and would, therefore, most
8 likely cause wave action.

9 Q And then in your paragraph 18 of your
10 declaration, you also discuss problems of splashing
11 and air flow resistance. Do you see that?

12 A I think so. So I think I said, Indeed,
13 with an angled tube, filling the tub to
14 approximately the water fill line would submerge the
15 tip of the tube in water and lead to significant
16 splashing and therefore resistance problems.

17 Q And how would it lead to those problems?

18 A So if the tip were under the water
19 surface, two things would happen. One is that the
20 water -- the air, which is under pressure from the
21 CPAP, would enter the water with some force, and it
22 would cause large bubbles, and those would cause

1 significant splashing.

2 And then the second problem is that the
3 air enters the water, and the water -- because it's
4 below the surface, there is some resistance
5 associated with that. And this resistance is
6 associated with moving the air from the tip of the
7 tube through the water back into the airstream.

8 Q And in the manner in which you have
9 proposed adding a tube to the HC200 chamber, you do
10 not extend the end of the tube to the volumetric
11 center of the chamber. Correct?

12 A That's correct.

13 Q In paragraph 19, at the bottom of large
14 number 17, you state, As a second point, it would be
15 clear to a person of ordinary skill in the art that
16 all of the tubes being considered would be moulded
17 from plastic and as such would all be tapered to
18 some degree. And then you go on to describe
19 tapering or draft.

20 Do you see that section of your
21 declaration?

22 A Yes.

1 Q You agree that the anti-backflow element
2 shown, for example, in Figure 1 of the Gouget has a
3 taper that exceeds the amount you would need simply
4 for draft purposes, right?

5 A Sorry. This is in Gouget?

6 Q Yep.

7 A The anti-backflow element is 5 in
8 Figure 1; is that right?

9 Q Yes.

10 A So it has two tapers. Again, with my
11 normal warning about interpreting these figures to
12 be accurate, when they may not be, the first part
13 appears roughly what you'd need for draft, and then
14 there's a more tapered element towards the end.

15 Q Right. So the end of the tube that's
16 interior to the urinal has a smaller opening
17 compared to the opposing end of the tube -- of the
18 tube or anti-backflow element, correct?

19 MR. KANE: Object to the form.

20 A So you're saying element 5, the interior
21 end opening, is smaller than the exterior end?

22 Q (BY MR. BELLINGER) Yeah.

1 A That's correct.

2 Q All right. And in terms of molding a
3 tube, the amount of draft needed to remove a molding
4 pin is typically in the order of tenths or
5 hundredths of an inch. True?

6 MR. KANE: Object to the form.

7 A It's not usually expressed that way, at
8 least in Australia. It's normally expressed as an
9 angle.

10 Q (BY MR. BELLINGER) And what angle would
11 you express it as?

12 A It's typically said to be around
13 3 degrees.

14 Q Showing you what's been marked as
15 Exhibit 1010, which is a copy of the Netzer
16 reference. You agree that Netzer describes a
17 drainage system, correct?

18 MR. KANE: Object to the form.

19 A Sorry. Are you asking whether, amongst
20 the various things he describes, Gouget describes
21 the presence of a drainage system in his water tub?

22 Q (BY MR. BELLINGER) Yeah. I believe in

1 your answer you said Gouget, but you probably
2 intended Netzer?

3 A Not Gouget. I meant Netzer. I apologize.

4 Q Yeah. You read one of the elements
5 disclosed in Netzer is a drainage system, correct?

6 A I do.

7 Q And Netzer describes that the drainage
8 system assists in preventing overfilling, correct?

9 A Yeah. I believe what he describes is a
10 device. It's probably just an overflow -- it may
11 just be the edge of the tub, in reality -- that
12 prevents or mitigates against the user overfilling
13 the tub when it's out of the device. That's right.

14 Q And in use, how do you understand that
15 would work, that the drain would prevent
16 overfilling?

17 A Yeah. It's relatively straightforward.
18 So the way these devices work is that, when you're
19 filling the tub -- in other words, the tub is out of
20 the machine -- it's difficult, or they hope
21 impossible -- but it's difficult to overfill the
22 tub, because the water, when you've reached the fill

1 level, then runs out of some opening or over some
2 edge.

3 The thing that's important to realize with
4 these types of overfill devices is that, remember
5 that you're supplying CPAP treatment. That's the
6 main aim here. CPAP treatment involves supplying
7 air-elevated pressure to the patient's airways. So
8 the things important to realize about these sort of
9 overflow devices is that, once they're in the
10 device, they can't remain open. Otherwise all the
11 air just flows out there. So, typically, the way
12 you arrange this is that something seals off the
13 overfill device when the tub is installed.

14 Q Well, the drain of Netzer needs to be
15 large enough to drain out excess water, correct?

16 MR. KANE: Object to the form.

17 A That doesn't -- I don't think that has any
18 real meaning. So any hole that's big enough that
19 surface tension doesn't block it will drain out
20 water. It's a question of the rate at which you're
21 draining water and the volume of that structure
22 before whatever blockage blocks it during use.

1 Q (BY MR. BELLINGER) All right. And so the
2 size needs to be large enough to allow water to
3 drain at a meaningful rate to prevent overflowing
4 the chamber, correct?

5 A No. Normally what happens is that the
6 patient is filling these containers at the sink.
7 They are normally quite strong warnings, as I notice
8 there are in at least Rev. B of the manual for the
9 HC200 -- strong warnings to not fill them in place.

10 And so you can usually assume they're some
11 distance from the device. So it doesn't need to
12 drain quickly. It just needs to make sure that,
13 over some period, the water level isn't too high.

14 Q And over what period would that be? While
15 the patient's filling it?

16 A Well, it's between then and when they
17 install it. It's not something that needs to happen
18 rapidly. It's going to happen over seconds or half
19 a minute or something like that.

20 Q While they're at the sink, in your view?

21 A Well, ideally. Otherwise it's going to
22 leak on the floor.

1 Q You characterize Netzer as having a small
2 drain in your declaration, right?

3 A The drawing of Netzer's device appears to
4 show a small drain.

5 Q I think you've testified multiple times
6 today you need to be leery of scaling drawings.

7 A That is correct.

8 Q And you would agree here, you can't tell
9 from the size or scale of the drawings that Netzer
10 has what you've characterized as a small drain,
11 correct?

12 MR. KANE: Object to the form.

13 A I don't recall characterizing it. In the
14 pictures it's shown as a small drain. It's
15 difficult to know the actual size of the drain. The
16 one thing you can know with certainty is that, when
17 the tub is inserted, the drain is not active.

18 Q (BY MR. BELLINGER) But you can't tell
19 from the figures whether the drain of Netzer is, in
20 fact, small. Correct?

21 MR. KANE: Object to the form.

22 A The figures -- I actually have doubts that

1 the figure shows the drain as it was constructed.

2 And so you can't know very much about it. That's
3 true.

4 Q (BY MR. BELLINGER) And Netzer never
5 describes the drain as being a small drain. True?

6 A I don't know.

7 Q You don't recall, sitting here, any
8 description in Netzer of the drain being small in
9 size, correct?

10 A I don't.

11 Q And Netzer doesn't describe that the drain
12 is closed when the device is in use. True?

13 A It doesn't need to describe that, because
14 it's -- firstly, it's obvious to a person of skill
15 in the art. And, secondly, if it weren't closed in
16 use, then the device wouldn't work as a CPAP device.

17 Q But Netzer never describes the drain as
18 being closed in use, correct?

19 MR. KANE: Object to the form.

20 A I don't know whether he does or not. It's
21 not important. The fact is, it can't physically be
22 open.

1 Q (BY MR. BELLINGER) But sitting here now,
2 you don't recall any part of Netzer that describes
3 the drain being closed in use. True?

4 MR. KANE: Object to the form.

5 A That's correct.

6 Q (BY MR. BELLINGER) Okay. And it's
7 possible that Netzer might have a mechanism that
8 would prevent air from escaping but allow water,
9 when it goes over the drain, to pass through. True?

10 MR. KANE: Object to the form.

11 A I'm not aware of any such mechanism. I
12 think that's very unlikely.

13 Q (BY MR. BELLINGER) But possible. True?

14 MR. KANE: Object to the form.

15 A I don't know. It sounds highly unlikely.

16 Q (BY MR. BELLINGER) Not something you
17 considered before now?

18 A I have considered it, because it would be
19 a very nice thing to be able to do. I've had no
20 success in locating a solution which does the things
21 you've suggested, and I am not aware of anyone who
22 has. As a CPAP machine, certainly I've never seen

1 such a thing.

2 Q If you look at Figure 3 of Netzer, do you
3 understand that the top portion of the drawing shows
4 a top view of the respiratory device with the water
5 chamber inserted?

6 MR. KANE: Object to the form.

7 A Yeah. It's either a top or a bottom,
8 certainly.

9 Q (BY MR. BELLINGER) All right. And that
10 the figure at the -- the bottom of Figure 3 is
11 showing a -- I guess what I'll call an end view,
12 basically looking at the device as it would be
13 sitting on a table, from one end of the water
14 chamber?

15 MR. KANE: Object to the form.

16 A Yes. I believe that's correct.

17 Q (BY MR. BELLINGER) And element 20 is the
18 drain spout, correct?

19 A Yes. I believe so.

20 Q And in the bottom figure, there's what I'm
21 going to call, going from kind of the center
22 outward, an interior dashed line. Do you see that?

1 A Sorry. Say again?

2 Q Looking at the bottom figure, Figure 3 --

3 A Yes.

4 Q -- towards the -- if you start from the
5 center of the drawing and just kind of look outward,
6 you run into a dashed box. Do you see that?

7 MR. KANE: Object to the form.

8 A A dashed box. Yes. I can see -- so this
9 is -- Let's Have a look. It surrounds the whole
10 interior of the device. Is that the box we're
11 talking about?

12 Q (BY MR. BELLINGER) Yeah.

13 A Yep.

14 Q And then, immediately outward from that,
15 there is a solid box. Do you see that?

16 A I do.

17 Q And is that the exterior of the water
18 chamber?

19 A I think so.

20 Q Okay. And then, beneath that solid box,
21 there's a small, dashed rectangle. Do you see that?

22 A Yes.

1 Q And that's a portion of the housing of
2 the -- it's called the blower device that the
3 chamber slides into?

4 MR. KANE: Object to the form.

5 A So I think it's unclear what that dotted
6 section is. It's some part of this overall device.

7 Q (BY MR. BELLINGER) Okay. And then 21 is
8 the discharge line, correct?

9 MR. KANE: Object to the form.

10 A Well, I'm seriously doubtful that that's
11 how they would construct it, but it would appear
12 that 21 is some sort of passage that connects to 20.

13 Q (BY MR. BELLINGER) And it's shown being
14 exterior to the water chamber, correct?

15 MR. KANE: Object to the form.

16 A I think it's very unclear what that shows.
17 It could be that it's in the dotted element 21,
18 whatever that is, if that's the hot plate or
19 something else.

20 I think the main thing to draw from this
21 is that this is not specifying a real drain. This,
22 as shown, would not work, for multiple reasons,

1 which I can outline, if you like.

2 So I think it's -- the best interpretation
3 that can be put on it is, this is a schematic
4 intended to show -- intended to show roughly what
5 the drain is like. I have the gravest doubts about
6 whether what's shown here is practical, would work,
7 and is actually anything that's ever been
8 implemented.

9 Q (BY MR. BELLINGER) Well, let's focus on
10 what's actually shown in the drawings. You agree
11 that Figure 3 shows the discharge line being in the
12 main device housing and not part of the water
13 chamber, correct?

14 MR. KANE: Object to the form.

15 A So the discharge line -- by the discharge
16 line you're meaning 21?

17 Q (BY MR. BELLINGER) Yes.

18 A Then it appears to be the main housing and
19 not in the water chamber. It communicates with 20
20 in the water chamber.

21 Q So the discharge line is intended to allow
22 water to flow out of the drainage spout when the

1 water chamber has been inserted into the main
2 housing. True?

3 MR. KANE: Object to the form.

4 A So here's, I think, where the problems
5 start: I'm not sure what the intention was in
6 placing 21 where it is. There is a difficulty here,
7 which is that -- there are two possibilities. 21
8 can have an opening at its -- at the end, remote
9 from 20. If it is open, then that means that the
10 interior of the water chamber communicates directly
11 with the outside world, which means that whatever
12 we've created is not a CPAP machine.

13 If we assume we're still with a CPAP
14 machine, the other possibility is that the one end
15 or other of 21 is blocked. Now, if it's blocked at
16 the end proximal to 20, then, no, no water will flow
17 in 21. However, if it's blocked at the end that's
18 remote from 20, then we have a problem, because 21,
19 then, has air in it, and when you try and put water
20 in it, that will cause a bubble at the remote end,
21 and fairly quickly the water will stop flowing.

22 So whatever the intention of the person

1 who drew this figure, I don't believe what they show
2 is a practical water drainage device.

3 Q (BY MR. BELLINGER) However, as shown in
4 Figure 3, for example, the drain would operate till
5 that water drained out of the water chamber when the
6 water chamber is inserted into the main housing.
7 True?

8 MR. KANE: Object to the form.

9 A So the thing here is that, it's not good
10 to just look at the figure and assume that it will
11 do what one would hope it would do. What's
12 important is to apply normal engineering knowledge
13 to it.

14 So there are two possibilities here in
15 respect to 21, assuming that 21 is a hole through
16 the hot plate or something like that. If 21 is open
17 at both ends, then it communicates -- appears to
18 communicate with 20, and 20 is presumably somewhere
19 near the water level of the device -- and that's the
20 interior of the humidifier chamber, which is
21 pressurized, remember -- is now open to atmosphere.
22 And so that's not a CPAP device. We've got air

1 flowing out the side. It's not a device we can
2 market for CPAP treatment.

3 The other possibility is that 21 is
4 blocked somewhere. It's either blocked at the end
5 close to 20, in which case no water can flow at all,
6 or it's blocked at the end remote from 20, and
7 water, as it flows in, will quickly build up
8 pressure in 21 and will stop it flowing.

9 So as I've expressed before, I think there
10 is -- I think this is not a practical device that is
11 shown. It won't work to drain water from the tub,
12 or any significant amount of water, once the tub is
13 installed.

14 Q (BY MR. BELLINGER) But as shown, it would
15 permit water to drain through drain 20 after the tub
16 has been installed, correct?

17 MR. KANE: Object to the form.

18 A Any circumstances in which it would permit
19 water to drain through is that the tube 21 is open
20 at both ends, and if the tube 21 is open at both
21 ends, then this is not a CPAP device, which is
22 what's described in the patent.

1 So if we assume that 21 is open at both
2 ends, it means that we're contradicting one of the
3 early statements of the patent, which is that it's
4 for a CPAP device. So I don't agree at all that 21
5 will drain water while it's in use.

6 Q (BY MR. BELLINGER) And that's based on an
7 assumption not described in Netzer. True?

8 MR. KANE: Object to the form.

9 A It is based on an assumption which is
10 natural and obvious to anyone of ordinary skill in
11 the art.

12 Q (BY MR. BELLINGER) But an assumption not
13 described in Netzer. Correct?

14 A It's like assuming gravity is present.

15 Q But, again, an assumption that's not
16 described in Netzer. Correct?

17 A So this assumption is not specifically and
18 explicitly described in Netzer because it's
19 unnecessary, because it is so well known to people
20 of skill in the art that it's unnecessary to
21 describe it.

22 Q Paragraph 26 of your declaration, which is

1 on large page number 23. I'm referring to your
2 declaration, Exhibit 1026.

3 About midway down you have a sentence
4 which begins, When a blower is destroyed or a
5 patient injured by water spillage, it is usually
6 because ...

7 Do you see that?

8 A I do.

9 Q And following that you list three
10 possibilities. Correct?

11 A Three examples of ways in which it can be
12 damaged, yeah.

13 Q Those are three examples of the usual -- I
14 guess what you'd characterize the usual way that a
15 blower is destroyed or a patient is injured by water
16 spillage. Right?

17 A Yes. These are common examples.

18 Q All right. And the first is it falls off
19 a bedside table?

20 A Yes.

21 Q All right. And that would be caused by
22 accident, correct?

1 MR. KANE: Object to form.

2 A It's not really necessary to speculate on
3 why it happens, but it would be unusual for a
4 patient to do it on purpose.

5 Q (BY MR. BELLINGER) Right. So if it falls
6 off the bedside table, unless the patient is trying
7 to intentionally destroy the machine, it was most
8 likely an accident, right?

9 MR. KANE: Object to the form.

10 A That seems reasonable.

11 Q (BY MR. BELLINGER) And if the CPAP
12 machine is knocked off a bedside table, there may be
13 more problems than simply water potentially entering
14 the blower, correct?

15 MR. KANE: Object to form.

16 A Actually, that's surprisingly unusual.
17 They're quite robust. CPAP machines are tested for
18 mechanical impact, which are roughly equivalent to
19 dropping from 4 feet onto a concrete or hardwood
20 floor. So they're surprisingly robust in shock.
21 It's quite possible to drop one from a bedside table
22 and not have any real problems happen with it.

1 The most likely thing with an integrated
2 device, where you've got a humidifier, is that you
3 will get water in it, and that will cause problems.

4 Q (BY MR. BELLINGER) Well, do manufacturers
5 typically instruct patients steps to take to avoid
6 the CPAP device being knocked off a bedside table?

7 MR. KANE: Object to the form.

8 A Some do, some don't. It would normally be
9 advice to attempt not to have the hose positioned
10 such that you might trip over it. But it's a very
11 common occurrence, in particular because, when a
12 patient has to get up during the night to go to the
13 toilet, it's not as unusual as you would think for
14 them to forget to disconnect the mask altogether and
15 just walk off, and then the mask is connected to the
16 hose, and the hose is connected to the device, and
17 that's how it ends up on the floor. That's one way.

18 Partner walking past the bed, tripping
19 over the hose is another one. There's many, many
20 ways for it to happen.

21 Q (BY MR. BELLINGER) Do designers take that
22 into account in designing the machines, that they

1 might be knocked off the bedside table?

2 A Yes. That's a major consideration.

3 Q Do they try to design the devices in a way
4 that they won't be damaged if that happens?

5 A Yes. So in addition to impact I was
6 talking about, the main activity to try and ensure
7 they won't be damaged is to try and minimize
8 spill-back.

9 Q Or minimize the damage from spill-back,
10 correct?

11 A Oh, I see. Effectively, no.

12 So what would be very nice is to design a
13 CPAP which was immune to water spill-back, and there
14 are some obvious ways in which you could try to do
15 that. Unfortunately, so far, anyways, as far as I'm
16 aware, none of them have been very successful.

17 The ways you might do this, you might
18 choose to use a completely separate air path, have
19 the electronics in some way isolated. That tends to
20 be ineffective, because you at least need the
21 pressure sensors in the device to communicate with
22 the air path. You can't generally put a water -- an

1 air-permeable membrane over them because of the
2 speed of the response required. So attempts to
3 segregate the electronics are typically
4 unsuccessful.

5 You could put valves in the air path
6 between the water and the electronic components,
7 but, firstly, those are quite expensive, and,
8 secondly, the rate of failure of those valves is
9 probably not dissimilar to the rate at which you are
10 going to receive these devices back for water
11 spillage anyway.

12 So I guess the way I describe it is, the
13 manufacturers have done the best they can, but that
14 generally you have to assume that, if water gets
15 back into the device, some large proportion of those
16 devices will be damaged.

17 Q And you also mention that the second way
18 lowers are typically damaged or a patient is injured
19 is the device has been packed for transport with
20 water still in it. Correct?

21 A That's correct.

22 Q And with respect to the HC200 or Netzer,

1 for example, those devices don't say they're
2 intended to be packed full of water. Correct?
3 Packed when full of water. Correct?

4 A These devices, in the user instructions,
5 invariably warn against packing the device with
6 water in it.

7 Manufacturers experience sense
8 introduction of integrated humidifiers, where
9 they're all in one part, is that a significant
10 proportion of the users, nonetheless, do pack them
11 and drive significant distances, and do all sorts of
12 things with them, with the water still in.

13 Q But, again, neither Netzer or the HC200
14 instruct users that the device should be packed when
15 full of water, correct?

16 A There's not a positive instruction in any
17 of those places to pack them with water, no.

18 Q So that would be an unintended use of the
19 device, right?

20 A Oh. Unintended.

21 MR. KANE: Form.

22 A I don't know what unintended means. It's

1 something that manufacturers would very much prefer
2 you didn't do. Experience is that patients do do
3 it. And not in small numbers, I might add.

4 Q (BY MR. BELLINGER) And then you mention
5 being picked up or tipped while still connected to
6 the patient is another possibility. Correct?

7 A Yes.

8 Q All right. And, again, is that something
9 that manufacturers typically warn against?

10 A No. And this is another example of where
11 the warnings are largely ineffective. I've had this
12 happen to a device of mine, and this was off-label
13 in use, in the sense that, not only do manufacturers
14 typically warn against picking up the device while
15 the patient's attached, but they certainly warn
16 against -- in this case, they warned against it
17 being used with unresponsive patients. And yet the
18 device was used in that way and was picked up in
19 that way, and the water ended up in the patient's
20 upper airway.

21 Q Again, this would be an unintended or
22 uninstructed use of the device, right?

1 MR. KANE: Object to the form.

2 A So unintended or uninstructed. It was
3 specifically against instructions. I'm not sure
4 what unintended means in this case. It's certainly
5 not something that I would have intended to happen.
6 But the reality is, it did happen.

7 Q (BY MR. BELLINGER) All right. And
8 neither Netzer nor the HC200 manual instruct or
9 encourage users to pick up the entire CPAP device
10 when full of water and move it, correct?

11 MR. KANE: Object to the form.

12 A As far as I remember, neither the HC200
13 manual nor Netzer instruct patients to move the
14 device when full of water.

15 Q (BY MR. BELLINGER) In fact, both the
16 HC200 and Netzer have water chambers that the user
17 could remove, if need be, correct?

18 MR. KANE: Object to the form.

19 A They both have water chambers that are
20 removable.

21 Q (BY MR. BELLINGER) Turn to paragraph 31
22 of your declaration. Here you discuss humidifier

1 performance, in part. In the bottom of the large
2 number page 28, you state, Without knowing the
3 dimensions or water temperature of Netzer's
4 humidifier, it's possible for patent owner and
5 Dr. Schneider to know its performance, but there's
6 no reason to suppose it would be so poor to allow
7 the addition of features to reduce spillage.

8 Do you see that?

9 A I do.

10 Q And, likewise, if it's impossible for
11 Fisher & Paykel or Dr. Schneider to know the
12 performance of Netzer, you, also, likewise, cannot
13 quantify it's performance, correct?

14 MR. KANE: Object to the form.

15 A Just from the patent, that's correct.

16 Q (BY MR. BELLINGER) And there are some
17 disadvantages of using higher temperatures to obtain
18 humidification, correct?

19 MR. KANE: Object to the form.

20 A There is a disadvantage, I would say.

21 Q (BY MR. BELLINGER) All right. Well,
22 would one disadvantage be it's more costly to

1 operate?

2 A Oh, no. Not normally. These devices are
3 normally operated off the mains, and the power
4 consumption in most markets is not of significance
5 to the user. It's too small to worry about.

6 Also -- No. That's not clear at all.
7 Water temperature -- raising the water temperature
8 is a very efficient way of increasing output.
9 Roughly speaking, the vapor output of the water
10 increases with the square of the temperature
11 increase, so little temperature increase gives you a
12 big increase in output.

13 And I think it's quite unclear whether
14 that, in fact, is going to be less or more efficient
15 than the alternative for a given output. I don't
16 think that's clear at all.

17 Q Well, what disadvantages are there of
18 using higher heat?

19 A It's more of a limit than a disadvantage.
20 And it varies from manufacturer to manufacturer.
21 There is some temperature at which you start to
22 worry that, if the patient stops therapy and

1 immediately removes the chamber and sticks their
2 finger in it, the water will be too hot and will
3 burn them. And that's normally the limit that
4 you're worried about.

5 What level you set that at depends a bit
6 on how conservative you are as a manufacturer. But
7 it's in the region of 50-something degrees Celsius.
8 So there will normally be some sort of test in which
9 you run the machine at its maximum temperature, and
10 you quickly disconnect it and you measure the water
11 temperature. Up to that temperature, the hotter the
12 better.

13 Q Does patient comfort become a
14 consideration when increasing temperature?

15 A Typically, patient comfort is improved.

16 So I think to understand where a
17 humidifier -- its effect on -- by the time the air
18 has got to the patient, the effect of the water
19 temperature on the air temperature that the patient
20 feels is minimal, and the reason is that the air
21 delivery tube is a very long structure, with a very
22 thin side wall, and it's a really, really good heat

1 exchanger. So unless there's some form of heating
2 or insulation in the tube, the temperature of the
3 air, when it arrives at the patient, is very close
4 to ambient. So raising the water temperature does
5 not affect the temperature of the air significantly
6 at all as it reaches the patient.

7 So then it's a question of, what else does
8 raising the water temperature do? And what it does
9 is, it allows you higher performance for a given
10 surface area and a given flow rate. And to the
11 extent that you can then tune down from that, the
12 patient can turn it down or whatever, no, in
13 general, higher water temperature is going to be
14 beneficial to patient comfort.

15 Q All right. With respect to Netzer's
16 design, if you look at paragraph 30 of your
17 declaration, at the bottom of page 27, you state,
18 First, Netzer's unmodified design shows the inlet
19 and the outlet on the same wall of the
20 humidification chamber, and a person of ordinary
21 skill in the art would recognize that air might flow
22 directly from the inlet to the outlet without

1 sufficiently circulating through the chamber in this
2 configuration.

3 Do you see that?

4 A I do.

5 Q And that's a potential issue with Netzer's
6 design as shown, correct? The airway not
7 sufficiently circulating through the chamber?

8 A It's an issue with any humidification
9 chamber, before you've started testing it, that
10 you're never sure to what extent the air will choose
11 to just go directly from the inlet to the outlet
12 without passing most of the water.

13 Q And it's an issue with Netzer in
14 particular because the inlet and outlet are located
15 on the same side of the chamber, next to each other,
16 correct?

17 MR. KANE: Object to the form.

18 A No, not necessarily. So the situations
19 that are particularly problematic are where you have
20 air that, for instance, enters on one side of a
21 chamber and then passes straight along one wall,
22 from the inlet attached to the wall, and then passes

1 straight out an opposite -- an opening that's
2 opposite but -- so that it doesn't pass over much of
3 the water.

4 The air, when it enters Netzer, is going
5 to have some momentum, and so it won't immediately
6 turn left and then immediately turn left again and
7 head into the outlet tube. But what you don't know,
8 a priori, is how far it will go into the chamber,
9 how completely it will cover the water surface
10 before it turns around and heads for the outlet.

11 Q (BY MR. BELLINGER) And as you describe in
12 your declaration, because the inlet and outlet are
13 on the same wall, air might flow directly from the
14 inlet to the outlet without sufficiently circulating
15 through the chamber, right?

16 A So maybe I should read some of the
17 declaration.

18 Firstly, Netzer's unmodified design shows
19 the inlet and the outlet on the same wall of the
20 humidification chamber. And the person of the
21 art -- sorry -- person of ordinary skill in the art
22 would have recognized that the air might flow

1 directly from the inlet to the outlet without
2 sufficiently circulating through the chamber in this
3 configuration.

4 Then I go on: This is because there is no
5 baffle forcing the air to take an indirect path, as
6 Rose teaches.

7 Q But with respect to Netzer's configuration
8 as shown in the patent, as you explain, because the
9 inlet and outlet are on the same wall, air might
10 flow directly from the inlet valve without
11 sufficiently circulating through the chamber,
12 correct?

13 A What I'm trying to point out in the
14 declaration is that there are multiple
15 configurations in which short-circuiting can be a
16 problem, and one of them is a situation where the
17 wall -- the inlet and outlet are placed close to
18 each other on the same wall.

19 There are multiple other problems or
20 situations which can create the same problem.

21 Q But with respect to the inlet and outlet
22 on the same wall, that's, with respect to Netzer,

1 the configuration that's shown, correct?

2 A Netzer has the inlet and outlet on the
3 same wall, yes.

4 MR. BELLINGER: Why don't we take a break.

5 (Whereupon, the proceedings were in recess
6 at 11:46 a.m. and subsequently reconvened at
7 11:56 a.m., and the following proceedings were
8 entered of record:)

9 Q (BY MR. BELLINGER) With respect to the
10 reply declaration that was filed as Exhibit 1028 in
11 IPR2016-01716, 1717, 1725, 1727, 1729, 1730 and
12 1731 -- I'll give you a copy of that.

13 Now, within this declaration you offer
14 some opinions on the meaning of claim term including
15 the word urging, such as that you're urging adjacent
16 and in contact with.

17 Do you generally recall that?

18 A Yes.

19 Q All right. I'll give you a copy of what
20 was marked as Exhibit 1003, which is a copy of U.S.
21 Patent No. 8,091,547.

22 Now, if you go to claim 1 of the '547

1 patent, if you go to the limitation of claim 1
2 that's in column 10, beginning around line 8, it's,
3 said single motion of engagement urging the base of
4 said humidification chamber adjacent and in contact
5 with said chamber heater.

6 Do you see that?

7 A I do.

8 Q And what is your understanding as to what
9 that claim limitation requires?

10 MR. KANE: Object to the form.

11 A So it says to me that the single motion,
12 which is, as I understand, the patient moving the
13 water chamber into its user position -- that single
14 motion of engagement brings the base of said
15 humidification chamber adjacent and in contact with
16 said chamber heater. So it says that the patient
17 moves the water chamber from some other positioning
18 to a position where, in this case, it is adjacent
19 and in contact with the chamber heater.

20 Q (BY MR. BELLINGER) All right. If you
21 turn to claim 6 of the '547 patent, and if you go to
22 the limitation that's at the top of claim 11.

1 A Sorry. Page 6?

2 Q Sorry. Claim 6 -- I may have misspoke.

3 Let me start again.

4 If you look at claim 6 of the '547 patent
5 and look at the limitation that begins at the top of
6 column 11 --

7 A Oh. Okay.

8 Q -- and it states, wherein said single
9 motion disposes said heat conductive base adjacent a
10 heater in said humidified gases delivery apparatus.

11 What's your understanding as to what that
12 claim limitation requires?

13 MR. KANE: Object to the form.

14 A So I think the difference here is that it
15 says adjacent, which I take to mean near to, as
16 opposed to in contact with, which I've just given
17 the natural meaning, meaning they're in contact. So
18 the patient here moves the water chamber from some
19 other position until the heat conductive base is
20 adjacent, meaning close to a heater, and said
21 humidifier gets its delivery apparatus.

22 Q (BY MR. BELLINGER) So if I'm

1 understanding correctly, you're reading the
2 limitation we looked at in claim 1 to require that
3 the base be brought adjacent and in contact, whereas
4 claim 6 merely requires the chamber base be brought
5 adjacent to the heater? Is that right?

6 MR. KANE: Object to the form.

7 A That seems to me to be the difference
8 here. One requires adjacent and in contact. The
9 other requires adjacent only.

10 Q (BY MR. BELLINGER) So in your view, does
11 the word urges in claim 1 -- or urging, I should
12 say, in claim 1 have the same meaning as the word
13 disposes in claim 6?

14 A Yes. To my mind, both of them just mean
15 moving here.

16 Q Does that mean the same thing to you?

17 MR. KANE: Object to the form.

18 A Yes. I was saying that they mean the same
19 thing to me, and they mean its movement.

20 Q (BY MR. BELLINGER) And that's the
21 interpretation you've provided in forming your
22 opinions in this case, that disposes and urging mean

1 the same thing?

2 MR. KANE: Object to the form.

3 A Yes.

4 Q (BY MR. BELLINGER) You've also offered
5 some opinions as to the meaning of auxilliary. Do
6 you recall that, generally?

7 A I do. Yes.

8 Q All right. I believe, in your
9 declaration, you've generally referred to disclosure
10 in the '624 patent, so let me give you copy of that,
11 which has previously been marked as Exhibit 1001.
12 It's U.S. Patent No. 7,111,624.

13 If you turn to column 7 -- sorry -- column
14 5 of the '624 patent, beginning at line 6 of column
15 5, it reads, In the present invention the connector
16 which includes an additional electrical and/or
17 pneumatic connection 54 with the conduit is integral
18 to the connection manifold of the CPAP machine 8 and
19 therefore allows the disposable water chamber to
20 remain as simple as possible.

21 Do you see that?

22 A I do.

1 Q Okay. And within that sentence there's a
2 reference to the additional electrical and/or
3 pneumatic connection 54. Do you see that in
4 particular?

5 A I do.

6 Q And do you understand the text that I just
7 read in column 5 to be within the part of the patent
8 that's discussing Figures 1 and 2?

9 A I believe so.

10 Q So if you start with Figure 1, do you see
11 there's an element 54?

12 A Yes.

13 Q And that's pointing to the additional
14 electrical and/or pneumatic connection 54 that we
15 just read in column 5, correct?

16 MR. KANE: Object to the form.

17 A I believe it's meant to be representing
18 that extra connection.

19 Q (BY MR. BELLINGER) And, similarly, if we
20 look at Figure 2, do you see element 54 is labeled
21 there as well?

22 A It is.

1 Q And that is also referring to the
2 additional electrical and/or pneumatic connection 54
3 that was referred to in column 5, correct?

4 A Yes.

5 Q And both Figures 1 and 2 show a connection
6 port to which the breathing mask is connected,
7 right?

8 MR. KANE: Object to the form.

9 A This is item 9 that we're discussing?

10 Q (BY MR. BELLINGER) Yeah. Well, what do
11 you understand item 9 to be?

12 A It describes what item 9 is. It says,
13 item 9 -- I think it's variously described. It's
14 called -- if you look at column 4, it's called the
15 collection manifold of a CPAP machine 9.

16 Q What line are you referring to?

17 A Line 57.

18 Q And if you go up to line 5 -- actually,
19 line -- about line 7, it says, The connection
20 manifold also provides an auxiliary outlet
21 connection port 9 suitable for receiving a flexible
22 respiratory conduit to deliver humidified air to a

1 patient.

2 Do you see that?

3 A Yes. I think 9 is variously described.

4 Above that it says, Connection of the gases inlet
5 and gases outlet ports are made to the connection
6 manifold 8 of the CPAP machine in the same slide-on
7 motion. The connection manifold also provides an
8 auxiliary outlet connection port 9 suitable for
9 receiving a flexible respiratory conduit to deliver
10 humidified air to a patient.

11 So I think it's variously referred to as
12 the manifold or as the connection, as the -- what's
13 the other connection -- the other description? --
14 outlet port 9.

15 Q All right. Then going back to Figures 1
16 and 2, element 9 would be the port to which the --
17 one end of the breathing hose would connect, right?

18 A I believe so.

19 Q And then element 54 would be another
20 connector, either an electrical or pneumatic
21 connector, right?

22 A That's what it's meant to indicate, I

1 think, yes.

2 Q And those are the two connectors that are
3 shown in Figures 1 and 2, right?

4 MR. KANE: Object to the form.

5 A I don't really understand that. I mean,
6 there are other connections shown in Figures 1 and
7 2, but those are some of the connections.

8 Q (BY MR. BELLINGER) All right. Well, as
9 far as connecting the patient mask to the device,
10 the connection of the port 9 and the electrical or
11 pneumatic connector 54, those are the two
12 connections shown, correct?

13 MR. KANE: Object to the form.

14 A Yeah. I believe it describes that in the
15 sentence we read from, column 5. In the present
16 invention -- So this is at line 6. In the present
17 invention, the connector which includes an
18 additional electrical and/or pneumatic connection 54
19 for the conduit is integral to the connection
20 manifold of the CPAP machine 8 and therefore allows
21 a disposable water chamber to remain as simple as
22 possible.

1 Q (BY MR. BELLINGER) So within Figures 1
2 and 2, it's showing 9 and 54 as the connectors,
3 right?

4 MR. KANE: Object to the form.

5 A As I said, there are multiple connectors.
6 It shows 9 and 54 as two parts of a connector or two
7 connectors.

8 Q (BY MR. BELLINGER) All right. Well, it
9 shows 9 and 54 as being connectors for receiving a
10 breathing hose, right?

11 MR. KANE: Object to the form.

12 A So it's for receiving a breathing hose and
13 receiving other things that might be attached to the
14 breathing hose. I think it's actually described in
15 the patent. So it says that there's going to be a
16 simultaneous connection of the main pneumatic line,
17 the air hose to the patient, and also some second
18 connection of some electrical/pneumatic sort.

19 Q (BY MR. BELLINGER) I just want to make
20 sure I understand your testimony, though.

21 But for Figures 1 and 2, do you agree
22 that, with respect to connectors for receiving the

1 breathing hose or associated connectors, that 9 and
2 54 are the two connectors that are shown in those
3 figures?

4 MR. KANE: I object to the form.

5 A I don't think it's clear. 9 and 54 are
6 connectors or parts of a connector that allow you to
7 connect different features of the patient breathing
8 hose. And we understand what those fixtures can be.
9 So those parts 9 and 54 are both involved in the
10 connection to the patient breathing hose, whatever
11 that is.

12 Q (BY MR. BELLINGER) All right. And you
13 mentioned there's other connectors in Figure 1,
14 maybe for receiving a water chamber. But with
15 respect to the breathing hose, the only two
16 connectors shown for receiving that are 9 and 54.
17 Is that right?

18 MR. KANE: Object to the form.

19 A In Figures 1 and 2?

20 Q (BY MR. BELLINGER) Yes.

21 A In Figures 1 and 2, the diagram only shows
22 two connections to labeled items, which are involved

1 in the connection to the patient breathing hose.

2 Q Let me show you what's been marked
3 previously as Exhibit 1011 in various IPRs, and this
4 is U.S. Patent publication number 2001-0017134 to
5 Bahr.

6 Are you familiar with the Bahr reference?

7 A I am.

8 Q When's the last time you reviewed this
9 reference?

10 MR. KANE: Object to the form.

11 A The last time I reviewed the reference,
12 possibly two days ago.

13 Q (BY MR. BELLINGER) If we turn to Figure 3
14 of Bahr, there's an element shown at the top part of
15 the figure, and it's labeled 40. Do you see that?

16 A Yes.

17 Q And do you understand that 40 is
18 identifying the ventilator part of the device?

19 A Offhand, I don't know, but that seems
20 quite possible.

21 Q You see there's another component towards
22 the bottom of the page, and there's a number 2. Do

1 you see that?

2 A Oh. Yes.

3 Q Do you understand that to be describing a
4 conduit?

5 A Yes.

6 Q If we go to paragraph 22 of Bahr, the
7 first sentence reads, in part, The ventilator 40
8 includes a gas port 44 which has, on an external
9 mating surface 46, two electrical contacts, 48a and
10 48b.

11 Do you see that?

12 A Yes.

13 Q All right. So returning back to Figure 3,
14 do you understand element 46 to be corresponding to
15 the external mating surface?

16 A Sorry. Where is the reference? Where is
17 the section we were reading from of Bahr?

18 Q Paragraph 22.

19 A 22. Ventilator 40 includes a gas port 44.
20 Sorry. Could you repeat the question?

21 Q Yeah. So do you understand that, in
22 Figure 3, where it says element 46, that is pointing

1 to an external mating surface, as we read in
2 paragraph 22?

3 A 46, yes, is described as an external
4 mating surface of the gas port 44.

5 Q All right. And then continuing on in
6 paragraph 22, the second sentence there, it says,
7 The contacts 48a and 48b, and 18a and 18b, are
8 disposed on their respective surfaces 46, 20 such
9 that when the female interface 8 is push fit over
10 the port 44 to thereby form a gas tight connection,
11 the contacts 48a and 48b and 18a and 18b will
12 establish an electrical connection.

13 Do you see that?

14 A I do.

15 Q So do you understand that, in reference to
16 Figure 3, to describe that element 8 is push fit
17 over the length of gas port 44?

18 A Yes.

19 Q And there would be a contact formed along
20 the length of gas port 44 with the female interface
21 8?

22 A No. It's unlikely that the contact is

1 along the length. The contact is likely to be at
2 the distal end -- roughly where the number 8 points
3 to on the cuff of that tube. So I don't think there
4 will be continuous contact. It's likely there's a
5 seal at 8. That's certainly how I would do it.

6 Q Is there a seal described in 8 in the text
7 we just read?

8 A So there is not a seal described, but it
9 describes that a leak tight -- let's have a look --
10 a gas tight connection is established.

11 Q And that's all that's described, right, a
12 gas tight connection?

13 A Well, it describes a range of things, but
14 it doesn't tell you how to make the gas tight
15 connection.

16 Q All right. And contact is also formed
17 between the electrical contacts 48a and 48b on the
18 gas port and 18a and 18b on the female interface,
19 correct?

20 A Yes. That's how it's described.

21 Q And it describes that that connection is
22 maintained at the end of paragraph 22 regardless of

1 the rotational orientation of conduit 2, correct?

2 A Okay. So it says, from a little bit
3 further back, Preferably one or both sets of
4 contacts 48a and 48b and 18a and 18b are provided as
5 rings around the periphery of the corresponding
6 mating surface 46. This enables signal
7 communication to be established between the sets of
8 contacts 48a and 48b and 18a and 18b regardless of
9 the rotational orientation of the conduit 2.

10 Q So it's possible to push fit over
11 female -- push fit female interface 8 over gas port
12 44 in different orientations and still form a
13 contact between the two. Right?

14 MR. KANE: Object to the form.

15 A Okay. You might need to be a bit more
16 precise than that. So it's possible to fit 8 to --
17 female part 8 to male part 44. And it says that
18 that will establish a gas tight seal. And it also
19 says that, regardless of the rotation of 8 relative
20 to 44, if 48a and b are provided as rings, then
21 electrical contact can be maintained between 48a,
22 48b, 18a and 18b, regardless of the rotational

1 orientation of 8 relative to 44.

2 Q (BY MR. BELLINGER) And it describes that
3 the female interface 8 is push fit over the entirety
4 of gas port 44, correct?

5 MR. KANE: Object to the form.

6 A I don't believe it says entirety in any
7 way, no.

8 Q (BY MR. BELLINGER) Well, it says push fit
9 over port 44. Correct?

10 A Okay. So it says, The contacts 48a and
11 48b, and 18a and 18b, are disposed on their
12 respective surfaces 46, 20 such that when the female
13 interface 8 is push fit over port 44 to thereby form
14 a gas tight connection, the contacts 48a and 48b and
15 18a and 18b will establish an electrical connection.

16 Q Correct. So it talks about female
17 interface 8 is push fit over the port 44, correct?

18 A Yes. It says female interface 8 is push
19 fit over the port 44.

20 MR. BELLINGER: I'm going to move on to
21 something else. Do you guys want to do lunch for a
22 bit?

1 MR. KANE: Sure.

2 (Whereupon, the proceedings were in recess
3 at 12:23 p.m. and subsequently reconvened at
4 1:03 p.m., and the following proceedings were
5 entered of record:)

6 Q (BY MR. BELLINGER) Let me show you what's
7 been marked as Exhibit 1010, which is PC publication
8 number 98-57691 to Kenyon. Are you familiar with
9 the Kenyon reference?

10 A Yes, I am.

11 Q If you turn to paragraph 23 of your
12 declaration, which discusses Kenyon, referring to
13 your declaration, Exhibit 1028, near the bottom, you
14 state, In another example, Kenyon describes that the
15 flow generator includes a differently shaped/size
16 inlet 22 and outlet 24 that are designed to ensure
17 that both the duct member and the humidifier inlet
18 and outlet are provided with corresponding engaging
19 formations to avoid incorrect installation.

20 Do you see that?

21 A Yes.

22 Q Okay. Keep that page open and go back to

1 Kenyon, Exhibit 1010, and let's turn to, for
2 example, Figure 6. Now, in paragraph 23, you've
3 used the term duct member.

4 A Yes.

5 Q Are you presuming that refers to element
6 30 in Figure 6?

7 MR. KANE: Object to the form.

8 A Well, it could be -- it depends on what
9 the study refers to. I think the duct member there
10 is the assembly, which includes the two elbows,
11 which I think is 77 and -- 77, and a sort of
12 box-like structure marked 84, and another
13 box-like -- well -- and then various connecting
14 elements. So it's that entire block, which I think
15 is probably either 30 or 84. I'm not clear from the
16 picture.

17 Q (BY MR. BELLINGER) Well, the portion of
18 Kenyon you quoted from your declaration talking
19 about incorrect installation of duct member, are you
20 understanding that refers to potential incorrect
21 installation of member 30?

22 A So certainly I was aware that 30 includes

1 all the various parts. The duct member, for me, is
2 the two tubes, the various connectors and the
3 O-rings that go with it, and the two enclosing parts
4 of a box.

5 Q All right. Well, if you look at Figure 2,
6 you see 30 there is referring to, generally, a
7 U-shaped tube?

8 A Yes.

9 Q Similarly, if you go to Figure 8, 30,
10 again, is referring to that U-shaped tube. Do you
11 see that?

12 A Yes.

13 Q All right. And is that piece shown as
14 being relatively -- for example, Figure 8 --
15 symmetrical?

16 MR. KANE: Object to the form.

17 A So that component is, but that's part of a
18 subassembly -- or assembly, rather, 84, which is
19 not.

20 Q (BY MR. BELLINGER) All right. Well, in
21 your reference to potential incorrect installation
22 of the duct member to the blower housing, in order

1 for the duct member to be incorrectly installed, it
2 would need to be flipped upside down.

3 MR. KANE: Object to the form.

4 A Yes. So the idea is that the duct is in
5 one orientation, and it could potentially be
6 inserted the other way up.

7 Q (BY MR. BELLINGER) And that's the way it
8 may be potentially incorrectly installed, if it was
9 turned 180 degrees?

10 A To the extent that what we are trying to
11 do is prevent incorrect installation by having
12 differently shaped openings, connections, then the
13 incorrect installation we're talking about is, yes,
14 swapping the two ends, having one end -- having the
15 two ends connected to the wrong coupling members.

16 Q Which would require flipping the
17 element 30 180 degrees, right?

18 MR. KANE: Object to the form.

19 A Well, once again, I've got questions about
20 exactly -- I think element 30 is never available to
21 the patient. I think what's available to the
22 patient is what I mentioned is called 48, which is

1 element 30 inside the box.

2 Q (BY MR. BELLINGER) Well, is it your
3 understanding that element 30 would, for example,
4 connect to the connection inlet and connection
5 outlet in Figures 9 and 10?

6 MR. KANE: Object to the form.

7 A So the idea is that something -- the duct
8 member connects between, say, 22 and 24 of Figure 9
9 and 22 and 24 in Figure 10. And the duct member --
10 one example of that is shown in Figure 8. And that
11 duct member includes 30. It includes a variety of
12 other components as well.

13 And what I've been saying is that I don't
14 think it was ever contemplated that 30, by itself,
15 was available to the public. You'd have to buy 30
16 in its box, with its O-rings and so on.

17 Q (BY MR. BELLINGER) All right. So 30,
18 with the O-rings, is it your understanding that's
19 what would connect to the inlet and outlet --

20 MR. KANE: Object to the form.

21 Q (BY MR. BELLINGER) -- Figures 9 and 10?

22 MR. KANE: Object to the form.

1 A 30, with its O-rings and with the top and
2 bottom housings there, that's my understanding, is
3 that's the duct that we're talking about.

4 Q (BY MR. BELLINGER) Okay. And in order
5 for that to be installed incorrectly, it would need
6 to be potentially rotated 180 degrees; is that
7 right?

8 A That's the incorrect installation that you
9 are protecting against with these different-shaped
10 openings, yes.

11 Q Let me show you what's previously marked
12 as Exhibit 1029 in IPR2016-01717, which is a copy of
13 U.S. Patent No. 6,302,105, D. Wickham.

14 And are you familiar with the Wickham
15 reference?

16 A Yes, I am.

17 Q If you go to Figure 2, do you understand
18 that to be showing a sub-housing 14 that can be
19 removed from the device?

20 A Yes.

21 Q And is that sub-housing 14 also shown in
22 Figure 1?

1 A Yes.

2 Q And do you understand that the -- to the
3 left of Figure 1 there's an element 28? Do you see
4 that, with an arrow below it?

5 A I do.

6 Q Do you understand that to be referring to
7 air flow into the housing?

8 MR. KANE: Object to the form.

9 A I don't know for sure. It looks possible,
10 but I don't know.

11 Q (BY MR. BELLINGER) All right. Well, do
12 you understand that the arrows -- there's an arrow
13 to the left of Figure 1, some arrows in the center,
14 and then an arrow to the right that exits the
15 sub-housing. Do you see that?

16 A I do.

17 Q And do you understand that to be referring
18 to the flow of air through the sub-housing?

19 A That seems likely, yeah.

20 Q And does that show the path that air would
21 take when flowing through the sub-housing?

22 A Well, it seems to describe elements of it.

1 It shows that it comes in at one end. It shows that
2 it flows into the fan. It shows it flows out of the
3 fan, and then it exits at 28.

4 Q And if you go to column 4 of Wickham,
5 starting at line 1, it says, The inlet 16 and the
6 outlet 18 represent the beginning and end
7 respectively of a gas flow path through the
8 sub-housing 14.

9 Do you see that?

10 A I do.

11 Q Does the sub-housing, as shown in
12 Figure 1, have an inlet at one side of the housing
13 and an outlet at the other side of the sub-housing?

14 A Yes.

15 Q And then, returning to column 4, line 3,
16 it says, The passage of gas along the flow path is
17 represented by arrows 28.

18 Do you see that?

19 A I do.

20 Q And those arrows are represented in
21 Figure 1, right?

22 A Yes.

1 Q And the arrows are within the sub-housing,
2 correct, 14?

3 A Most of them, yes. The two end ones --
4 most of the arrows are the ends of the two -- the
5 beginning and ending arrows, if you like, are
6 outside the sub-housing.

7 Q So air enters the sub-housing at gas inlet
8 16, correct?

9 A Correct.

10 Q Circulates within sub-housing 14, correct?

11 A That's correct.

12 Q And then exits sub-housing 14 at gas
13 outlet 18, correct?

14 A That's correct.

15 Q And Wickham is not described as containing
16 a humidifier, correct?

17 A I don't recall whether it makes reference
18 to a humidifier.

19 Q You don't recall reading any reference to
20 a humidifier in Wickham, do you?

21 A I don't recall reading any reference to a
22 humidifier in Wickham. That doesn't mean it's not

1 there, but I don't recall reading it.

2 Q When's the last time you reviewed Wickham?

3 MR. KANE: Object to the form.

4 A Last week.

5 Q (BY MR. BELLINGER) In your declaration,
6 if you turn to paragraph 30, for example, and at
7 line 3, the sentence reads, in part, Particularly, a
8 person of ordinary skill in the art would have
9 understood that Wickham's teaching of a hinged
10 housing permitting access to a removable tube within
11 the housing could have readily been applied to
12 Kenyon.

13 Do you see that?

14 A I do.

15 Q Now, Kenyon describes a removable
16 sub-housing 14, correct, as shown in Figure 2?

17 A The sub-housing is 14, yes.

18 Q Yeah. And Kenyon doesn't describe that
19 sub-housing as being a tube, does it?

20 MR. KANE: Object to the form.

21 A I don't know whether it describes it any
22 other way. It certainly describes it as a

1 sub-housing, but it may describe it in other ways
2 elsewhere.

3 Q (BY MR. BELLINGER) And do you recall any
4 reference in Kenyon to a removable tube? Sorry.
5 Strike that.

6 Do you recall any reference in Wickham to
7 a removable tube?

8 A The removable tube --

9 MR. KANE: Object to the form.

10 A I don't know whether it uses the word
11 tube. The point is that it discloses a device in
12 which -- in which some or all of the air path is
13 removable. And any air path, by its nature, is its
14 nature of a tube. And then it's got an inlet and
15 outlet, and it's sealed in between.

16 So I don't know whether he uses a
17 particular word tube, but, functionally, it seems to
18 me to behave in the same way as a tube.

19 Q (BY MR. BELLINGER) But you don't recall
20 Kenyon ever describing a sub-housing assembly as
21 being a tube, do you?

22 MR. KANE: Object to the form.

1 A Is this Wickham or Kenyon?

2 Q (BY MR. BELLINGER) I'm sorry. Let me
3 reask my question.

4 You don't recall Wickham describing a
5 removable tube, right?

6 A So as I've said, I was focused on the
7 functional aspects of Wickham. And Wickham
8 describes an air path with an opening and another
9 opening at the other end and a sealed portion in
10 between. So I wasn't focused on exactly what he
11 named that. But as it happens, I don't remember
12 reading him describe it as a tube.

13 Q And when you were referring to a, quote,
14 removable tube in paragraph 30 of your declaration,
15 you were referring to sub-housing 14, correct?

16 A I'm describing to all or part of the air
17 path in Wickham.

18 Q And you're referring to sub-housing 14,
19 correct?

20 MR. KANE: Object to the form.

21 A Sub-housing 14 is an example of what he
22 makes removable by hinging the lid.

1 Q (BY MR. BELLINGER) Now, in the sentence
2 from your declaration we read, paragraph 30, you
3 state that the person of ordinary skill in the art
4 would have understood that Wickham's teaching of a
5 hinged housing, permitting access to a removable
6 tube within the housing, could have readily been
7 applied to Kenyon.

8 In assessing obviousness, is it your
9 understanding that the analysis is whether something
10 could have or a person of ordinary skill in the art
11 could have done something?

12 MR. KANE: Object to the form.

13 A I'm probably not as clear on the exact law
14 as I should be. I don't think it indicates -- I
15 think it requires more than that, that it simply
16 could have happened.

17 Q (BY MR. BELLINGER) And what's your
18 understanding as to what it requires?

19 MR. KANE: Object to the form.

20 A I think I'd have to refer back to my first
21 declaration for that, in which there was some
22 comment on the requirement.

1 Q (BY MR. BELLINGER) Well, why did you
2 choose to use the words "could have readily been
3 applied" in paragraph 30?

4 MR. KANE: Object to the form.

5 A Well, the reason -- the reason that it
6 seems to me that Wickham's teaching would have been
7 easily applied to Kenyon is that Kenyon, to some
8 extent, anticipates this requirement and talks about
9 portions of the air path.

10 Specifically, if we look at Kenyon,
11 Figure 7, Kenyon talks about portions of the air
12 path and specifically item 66 in Figure 7, which is
13 a tube within the air path. It talks about that
14 being made of a disposable material.

15 And what's maybe sloppy, honestly, from
16 Kenyon is how you access that piece in use. And
17 that is something which Wickham bears on quite
18 directly by suggesting that you house the upper lid
19 of the device so that you can readily open it.

20 So the reason I said it could have readily
21 been applied to Kenyon is that Kenyon seems to
22 almost but not quite explain what you should do, and

1 the missing piece is quite neatly supplied by
2 Wickham.

3 Q (BY MR. BELLINGER) At any point after you
4 began testifying this morning did you discuss or
5 communicate with your counsel about your testimony?

6 A Sorry. Are you talking about today have I
7 talked to counsel about my testimony?

8 Q After this deposition began. Yeah.

9 A No.

10 MR. BELLINGER: Okay. I have no further
11 questions.

12 MR. KANE: Why don't you give us maybe
13 five minutes.

14 (Whereupon, a short recess was taken.)

15 MR. KANE: We have no questions at this
16 time. The witness will read and sign.

17 (Whereupon, at 1:26 p.m., Wednesday,
18 October 11, 2017, the taking of the Deposition of
19 ALEXANDER VIRR was adjourned.)

20

21

22

1 STATE OF MINNESOTA:)
2) ss. CERTIFICATE
3 COUNTY OF ANOKA:)

4 Be it known that I took the deposition of
5 ALEXANDER VIRR on the 11th day of October, 2017, at
6 Minneapolis, Minnesota;

7 That I was then and there a Notary Public
8 in and for the County of Anoka, State of
9 Minnesota, and that by virtue thereof, I was duly
authorized to administer an oath;

10 That the witness, before testifying, was
by me first duly sworn to testify the whole truth
11 and nothing but the truth relative to said cause;

12 That the testimony of said witness was
recorded in shorthand by me and was reduced to
typewriting under my direction;

13 That the cost of the original transcript
has been charged to the party noticing the
14 deposition, unless otherwise agreed upon by Counsel,
and that copies have been made available to all
15 parties at the same cost, unless otherwise agreed
upon by Counsel;

16 That I am not related to any of the parties
hereto nor interested in the outcome of the action;

17 That the reading and signing of the
deposition by the witness and the Notice of Filing
18 were reserved.

19 WITNESS MY HAND AND SEAL this 20th day of
October, 2017.

20

21

22



Christine K. Herman, RPR, CRR

1 Alexander Virr c/o
2 FISH & RICHARDSON, PC
3 3200 RBC Plaza
4 60 South Sixth Street
5 Minneapolis, Minnesota 55402
6

7 Case: Resmed Limited, et al., v. Fisher & Paykel Healthcare Limited
8 Date of deposition: October 11, 2017
9 Deponent: Alexander Virr
10

11 Please be advised that the transcript in the above
12 referenced matter is now complete and ready for signature.
13 The deponent may come to this office to sign the transcript,
14 a copy may be purchased for the witness to review and sign,
15 or the deponent and/or counsel may waive the option of
16 signing. Please advise us of the option selected.
17 Please forward the errata sheet and the original signed
signature page to counsel noticing the deposition, noting the
18 applicable time period allowed for such by the governing
Rules of Procedure. If you have any questions, please do
19 not hesitate to call our office at (202)-232-0646.

20 Sincerely,
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6 SIGNATURE PAGE

7 Case: Resmed Limited, et al., v. Fisher & Paykel Healthcare Limited

8 Witness Name: Alexander Virr

9 Deposition Date: October 11, 2017

10

11 I do hereby acknowledge that I have read

12 and examined the foregoing pages

13 of the transcript of my deposition and that:

14 (Check appropriate box):

15 () The same is a true, correct and

16 complete transcription of the answers given by

me to the questions therein recorded.

17 () Except for the changes noted in the

attached Errata Sheet, the same is a true,

18 correct and complete transcription of the

answers given by me to the questions therein

19 recorded.

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WITNESS SIGNATURE

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6 ERRATA SHEET
7

8 Case: Resmed Limited, et al., v. Fisher & Paykel Healthcare Limited
9 Witness Name: Alexander Virr
10 Deposition Date: October 11, 2017

11 Page No. Line No. Change
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21 _____
22 Signature Date