Page 1

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 1
 2         UNITED STATES PATENT AND TRADEMARK OFFICE
 3         BEFORE THE PATENT TRIAL AND APPEAL BOARD
 4                    _____
 5                       GOOGLE LLC,
 6                       Petitioner
 7
                            vs.
 8
 9                     ECOFACTOR, INC.,
10                      Patent Owner
                     _____
11
12                     IPR2022-00538
13                  Patent No. 9,194,597
14                    _____
15
          Zoom Videoconference Deposition of:
16
           JOHN ARTHUR PALMER, PH.D. P.E.
17
18
19          JANUARY 10, 2023 * 11:00 A.M.
20
              LOCATION:  University of Utah
21
     Department of Electrical and Computer Engineering
22
     50 South Central Campus Drive, Room 2130 MEB
23
                 Salt Lake City, Utah
24
25   Reporter:  Susette M. Snider, CSR, CRR, RPR
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Page 2

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 1              A P P E A R A N C E S
 2   FOR THE PETITIONER:
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12
     ALSO PRESENT:
13
             Jeff Burton, videographer
14
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17
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23
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25
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Page 3

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 1                    I N D E X
 2   JOHN ARTHUR PALMER, PH.D. P.E.:              PAGE
 3     Examination by Ms. Laughton...................   5
 4
 5                 E X H I B I T S
 6   PREVIOUSLY MARKED     DESCRIPTION            PAGE
 7     1001   U.S. Patent No. 9,194,597 B2 ..........  8
 8     1004   U.S. Patent No. 2004/0117330 Al .......  8
            (Ehlers '330 reference)
 9
       2008   Declaration of John A. Palmer, Ph.D....  6
10
11
12       QUESTIONS WITNESS INSTRUCTED NOT TO ANSWER
13                    (None)
14
15            INFORMATION TO BE SUPPLIED
16                    (None)
17
18
19
20
21
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23
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25
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Page 4

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 1              P R O C E E D I N G S
 2
 3        THE VIDEOGRAPHER:  We are now on the
 4   record.  The time is 11:00 a.m. on January 10, 2023.
 5        This begins the videoconference proceeding
 6   of John Palmer, Ph.D. in the matter of Google, LLC,
 7   versus EgoFactor, Inc., filed in the U.S. Patent and
 8   Trademark Office before the Patent Trial and Appeal
 9   Board, Case No. IPR2022-00538.
10        My name is Jeff Burton.  I'm your remote
11   videographer.  Your court reporter is Susette Snider.
12   We are representing Esquire Deposition Solutions.
13        Counsel, will you please introduce
14   yourselves?
15        And the witness will be sworn.
16        MS. LAUGHTON:  This is Elizabeth Laughton
17   of the law firm Smith Baluch LLP, representing the
18   petitioner, Google.
19        MR. LINK:  I'm Jonathan Link, from the law
20   firm of Russ August & Kabat, on behalf of Patent
21   Owner EcoFactor.
22
23        JOHN ARTHUR PALMER, PH.D. P.E.,
24        having been first duly sworn,
25        was examined and testified as follows:
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Page 5

1   EXAMINATION
2 BY MS. LAUGHTON:
3   Q.   Good morning, Dr. Palmer.
4   A.   Good morning.
5   Q.   This is a remote deposition conducted by
6 Zoom.
7   Could you please state your name for the
8 record?
9   A.   John Arthur Palmer.
10   Q.   And you've been deposed before a number of
11 times; is that correct?
12   A.   That is correct.
13   Q.   And so is it fair to say that you're
14 familiar with the rules of the deposition?
15   A.   I would say that's true.
16   Q.   Is there any reason you can't testify
17 accurately today?
18   A.   No.
19   Q.   Do you have any medical or any other
20 issues that would interfere with your testimony
21 today?
22   A.   No.
23   Q.   Do you have any documents with you other
24 than the exhibits that I've provided in the chat?
25   A.   No.

Page 6

1   Q.   Have you prepared for today's deposition?
2   A.   I have.
3   Q.   What did you do to prepare?
4   A.   I reviewed my declaration and portions of
5 Mr. Shah's declaration, as well as the '597 patent
6 and the Ehlers reference and a brief look at the
7 Wruck reference.
8   (A discussion was held off the record.)
9   Q.   (By Ms. Laughton) And did you do anything
10 else to prepare for today's deposition?
11   A.   I had a phone call with Mr. Link.
12   Q.   And about how long did you and Mr. Link
13 spend on that phone call?
14   A.   A little under an hour.
15   Q.   And about how many hours total would you
16 say that you spent preparing for today's deposition?
17   A.   Around four.
18   Q.   And I mentioned I put a couple of exhibits
19 in the chat box. Could you please take a look at
20 Exhibit 2008?
21   A.   I have that up.
22   Q.   And this document is entitled a
23 "Declaration of John A. Palmer, Ph.D." Are you the
24 John A. Palmer, Ph.D., listed here?
25   A.   I am.

Page 7

1   Q.   Is this your declaration?
2   A.   It is.
3   Q.   And did you sign it under oath?
4   A.   I did.
5   Q.   Did you read it prior to signing it?
6   A.   I did.
7   Q.   And this declaration relates to U.S.
8 Patent No. 9,194,597; is that correct?
9   A.   Yes.
10   Q.   And you refer to this patent as the '597
11 patent in your declaration. Is that something we can
12 do here today as well?
13   A.   Of course.
14   Q.   And I believe you stated that you reviewed
15 the '597 patent again in preparation for today's
16 deposition; is that correct?
17   A.   It is.
18   Q.   Do you state that you're generally
19 familiar with the '597 patent and how it works?
20   A.   I would say in general, yes.
21   Q.   Do you have an understanding about the
22 relevant time frame for determining obviousness in
23 this case?
24   A.   Yes.
25   Q.   What is your understanding?

Page 8

1   A.   My recollection is that this -- that the
2 '597 patent claims priority and points at the -- at
3 the actual patent here; but it claims priority to a
4 provisional application filed on May 12, 2009, so I
5 would say May of 2009 would be the relevant time
6 frame.
7   Q.   And is it okay with you if I refer to that
8 time frame, the time frame up to and just before
9 May 12, 2009, as the relevant time frame today?
10   A.   Sure.
11   Q.   And, also, just for the record, I've also
12 placed Exhibit 1001, which is the '597 patent, and
13 also Exhibit 1004, which is the Ehlers '330
14 reference, in the chat box. If you need to refer to
15 any of the exhibits at any time for your testimony,
16 please feel free to do so.
17   Also, if you feel that you need any other
18 exhibits or any other documents that you cite to or
19 anything like that for your testimony today, please
20 just let me know.
21   A.   Sure.
22   Q.   So if you could please pull up
23 Exhibit 1001, which is the '597 patent.
24   A.   I have that up.
25   Q.   Would you say that you're generally

Page 9

1 familiar with the claims of the '597 patent?

2 A. Yes.

3 Q. In your opinion, do the claims of the '597

4 patent cover systems and/or methods that are used in

5 commercial structures?

6 A. They can be used in commercial structures.

7 Q. And what about in large-scale structures?

8 A. I could see that the -- the technology and

9 the -- the principles could be applied to larger

10 scale structures, although, in general, the -- the

11 descriptions are generally more applicable to

12 small-scale structures or residential application.

13 Q. If there were a system or method that were

14 practiced in a large-scale structure, would that

15 prevent that system or method from falling within the

16 claims of the '597 patent?

17 MR. LINK: Objection. Form.

18 THE WITNESS: The -- the type of structure

19 alone would not -- it would not disqualify it from

20 being covered under the patent.

21 Q. (By Ms. Laughton) Could a system or

22 method which controls power consumers, such as

23 elevators, escalators, lighting and other equipment,

24 meet the claims of the '597 patent, in your opinion?

25 MR. LINK: Objection. Form.

Page 10

1 THE WITNESS: In principle, it could. Of

2 course, it would depend on a lot more than just the

3 integration of other elements.

4 Q. (By Ms. Laughton) But the fact that it

5 controlled those other elements would not in and of

6 itself preclude it from falling within the claims of

7 the '597 patent, in your opinion; is that correct?

8 A. It -- it wouldn't necessarily. Just,

9 again, as I'd indicated, the specification for the

10 '597 doesn't -- doesn't generally -- isn't generally

11 directed to larger scale structures, but there's

12 certainly nothing precluding it from being applied to

13 the larger scale structure.

14 Q. If you could please turn to Figure 6B of

15 the '597 patent. And, also, for your reference, if

16 you'd like to take a look at it, the accompanying

17 description starts at column 5, line 17.

18 A. Okay.

19 Q. And in this figure the HVAC system is off

20 for some portion of the time; is that correct?

21 A. Yes.

22 Q. And, specifically, this figure depicts

23 changes in inside temperature over time when the HVAC

24 system is off from noon to 7:00 p.m.; is that

25 correct?

Page 11

1 A. Approximately, yes.

2 Q. And during that time period, the inside

3 temperature inside the house reaches 88 degrees

4 Fahrenheit when the system is off; is that correct?

5 A. No.

6 Q. Can you explain to me why that is not

7 correct?

8 A. Let me reference -- you said that was

9 column 5, starting with line 17?

10 Q. Yes.

11 A. Okay. On the graphic on 6A,

12 Figure 6A, it shows that the inside temperature is

13 marked as 304a, and the highest temperature that's

14 denoted on 304a is actually about 80 degrees, not 88

15 degrees.

16 Q. So if you could please take a look at

17 column 5, 17. And feel free to just read the first

18 couple sentences to yourself there.

19 A. Okay.

20 Q. And so do you see that it states:

21 "As expected, the inside temperature 304a rises with

22 increasing outside temperatures 302 for most of that

23 period reaching 88 degrees at 7 PM"?

24 A. I do see that.

25 Q. What is your understanding of that

Page 12

1 sentence?

2 A. My understanding is that the intent was to

3 reflect what the graphic shows. I can infer from

4 that there's as typographical error, because the

5 graphic -- the Figure 6B would be equally interpreted

6 by a POSITA as showing a maximum temperature of

7 approximately 80 degrees. So it appears they

8 substituted a -- an 8 for a zero in the second digit

9 of that number, is the way I would interpret it in

10 the context of the description.

11 Q. And just to be clear, your testimony is

12 regarding Figure 6B; is that correct?

13 A. Yes. Yes, that is correct.

14 Q. But your testimony regarding Figure 6B is

15 that during that time period the inside temperature

16 reaches 80 degrees; is that correct?

17 A. Based on the -- the temperatures indicated

18 or the scale indicated on the left side of that

19 graph, that's approximate -- approximately what I

20 would interpret it to be, maybe slightly higher. It

21 might be an 81 or 82, but it's somewhere around

22 80 degrees.

23 Q. And so if you could please turn to

24 column 5, line -- I think it's 22 and 23. Just keep

25 reading that little section of column 5 there,

Page 13

1 please.
2   Do you see that?
3   A.   Yes.
4   Q.   And do you see there that the '597 patent
5 states that the server logs temperature readings, as
6 an example, once per minute?
7   A.   I do see that.
8   Q.   And some of those temperature readings
9 would be logged when the system is off; is that
10 correct?
11   A.   I would -- yes, I would interpret that
12 to -- to mean once per minute whether the system is
13 on or off.
14   Q.   And do you see at column 5, line 32, it
15 states that the server will be able to predict at any
16 given time on any given day the rate at which inside
17 temperature should change for given inside and
18 outside temperatures?
19   Do you see that?
20   A.   Yes.
21   Q.   And in order to be able to do that, the
22 '597 patent systems gather data; is that correct?
23   A.   Yes.
24   Q.   And how long would it take, in your
25 opinion, the '597 patent systems to gather sufficient

Page 14

1 temperature data to be able to perform that
2 prediction?
3   A.   That would depend on a lot of parameters,
4 including the nature of the system and the -- the
5 resolution that was intended in the target.
6   Q.   Can you provide a range of about how long
7 it might take to gather that data?
8   A.   Not without having the other parameters to
9 gauge it against.
10   Q.   What about the parameters listed here
11 where it says that the inputs are logged against
12 other inputs, including time of day and humidity?
13 About how long would it take to gather that data?
14   A.   Again, there's not sufficient detail here
15 to -- to gauge a specific target resolution on a
16 learning algorithm.
17   Q.   Can you provide a minimum amount of time
18 that it might take?
19   A.   I really didn't evaluate that in detail.
20 It wasn't addressed in -- in Mr. Shah's declaration,
21 and so it was not within the scope of my analysis.
22   Q.   And you see here that we've been talking
23 about the section of the patent that says that
24 it's -- that the server is able to predict at any
25 given time on any given day the rate at which inside

Page 15

1 temperature should change for given inside and
2 outside temperatures.
3   Specifically does the '597 patent describe
4 an algorithm for how to perform that prediction?
5   A.   It does generally describe an algorithm.
6   Q.   Can you point me to where it does that?
7   A.   The -- the descriptions are interspersed
8 throughout the specification and -- and graphics. In
9 terms of extracting specific line-by-line elements of
10 the algorithm, I am not prepared to do that at this
11 time. It wasn't addressed by Mr. Shah and,
12 therefore, was outside the scope of my declaration.
13   Q.   Is there a general place that you can
14 point me to in the '597 patent where -- where, in
15 your opinion, it discusses that algorithm? I
16 understand that that may not be an exhaustive
17 description.
18   A.   There are various aspects of it that are
19 discussed in column 5, for example, but, as I said,
20 it was not -- having an exhaustive answer to your
21 question is -- is not something I'm prepared to
22 address today.
23   Q.   Do any of the patent's figures describe
24 such an algorithm?
25   A.   Not specifically that I'm seeing at this

Page 16

1 point.
2   Q.   You had mentioned various aspects of
3 column 5. Could you point me specifically to the
4 portions of column 5 that you have in mind?
5   A.   There's -- there's information contained
6 within the paragraph starting on line 5. There's
7 information contained within the paragraph starting
8 on line 17. There's information contained within the
9 paragraph starting on line 35.
10   Q.   And so, in your opinion, those portions of
11 the '597 patent describe an algorithm for how to
12 perform that prediction?
13   A.   They teach aspects of the algorithm.
14   Q.   Do they teach the entire algorithm for how
15 to perform that prediction?
16   A.   I don't believe those paragraphs, in
17 isolation, are intended to teach the entire
18 algorithm.
19   Q.   What, in your opinion, are they intended
20 to do?
21   A.   Describe aspects of the invention and its
22 application in -- you know, to some exemplary
23 embodiments.
24   Q.   In your opinion, does the '597 patent
25 disclose specifically how to calculate what it refers

Page 17

1 to as the effective thermal mass of the structure?
2   A.   I don't have a recollection of a specific
3 equation that it puts forward for that purpose.
4   Q.   In your opinion, would a person of
5 ordinary skill in the art reading the '597 patent
6 know how to calculate what the '597 describes as the
7 effective thermal mass of the structure?
8   A.   I believe so, based on the -- the
9 teachings of the '597 and the skill of -- or the
10 knowledge of one of ordinary skill in the art. But I
11 don't have -- I'm not prepared at this time to -- to
12 extract all of the information from the body of the
13 specification to illustrate that point.
14   Q.   And at column 5, line 26, the '597 patent
15 specifically defines the effective thermal mass for
16 each structure as the speed with the temperature
17 inside a given building will change in response to
18 changes in outside temperature; is that correct?
19   A.   That's the way it's worded, yes.
20   Q.   Now turning to the claims of the '597
21 patent, certain of the claims of the '597 patent
22 recite a predicted rate of change; is that correct?
23   A.   Yes.
24   Q.   And do the claims of the '597 patent
25 require that the predicted rate of change be

Page 18

1 determined with any particular level of accuracy?
2   A.   The precision of the analysis is not
3 specified.
4   Q.   If you could please turn to your
5 declaration in this matter, which is Exhibit 2008,
6 and specifically paragraph 16, if you want to take a
7 look at that.
8   And do you see there you state:
9   For example, Figure 7 states an example
10   for detecting the occurrence of a manual
11   override event.
12   A.   Yes.
13   Q.   Where specifically, in your opinion, does
14 Figure 7 discussion the use of an automated set
15 point?
16   MR. LINK: Objection. Form.
17   Q.   (By Ms. Laughton) And if you need to
18 refer to, you know, the description accompanying
19 Figure 17 in the '597 patent, please do so.
20   A.   I'm sorry. You're awaiting an answer?
21   Q.   I was.
22   A.   I thought there for a second maybe --
23   Q.   Oh, no.
24   A.   -- my answer didn't come through.
25   Q.   I -- I did not hear anything, so why don't

Page 19

1 we just try that again.
2   A.   I apologize if -- everything went still
3 for a second, so --
4   Q.   Uh-oh.
5   A.   -- it might be that my answer was not
6 provided.
7   Q.   Okay. Let's try that again.
8   MS. LAUGHTON: Court reporter, did you
9 hear anything.
10   THE REPORTER: No.
11   MS. LAUGHTON: Okay. All right. Well,
12 then, we're in the same position.
13   THE WITNESS: I apologize for that --
14   Q.   (By Ms. Laughton) It's not your fault.
15   A.   -- the technological hiccups.
16   Okay. So as --
17   Q.   (By Ms. Laughton) Can I reask my
18 question? Is that okay? Just?
19   A.   That would be fine.
20   Q.   -- to make the record clear?
21   So my question was where specifically does
22 Figure 7 discuss the use of an automated set point?
23   MR. LINK: Objection. Form.
24   THE WITNESS: And the Figure 7 does not
25 expressly use the term "automated" in it. It does

Page 20

1 talk about actual and scheduled set point data, and
2 from the body of the specification, one might -- a
3 POSITA would understand that the scheduled set point
4 data, if it is scheduled by the system, would
5 constitute an automated set point.
6   Q.   (By Ms. Laughton) Does the '597 patent
7 specifically define the "term automated set point"?
8   A.   Off the top of my head, I don't -- I
9 don't -- don't recall whether it does or doesn't, but
10 I believe that's a term that a -- a POSITA would
11 understand.
12   Q.   And so you're not aware, sitting here
13 today, of any specific definition in the '597 patent
14 of the "term automated set point"; is that correct?
15   A.   Not off the top of my head.
16   Q.   Do you agree that a set point is a
17 thermostat setting with time and temperature
18 components?
19   A.   I would say, in general, a set point would
20 be considered to have just a temperature setting,
21 although it can be programmed as a -- as having a
22 time element to it as well. But, in general, the
23 term "setpoint" would just talk about a temperature
24 that is the -- the target for the control system to
25 drive the -- the temperature to.

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