

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

3

4 MICROSOFT CORPORATION and : IPR2015-01928

5 MICROSOFT MOBILE, INC., : Patent 7,265,494

6 Petitioner, :

7 v. :

8 GLOBAL TOUCH SOLUTIONS, LLC, :

9 Patent Owner. :

10 _____ :

11 CAPTION CONTINUES ON :

12 FOLLOWING PAGES :

13

14

15 DEPOSITION OF ROBERT E. MORLEY, JR., Ph.D.

16 Washington, D.C.

17 May 13, 2016

18

19

20 Reported by: Linda S. Kinkade RDR CRR RMR RPR CSR

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22 GOLKOW TECHNOLOGIES, INC.

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1 UNITED STATES PATENT AND TRADEMARK OFFICE
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4 MICROSOFT CORPORATION and : IPR2015-01150
5 MICROSOFT MOBILE, INC., : Patent 7,781,980
6 Petitioner, :
7 v. :
8 GLOBAL TOUCH SOLUTIONS, LLC, :
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4 MICROSOFT CORPORATION and : IPR2015-01148
5 MICROSOFT MOBILE, INC., : Patent 7,498,749
6 Petitioner, :
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9 Patent Owner. :
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5 MICROSOFT MOBILE, INC., : Patent 7,994,726
6 Petitioner, :
7 v. :
8 GLOBAL TOUCH SOLUTIONS, LLC, :
9 Patent Owner. :

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The following is the transcript of the
deposition of ROBERT E. MORLEY, JR., Ph.D. held at
the offices of:

Sughrue Mion PLLC
2100 Pennsylvania Avenue, NW
Washington, DC 20037

Taken pursuant to applicable Rules of
Civil Procedure, before Linda S. Kinkade,
Registered Diplomate Reporter, Certified Realtime
Reporter, Registered Professional Reporter,
Registered Merit Reporter, Certified Shorthand
Reporter, as licensed by the State of California,
and Notary Public, as commissioned by the District
of Columbia.

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1 APPEARANCES (continued):

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I N D E X

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1	E X H I B I T S		
2			
3	NO.	DESCRIPTION	PAGE
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5		Morley, Jr. GLOBAL EX. 2003	
6		IPR2015-01147	
7	Exhibit 2	Petitioner's Notice of	15
8		Deposition of Robert E. Morley,	
9		Jr. Re IPR2015-01928 Patent	
10		7,264,494	
11	Exhibit 3	Petitioner's Notice of	15
12		Deposition of Robert E. Morley,	
13		Jr. Re IPR2015-01147 Patent	
14		7,994,726	
15	Exhibit 4	Petitioner's Notice of	15
16		Deposition of Robert E. Morley,	
17		Jr. Re IPR2015-01148 Patent	
18		7,498,749	
19	Exhibit 5	Petitioner's Notice of	15
20		Deposition of Robert E. Morley,	
21		Jr. Re IPR 2015-01149 Patent	
22		7,329,970	
23			
24			

1	Exhibit 6	Petitioner's Notice of	16
2		Deposition of Robert E. Morley,	
3		Jr. Re IPR 2015-01150 Patent	
4		7,781,980	
5	Exhibit 7	Petitioner's Notice of	16
6		Deposition of Robert E. Morley,	
7		Jr. Re IPR 2015-01151 Patent	
8		8,288,952	
9	Exhibit 8	Declaration of Robert E.	40
10		Morley, Jr. Re IPR2015-01928	
11		Patent No. 7,265,494	
12	Exhibit 9	Declaration of Robert E.	40
13		Morley, Jr. GLOBAL EX. 2002	
14		IPR2015-01147 Patent No.	
15		7,994,726	
16	Exhibit 10	Declaration of Robert E.	40
17		Morley, Jr. GLOBAL EX. 2005	
18		IPR2015-01148 Patent No.	
19		7,498,749	
20	Exhibit 11	Declaration of Robert E.	40
21		Morley, Jr. GLOBAL EX. 2006	
22		IPR2015-01149 Patent No.	
23		7,329,970	
24			

1	Exhibit 12	Declaration of Robert E.	40
2		Morley, Jr. GLOBAL EX. 2002	
3		IPR2015-01150 Patent No.	
4		7,781,980	
5	Exhibit 13	Declaration of Robert E.	41
6		Morley, Jr. GLOBAL EX. 2002	
7		IPR2015-01151 Patent No.	
8		8,288,952	
9	Exhibit 14	Bruwer U.S. Patent No.	59
10		7,265,494 Microsoft Exhibit	
11		1001	
12	Exhibit 15	Bruwer U.S. Patent No.	59
13		7,994,726 Microsoft Exhibit	
14		1001	
15	Exhibit 16	Bruwer U.S. Patent No.	59
16		7,498,749 Microsoft Exhibit	
17		1001	
18	Exhibit 17	Bruwer U.S. Patent No.	59
19		7,329,970 Microsoft Exhibit	
20		1001	
21	Exhibit 18	Bruwer U.S. Patent No.	59
22		7,781,980 Microsoft Exhibit	
23		1001	
24			

1	Exhibit 19	Bruwer U.S. Patent No.	60
2		8,288,952 Microsoft Exhibit	
3		1001	
4	Exhibit 20	Patent Owner's Response re	79
5		IPR2015-01147 Patent No.	
6		7,994,726	
7	Exhibit 21	Patent Owner's Response re	103
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9		7,265,494	
10	Exhibit 22	Jahagirdar U.S. Patent No.	105
11		6,125,286 Microsoft Exhibit	
12		1004	
13	Exhibit 23	Declaration of Mark N.	114
14		Horenstein, Ph.D. re	
15		IPR2015-01147 Patent No.	
16		7,994,726 Microsoft Exhibit	
17		1010	
18	Exhibit 24	Schultz U.S. Patent No.	136
19		4,053,789 Microsoft Exhibit	
20		1005	
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P R O C E E D I N G S

(Exhibit 1 marked for
identification: Curriculum Vitae
Robert E. Morley, Jr. GLOBAL EX.
2003 | IPR2015-01147)

(Exhibit 2 marked for
identification: Petitioner's Notice
of Deposition of Robert E. Morley,
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7,264,494)

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1 7,329,970)

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5 Jr. Re IPR 2015-01150 | Patent
6 7,781,980)

7 (Exhibit 7 marked for
8 identification: Petitioner's Notice
9 of Deposition of Robert E. Morley,
10 Jr. Re IPR 2015-01151 | Patent
11 8,288,952)

12 ROBERT E. MORLEY, JR., Ph.D.,
13 Having been first duly sworn, was thereafter
14 examined and testified as follows:

15 EXAMINATION

16 BY MR. MURPHY:

17 Q. Dr. Morley, my name is John Murphy. I am
18 a lawyer for Microsoft.

19 Would you please introduce yourself for the
20 record?

21 A. Yes. My name is Dr. Robert E. Morley,
22 Junior.

23 Q. All right. And just to review why we are
24 here, the reporter has kindly marked Exhibits 2

1 through 7.

2 Would you mind handing those to Dr. Morley.

3 A. Just for the record, I have number 1
4 also.

5 Q. That's fine. And would you please look
6 through Exhibits 2 through 7 and familiarize
7 yourself with these, if you aren't already.

8 A. Okay.

9 Q. So these are Notices of Deposition in six
10 IPR proceedings; is that correct?

11 A. Yes.

12 Q. And those proceedings are the captioned
13 proceedings here, and I'm going to read them: IPR
14 numbers 2015-1928, 2015-1147, 2015-1148, 2015-1149,
15 2015-1150, and 2015-1151. Is that right?

16 A. Correct.

17 Q. And is it your understanding that you are
18 here to testify in connection with these six IPRs?

19 A. Yes.

20 Q. And no others?

21 A. Correct.

22 Q. Dr. Morley, have you been deposed before?
23 I take it the answer is yes?

24 A. Yes.

1 Q. Approximately how many times?

2 A. Half a dozen.

3 Q. Okay. So you know that it's best to
4 provide me with verbal answers to my questions.

5 A. Correct.

6 Q. And you know that, if you don't
7 understand one of my questions, you should just ask
8 for clarification.

9 A. Yes.

10 Q. Okay. And if you do that, I promise you
11 I will give you that clarification.

12 Is there any reason why you would not be
13 able to fully testify today, such as medication or
14 illness?

15 A. No.

16 Q. Let's discuss Exhibit 1, which you also
17 have a copy of. Do you recognize this?

18 A. Yes.

19 Q. Is this your CV?

20 A. Yes.

21 Q. Would you take a second to look through
22 it and let me know if there are any inaccuracies
23 that you can see or updates that you need to make.

24 A. There is one additional patent that's

1 been issued in my name. I don't know the number,
2 but it was issued last December.

3 I've actually -- since this was provided I'm
4 involved as an expert in a case in Missouri that is
5 Patterson Oil versus someone. I forget who it is.
6 Someone else -- oh, I think it's Verifone,
7 Patterson Oil versus Verifone, V-E-R-I-F-O-N-E. I
8 think that's all that comes to mind here.

9 Q. All right. Is Patterson Oil versus
10 Verifone a patent infringement case?

11 A. No.

12 Q. What kind of case is it?

13 A. They are suing for, I guess it's breach
14 of contract, faulty equipment.

15 Q. Your CV refers to a few items under the
16 heading Industrial Career.

17 A. Yes.

18 Q. Do you see that part?

19 A. I do.

20 Q. Did this industrial career happen in
21 parallel with your academic career or before?

22 A. Partly in parallel, mostly before.

23 Some -- the ABB Hafo was during a sabbatical. The
24 National Acoustics Lab in Australia was during a

1 sabbatical. The 1976 through '81 at Micro-Term,
2 part of that was I was teaching part-time at the
3 university from about '78 to '81 and decided to
4 leave Micro-Term and go to the university. So that
5 was the same time. The Lincoln Labs, summer of
6 '75, was between my Master's and Ph.D. work at the
7 university.

8 Q. And did any of this industrial work have
9 anything to do with the design of electronics?

10 A. The company that I founded, Micro-Term,
11 in 1976, I was a designer of computer terminals.
12 The ABB Hafo -- well, sorry, Lincoln Labs, in the
13 summer, I designed satellite receivers, signal
14 processing algorithms for satellite receivers, not
15 the electronics but the algorithms.

16 The ABB Hafo in Stockholm in '93 I designed
17 the actual circuitry and simulated it for a
18 low-power digital hearing aid, microchip. And the
19 National Acoustics Lab in Sidney, that was signal
20 processing. It didn't involve electronics, just
21 algorithms.

22 Q. In your industrial experience involving
23 the design of electronic circuitry, did any of that
24 electronic circuitry involve microprocessors?

1 A. Yes. The name of my company, Micro-Term,
2 was because we were the first company to put
3 microprocessors in the terminal, so from the very
4 start. And then I've designed with microprocessors
5 many things over the years that weren't involved in
6 the industrial career but at the university.

7 Q. In your industrial experience involving
8 the design of electronic circuitry did you have
9 occasion to design any circuitry that involved
10 touch sensors?

11 A. No, not in my industrial career.

12 Q. What about outside your industrial
13 career?

14 A. I've used touch sensors with an MSP430
15 Texas Instruments microprocessor in a senior design
16 class that I taught. One of the groups used one of
17 those processors, and I was the mentor on that
18 project so I got involved with that.

19 Q. What was the time frame of that project?

20 A. A couple of years ago.

21 Q. After 2010?

22 A. It would have been 2000 maybe '11,
23 something like that, yes.

24 Q. Did you -- do you have any experience

1 designing electronic circuitry involving touch
2 sensors prior to 2010?

3 A. No.

4 Q. What about --

5 A. Pardon me. I was forgetting. I did a
6 project with a friend of mine. We did a display
7 for a company in St. Louis named Coin Acceptors or
8 Coinco. It was a cathode ray tube, CRT, display
9 for a vending machine that we used a
10 touch-sensitive overlay on the CRT screen for
11 selecting objects on the screen. That would have
12 been back in the late '80s.

13 Q. How does a touch-sensitive overlay work
14 generally?

15 A. That one was, I believe, a resistive
16 overlay that varied the resistance in an X-Y grid.

17 Q. Was there some other kind of overlay
18 other than resistive?

19 A. Capacitive.

20 Q. What's the difference?

21 A. The fundamental electrical phenomenon of
22 resistance versus capacitance.

23 Q. Is there some reason why you used a
24 resistive overlay and not a capacitive one in the

1 project that you mentioned?

2 A. At this point I don't remember what the
3 decision process was.

4 Q. Do you have any experience designing
5 portable telephones?

6 A. I was involved in the design of something
7 called the C-phone, which was a portable
8 communications device for deaf people. So it had
9 the name "phone" on it. It was actually a terminal
10 with a modem that -- so it was a little device that
11 had a little keypad and you could put a phone in it
12 and communicate with it. So we called -- and the
13 deaf people used the symbol with your fingers like
14 this called -- well, sorry, it was like this --
15 which meant that you could see the phone. They
16 called it C-phone. And, anyway, I designed that.

17 Q. Did the C-phone have a touch sensor?

18 A. It did not.

19 Q. Did it have a proximity sensor?

20 A. No.

21 Q. In the engagements listed under the
22 heading Industrial Career on your CV, were any of
23 these paid engagements?

24 A. Well, the Micro-Term was, like I

1 mentioned, a company I founded, and I paid myself
2 to work there. And the Lincoln Laboratories, I was
3 paid to work there. I was paid at ABB Hafo. The
4 National Acoustics Lab, I did not get paid for that
5 visit. I was paid by the university, my
6 university.

7 Q. Are you currently engaged in any kind of
8 industrial engagement? I'm sorry. That was
9 awkward.

10 Do you have a job outside of your academic
11 job at the moment?

12 A. Yes.

13 Q. What is it?

14 A. I am a founder and principal of a company
15 by the name of REM, R-E-M, Holdings 3, LLC, and in
16 that company I have designed with a partner a
17 credit-card reader, a mag stripe credit-card
18 reader, that plugs into the headset jack of a
19 smartphone for the purpose of conducting mobile
20 payments.

21 Q. So there is ongoing litigation related to
22 these patents, right?

23 A. At the present time I'm happy to report
24 there is a binding term sheet.

1 Q. Oh.

2 A. A week ago we made an agreement to end
3 the litigation, but it hasn't been signed yet.

4 Q. Okay. Well, I was just going to use that
5 opportunity to say -- I was going to ask you a few
6 questions about the history of the litigation and
7 your involvement, but I wanted to make the point
8 that -- which I'm sure you know -- I'm not fishing
9 for any confidential information, and if there's
10 any question I ask where part of it is confidential
11 with regard to other parties and doesn't belong in
12 this public record, that's fine. I just want to
13 get a sense of the background.

14 A. Okay.

15 Q. So how many patents does REM Holdings 3
16 own?

17 MR. KELBER: Objection, assumes facts not
18 in evidence.

19 THE WITNESS: I can give a rough count
20 of -- I mean, there are some that I understand are
21 about to issue. The ones that have issued, I
22 believe are four.

23 Q. Does REM Holdings 3 own all of your
24 patents related to the payment system?

1 A. No. I did a lot of work at the
2 university on an antifraud system for mag stripes,
3 and I think they're on the order of eight patents
4 for that work that the university licensed to an
5 industrial company by the name of MagTek,
6 Incorporated.

7 Q. So how many patents total are you the
8 named inventor on? Is it 18?

9 A. Well, I have 16 here and I mentioned that
10 there was one -- there are 16 mentioned here in my
11 CV, and I said I know there's one that issued last
12 December.

13 Q. So REM Holdings 3 owns between one and
14 nine patents, somewhere in that range?

15 A. Yeah, fair to say.

16 Q. Have you ever had one of your patents go
17 through an IPR before?

18 A. I have.

19 Q. How many?

20 A. Only one fortunately.

21 Q. Was that one of the REM Holdings 3
22 patents?

23 A. Yes. It's what we call the '946 patent.

24 Q. What was the result of that IPR?

1 A. Three claims were found to be patentable.

2 Q. Were any found to be unpatentable?

3 A. Some were found, yes, to be unpatentable;
4 however, the proceeding has not ended.

5 Q. Where is it now?

6 A. That's a good question. I have a number
7 of proceedings going on, so for the '946 there's
8 actually a petition to terminate, and I think that
9 we're at a phase where we're waiting to hear on a
10 petition to terminate for various reasons.

11 Q. But at some point along the way in the
12 '946 IPR there was a decision by the Patent Office
13 that some claims were unpatentable?

14 A. Correct.

15 Q. Okay. Have you ever had any patents go
16 through any other type of Patent Office review
17 proceeding other than an IPR?

18 A. Yes. I have two patents that are
19 involved in the inter partes re-exam, one of which
20 is at the stage of an appeal to the Federal
21 Circuit. It's called the '729 patent.

22 I have another one that is called the '248
23 patent that is -- was sent back from the PTAB to
24 the examiner because of new grounds of rejection.

1 We amended some claims, and they were allowed, but
2 it's still -- it's still at the Patent Office.

3 Q. So if I counted right, you named two
4 inter partes re-exams and one IPR. Do I have that
5 right?

6 A. That's right.

7 Q. Any others?

8 A. There was an inter partes re-exam of a
9 patent, that was the '394 patent, and because it
10 had no commercial value to us, we decided to
11 abandon that one.

12 Q. Was the '394 an REM Holdings 3 patent?

13 A. Correct.

14 Q. Who initiated these inter partes re-exams
15 in the IPR?

16 A. Square, Incorporated.

17 Q. And this is the company that you had the
18 litigation dispute with, right?

19 A. Correct.

20 Q. Were any of the lawyers who are involved
21 in this IPR having to do with Microsoft and Global
22 Touch involved in the Square litigation or related
23 Patent Office proceedings?

24 A. No.

1 Q. Is the Square -- if I say "the Square
2 litigation," do you know what I'm referring to
3 generally?

4 A. Yes.

5 Q. Okay. Is the Square litigation the only
6 time you've been involved as a party in patent
7 litigation as opposed to an expert?

8 A. Back when I was at Micro-Term there was
9 a -- it was alleged that we were in violation or
10 infringing a patent held by RCA, I believe it was.
11 I don't remember what happened with that. We
12 certainly didn't -- it didn't go very far.

13 Q. This would have been in the late 1970s or
14 early 1980s?

15 A. Correct.

16 Q. One of the things I think I heard you
17 mention is that some of your patents are owned by
18 the Washington University of St. Louis; is that
19 right?

20 A. I have assigned my rights to a number of
21 patents to the university. I've also assigned
22 rights to patents to Central Institute for the Deaf
23 that were licensed. They were patents covering
24 digital hearing aids.

1 Q. Do you receive any income in connection
2 with those patents such as licensing revenue?

3 A. I do. I got a one-time share of
4 royalties when the digital hearing aid patents were
5 sold many years ago, and my most recent payment for
6 the antifraud technology patents to MagTek, they
7 pay a minimum royalty of -- to the University -- of
8 half a million dollars a year, and I share in that
9 with the other inventors, and that's been going on
10 for 13 years or something like that, and I recently
11 received a payment. They pay in January and I get
12 my share in April or something, so I was recently
13 given a share of that.

14 Q. Over the course of those 13 years, what's
15 your typical annual income from licensing revenue?

16 A. I personally receive approximately
17 \$40,000; however, I have an agreement with an
18 ex-wife to share that with her 50/50, even though
19 there was no precedent in the state of Missouri for
20 an inventor ever getting divorced evidently. We
21 have an agreement that I pay the taxes on it and
22 then we split what's left in half.

23 Q. So what about REM Holdings 3, aside from
24 what may come from a settlement of this dispute,

1 does REM Holdings 3 generate any income for you?

2 A. No. We had one -- not currently. We had
3 a customer for our credit-card reader that was a
4 Korean company, and they bought some ten thousand
5 readers one time, but they have since gone out of
6 business, so we don't have any ongoing revenue
7 stream.

8 Q. If you are at liberty to say,
9 approximately how much are you expecting to make
10 from the settlement?

11 MR. KELBER: Caution the witness not to
12 reveal any confidential information.

13 THE WITNESS: There was a public
14 statement made by CEO of Square, Mr. Dorsey, that
15 the settlement amount was \$50 million.

16 Q. That's what Square said.

17 A. Yes.

18 Q. Okay. Let's talk about your work as an
19 expert. And you can refer to your CV, if it helps
20 you recall, but approximately how many times have
21 you served as an expert in patent infringement
22 cases or Patent Office proceedings?

23 A. I'd say on the order of 10 or 12,
24 something like that.

1 Q. In the 10 or 12 expert engagements you've
2 had, in approximately how many have you been
3 associated with the Patent Owner?

4 A. As I read through these ... one of the
5 cases I was first involved in was for this Coinco
6 Company in St. Louis. I worked for Haverstock,
7 Garrett and Roberts, and it was suit and
8 countersuit, so there were originally eight patents
9 involved, four on each side. So I was involved for
10 the Patent Owner and also for the accused infringer
11 for some of those patents.

12 The Finnegan Henderson case was a long time
13 ago, and I was for the Patent Owner there. Leydig,
14 Voit & Mayer I had done some work actually for
15 Microsoft. A former student of mine was an
16 attorney there and I helped. That was not the
17 Patent Owner.

18 Sughrue here, I've worked for on a case
19 involving digital hearing aids with Widex and Widex
20 was not the Patent Owner.

21 Nordyne was the defendant -- sorry -- they
22 were the Patent Owner in that case. Sorry.

23 Net Navigation, I was for the Patent Owner.

24 Xpoint Technologies, I was for the Patent

1 Owner.

2 Q. Okay. Have you ever, prior to working
3 with Global Touch, have you ever been an expert in
4 a Patent Office proceeding of any kind?

5 A. I submitted declarations in my own
6 proceedings as an expert. The rest of these cases
7 I believe were infringement cases.

8 Q. So other than this Global Touch
9 engagement and other than your own proceedings,
10 there were no other times when you were an expert
11 in a Patent Office based proceeding.

12 A. Correct.

13 Q. You mentioned two cases involving
14 Microsoft. The first one was this case where you
15 worked with lawyers at Leydig; is that right?

16 A. Yes.

17 Q. And tell me who are the parties in that
18 case.

19 A. I don't recall. I remember the nature of
20 the dispute. Technically it had to do with an
21 interrupt-driven keyboard monitor, and it turned
22 out that I actually had software that we had
23 created at my company Micro-Term that was used as
24 prior art to help defend Microsoft in that case.

1 Q. Approximately what year was this?

2 A. Around 1980.

3 Q. More recently, your CV lists a case
4 captioned Xpoint v. Microsoft.

5 A. Yes.

6 Q. What generally did that -- technology did
7 that concern?

8 A. It involved computer data buses and
9 methods of transferring data across them.

10 Q. And you worked with lawyers at Sughrue?

11 A. Yes, I did.

12 Q. Is that the first time you had worked
13 with the lawyers at Sughrue?

14 A. No, the first time would have been with
15 the Widex case, I believe, preceded that one --
16 this one.

17 Q. And in the Widex case was Sughrue
18 representing the Patent Owner?

19 A. No, they were defending the Widex hearing
20 aid company from Denmark.

21 Q. So is this Global Touch engagement the
22 third time you've worked with Sughrue?

23 A. Yes.

24 Q. In the Xpoint case did you provide any

1 expert reports or declarations?

2 A. I did.

3 Q. How many?

4 A. I don't recall, but it was more than one.

5 Sort of a handful. I think there were a number of

6 defendants in that case, and I provided expert

7 reports for several of the accused devices.

8 Q. Were you deposed in that case?

9 A. I don't recall that I was.

10 Q. And the case didn't go to trial, right?

11 A. No, it didn't.

12 Q. Across these cases, as best as you can

13 recall, did you ever form any opinions on

14 obviousness?

15 A. I certainly have rendered opinions on

16 obviousness in my own case over and over again. I

17 think that I rendered opinions on obviousness in

18 the Coin Acceptors, Coinco case. I don't recall at

19 the moment if I did in these other cases or not.

20 Q. Can you recall ever having offering --

21 excuse me.

22 Can you recall ever having offered an

23 opinion that a patent would have been obvious?

24 MR. KELBER: Objection as to form.

1 THE WITNESS: Not as I sit here I can't
2 recall that.

3 Q. In the Xpoint case, sorry to double back,
4 in the Xpoint case do you recall if you received
5 any confidential information from Microsoft?

6 A. Not -- as I sit here today I can't
7 recall.

8 Q. Did you perform an infringement analysis
9 in the Xpoint case?

10 A. I did.

11 Q. What was the analysis of?

12 A. There were various products. I don't
13 remember exactly now. It was quite a few years
14 ago.

15 Q. Was it hardware or software?

16 A. It was hardware.

17 Q. Was it a Microsoft Surface tablet?

18 A. I don't recall. I just can't say.

19 Q. Was it a phone?

20 A. I don't believe the Surface tablet
21 existed at the time. I'm not sure. I'm sorry. I
22 just don't remember what the technology was now.

23 Q. Was it -- excuse me.

24 A. In general, I could say it involved PCI

1 bus sort of devices for doing data transfers, and
2 I'm forgetting the buzzword now for the -- it's an
3 unattended device to device data transfer across a
4 bus, and there's an industry term for that that's
5 eluding me at the moment.

6 Q. Do you recall if you looked at any
7 physical samples of devices?

8 A. Best I can recall is I looked at
9 literature and engineering drawings, things of that
10 nature, block diagrams.

11 I remember the buzzword. It's DMA, direct
12 memory access.

13 Q. Have you ever testified at a trial?

14 A. Yes.

15 Q. How many times?

16 A. Twice.

17 Q. Which cases were those, if you recall?

18 A. The Coin Acceptors case and the Widex
19 case.

20 Q. Has your testimony ever been excluded by
21 a judge?

22 A. No.

23 Q. Has your testimony ever been criticized
24 in a judicial opinion?

1 A. No.

2 Q. You have a good bit of experience with
3 the Patent Office, right?

4 A. Probably more than most people in
5 general, but, I don't know. I imagine there are
6 those that, unfortunately, have more. I have quite
7 a bit, I'd say.

8 Q. Do you think that all patents issued by
9 the Patent Office are valid?

10 A. Not necessarily.

11 Q. Have you ever had experience with a
12 patent that was issued by the Patent Office that
13 turned out to be invalid?

14 MR. KELBER: Objection as to form.

15 THE WITNESS: I certainly have personal
16 experience with Patent Office rulings invalidating
17 some or all of my claims in patents.

18 Q. Did you agree with any of those rulings?

19 A. Not yet.

20 Q. I'll transition a little bit. Let's talk
21 about your representation in connection with Global
22 Touch or your engagement in connection with Global
23 Touch.

24 Anytime you want to take a break, just let

1 me know.

2 A. I'm fine. Thanks.

3 Q. In these six IPRs that we're here to talk
4 about today, you understand that the Patent Trial
5 and Appeal Board, which I sometimes may call the
6 Board or the PTAB -- is that all right?

7 A. Fine.

8 Q. And you understand that in these six IPRs
9 the PTAB has already instituted the proceedings
10 upon having reviewed Microsoft's petitions, right?

11 A. Correct.

12 Q. So the PTAB's view in instituting these
13 decisions is that the challenged claims are more
14 likely than not to be invalid. Do you understand
15 that?

16 MR. KELBER: Objection as to form, calls
17 for a legal conclusion.

18 THE WITNESS: From my personal
19 experience, I understand that that's the decision
20 that they made with regard to instituting the trial
21 or not.

22 Q. And do you disagree with the PTAB's
23 decisions in that respect for all six of these
24 IPRs?

1 A. I do.

2 (Exhibit 8 marked for
3 identification: Declaration of
4 Robert E. Morley, Jr. Re
5 IPR2015-01928 | Patent No.
6 7,265,494)

7 (Exhibit 9 marked for
8 identification: Declaration of
9 Robert E. Morley, Jr. GLOBAL EX.
10 2002 | IPR2015-01147 | Patent No.
11 7,994,726)

12 (Exhibit 10 marked for
13 identification: Declaration of
14 Robert E. Morley, Jr. GLOBAL EX.
15 2005 | IPR2015-01148 | Patent No.
16 7,498,749)

17 (Exhibit 11 marked for
18 identification: Declaration of
19 Robert E. Morley, Jr. GLOBAL EX.
20 2006 | IPR2015-01149 | Patent No.
21 7,329,970)

22 (Exhibit 12 marked for
23 identification: Declaration of
24 Robert E. Morley, Jr. GLOBAL EX.

1 2002 | IPR2015-01150 | Patent No.
2 7,781,980)

3 (Exhibit 13 marked for
4 identification: Declaration of
5 Robert E. Morley, Jr. GLOBAL EX.

6 2002 | IPR2015-01151 | Patent No.
7 8,288,952)

8 MR. MURPHY: That last one was the '952,
9 right?

10 MR. KELBER: Correct. 1151.

11 Q. Dr. Morley, the reporter has kindly
12 handed you Exhibits that have been marked 8, 9, 10,
13 11, 12 and 13. Do you recognize these?

14 A. I do.

15 Q. Are these your declarations in the
16 respective six IPRs we are here to discuss today?

17 A. Yes.

18 Q. Just so it's clear, let's review them.
19 Let's start with Exhibit 8. Exhibit 8 is your
20 declaration in No. 2015-1928 for the '494 patent.
21 Did I get that right?

22 A. Correct.

23 Q. And could you flip through it and confirm
24 for me that that is your complete declaration and

1 that the signature in the back is yours?

2 A. I'm not counting the paragraphs to be
3 absolutely sure, but I would say it appears to be
4 complete, and it's certainly my signature.

5 Q. All right. For Exhibit 9, could you
6 confirm that Exhibit 9 is your declaration in
7 2015-1147 for the '729 patent?

8 A. I see '726 patent on Exhibit 9. I think
9 you said '729?

10 Q. Excuse my error. So confirm that Exhibit
11 9 is your declaration in 2015-1147 for the '726
12 patent.

13 A. Yes.

14 Q. And that the signature in the back of
15 this one is yours?

16 A. It is.

17 Q. Thank you. For Exhibit 10, could you
18 confirm that Exhibit 10 is your declaration in
19 2015-1148 for the '749 patent?

20 A. It is.

21 Q. And confirm that the signature in the
22 back of Exhibit 10 is yours, please?

23 A. It is.

24 Q. Moving on to Exhibit 11, could you

1 confirm that Exhibit 11 is your declaration in
2 2015-1149 for the '970 patent?

3 A. Yes.

4 Q. And please confirm the signature in the
5 back of Exhibit 11 is yours.

6 A. It is.

7 Q. Moving on to Exhibit 12, could you please
8 confirm that Exhibit 12 is your declaration in
9 2015-1150 for the '980 patent?

10 A. It is.

11 Q. And please confirm that the signature in
12 the back of Exhibit 12 is yours.

13 A. It is.

14 Q. And, last but not least, could you please
15 confirm that Exhibit 13 is your declaration in
16 2015-1151 for the '952 patent?

17 A. It is.

18 Q. And please confirm that the signature in
19 the back of Exhibit 13 is yours.

20 A. It is.

21 Q. Do these six declarations, Exhibits 8
22 through 13, contain all the opinions that you've
23 formed about the six patents that those
24 declarations concern?

1 MR. KELBER: Objection as to form.

2 THE WITNESS: They contain all the
3 opinions that I was asked to render. I might have,
4 as an inventor and someone involved in patent
5 proceedings, might have formed other opinions that
6 were irrelevant or what have you, but certainly
7 these contain the opinions that were pertinent.

8 Q. Is there anything in these six
9 declarations that is left out that you needed to
10 add in now?

11 A. Not that I recall.

12 Q. Was there anything you considered putting
13 in these declarations you decided not to?

14 A. I certainly had discussions back and
15 forth with attorneys, you know, involving opinions
16 and ways to convey those in the reports, but I
17 think that the product that I have in front of me
18 here is representative of the ultimate
19 determination of how I could best express myself.

20 Q. Do you recall anything in particular that
21 you were considering putting in one of these
22 declarations that you decided not to?

23 MR. KELBER: Caution the witness not to
24 reveal discussions between counsel. If you

1 yourself considered something, that's a fair
2 question.

3 THE WITNESS: I remember considering
4 using the term "butt dialing" and thought maybe I'd
5 leave that out.

6 Q. I'm glad you said that because I was
7 going to use that term today.

8 A. I promised the attorneys here that they
9 would hear those words today at some point. We've
10 gotten that taken care of now. Check that off the
11 list.

12 Q. Let's focus on Exhibit 9, which is for
13 the '726 patent. In paragraph 19 of Exhibit 9
14 there's a table. Do you see that?

15 A. I do.

16 Q. And does this table represent everything
17 that you considered in forming your opinion in
18 connection with the '726 patent?

19 A. No. One of the things that I always rely
20 on in forming opinions is what one of ordinary
21 skill in the art would understand terms to be.

22 So in addition to this, certainly there's my
23 experience as one of ordinary skill in the art and
24 my background and education, et cetera.

1 Q. Did you consider any documents other than
2 the documents listed in paragraph 19 when forming
3 your opinions about the '726 patent?

4 A. Once again, back to my general knowledge
5 as one of order -- one of ordinary skill in the art
6 here, I certainly have referenced untold number of
7 textbooks, documents, you know, data sheets, you
8 name it, right.

9 So, I mean, just to be absolutely honest
10 about -- to answer that question, yeah, I've seen
11 lots of documents in my experience that have led me
12 to make opinions about what one of ordinary skill
13 would understand the terms to be in a patent.

14 Q. Since the time you were asked to start
15 working on an opinion for the '726 patent, did you
16 consider any documents in connection with forming
17 that opinion other than the ones listed in
18 paragraph 19?

19 A. I think I might have refreshed my memory
20 about touch sensors with a Wikipedia article or
21 something like that, that I might not have listed
22 here, but, I mean, these are the principal
23 documents upon which I relied in forming my
24 opinion.

1 Q. Why did you need to refresh your memory
2 on touch sensors?

3 A. Well, as I tell my students, all you know
4 is what you use daily, and my background is very
5 wide, and I don't recall all the details of every
6 piece or bit of technology that I've come in
7 contact with over the years.

8 Q. Do you recall what specifically made you
9 feel like you needed to consult Wikipedia about
10 touch sensors?

11 A. I was going to be rendering my opinion as
12 an expert and that was part of the subject matter,
13 and I wanted to make sure that I was sound in my
14 opinions.

15 Q. Do you recall what specifically in your
16 recollection was refreshed by the Wikipedia
17 article?

18 A. Just generally the technology, what makes
19 it work.

20 Q. Which was what? What made it work?

21 A. I could go into detail. There's a lot
22 of -- there are different types of touch sensors.

23 Q. Okay. Give me an example.

24 A. There are capacitive touch sensors on the

1 iPhone, for example. There's a custom chip that
2 takes care of deciding what the touch -- where the
3 touches are, multitouch on the screen, for example.

4 Q. All right. So there's the capacitive
5 sensors on the iPhone. Is there any other type of
6 touch sensor you can think of?

7 A. I mentioned earlier there are resistive
8 touch sensors.

9 Q. Is there a place in everyday life that I
10 might have seen that type of sensor you can think
11 of?

12 A. I'm not sure exactly what the
13 applications are, but there are resistive touch
14 sensors that are used in products. I just can't
15 cite one off the bat.

16 Q. Can you think of any types of touch
17 sensors other than capacitive or resistive touch
18 sensors?

19 A. I think that covers the gamut.

20 Q. Was there anything you relied on for your
21 understanding of touch sensors other than the
22 Wikipedia article that you reviewed?

23 A. I think I said there might have been
24 several articles, but I did a little bit of

1 Googling just to -- and I don't remember how much I
2 read, but there were -- I would say there was
3 probably more than one thing that I saw.

4 Q. Can you recall anything other than
5 Wikipedia articles that you may have looked at?

6 A. Not at the moment, no.

7 Q. Did you learn anything about touch
8 sensors from the documents listed in paragraph 19?

9 MR. KELBER: Objection as to form. As
10 to?

11 Q. I'll start again. Did anything in the
12 documents listed in paragraph 19 refresh your
13 recollection of touch sensors?

14 A. I wouldn't say they refreshed. There
15 were discussions of the underlying operation
16 technology of touch sensors in some of these
17 references that, when I read it, I said, yeah, that
18 makes sense, it jibes with my understanding of that
19 technology, but I wouldn't say it educated me or
20 taught me something new that I wasn't previously
21 aware of.

22 Q. Are you aware that there are litigations
23 in District Court involving the same patents that
24 these IPRs involve?

1 A. I'm not really knowledgeable of the
2 litigation. I am aware. I've heard that there is
3 some litigation involved, but I don't know anything
4 about it.

5 Q. Do you know what court the litigation is
6 in?

7 A. I don't.

8 Q. Do you know who the defendants are in the
9 litigations?

10 A. I don't know for a fact. I presume,
11 knowing about IPRs, that the people that launch the
12 IPR usually are the ones that are involved in
13 litigation, so I wouldn't be surprised if Microsoft
14 was one, for example.

15 Q. Do you know what the accused devices are
16 in the litigations?

17 A. I do not, no.

18 Q. Not flashlights. Sorry. Never mind.

19 In paragraph 2 of Exhibit 9 it mentions
20 three -- I'm sorry. It mentions two patents that
21 we're not discussing today, which by reference to
22 the last three digits would be the '623 and '781
23 patents. Do you agree with that?

24 A. If I heard you correctly, I think you

1 said three patents.

2 Q. I meant to say two.

3 A. Okay. I could check those against this
4 list here, but I trust you're probably correct on
5 that.

6 Q. It says that, if I'm reading this
7 right -- and you can confirm -- it says that you've
8 been retained as an expert witness by counsel on
9 behalf of Global Touch Solutions in connection with
10 a series of inter partes reviews of a number of
11 patents held by GTS. These patents include, in no
12 particular order, and then a list of eight patents.
13 Right?

14 A. Yes.

15 Q. And in that list you see the six patents
16 we're talking about today by reference to the last
17 three digits: '494, '726, '749, '970, '980 and
18 '952.

19 A. Correct.

20 Q. And then there's two others, '781 and
21 '623, right?

22 A. Correct.

23 Q. Have you been asked to provide opinions
24 with respect to the '781 or '623 patents?

1 A. I believe so. I'd have to check my notes
2 to be certain, but I'm pretty sure I have, yes.

3 Q. With regard to the '623 patent, have you
4 reviewed any of the documents filed in that IPR?

5 A. I'd have to -- I have a cheat sheet that
6 has all these things listed on it. I'd have to
7 check that. But I'm pretty sure I rendered an
8 opinion regarding the '623 in a different IPR than
9 one of these and that I, having done that, I
10 certainly reviewed the pertinent documents.

11 Q. When reviewing the claims that have been
12 challenged in these IPRs involving these eight
13 patents, have you ever concluded that one of the
14 claims is not valid?

15 A. No.

16 Q. Are you aware that Global Touch in any of
17 these IPRs has ever disclaimed any of the
18 challenged claims?

19 A. Not to my knowledge.

20 Q. Have you ever become aware that any of
21 the claims of the '494 patent were disclaimed by
22 Global Touch?

23 A. No.

24 Q. Have you ever become aware that any of

1 the claims of the '623 patent were disclaimed by
2 Global Touch?

3 A. No.

4 Q. When were you first contacted by Sughrue
5 in connection with these IPRs?

6 A. My first meeting regarding them was in
7 January of this year, and I believe that was a
8 result of being contacted in the last quarter of
9 last year sometime when they reached out and called
10 me and said they might have a project that they
11 wanted me to help on.

12 Q. I'm going to rephrase that question a
13 little bit because I said Sughrue and I should have
14 said, when were you first contacted by any lawyer
15 in connection with these IPRs?

16 A. It would be the same answer.

17 Q. Okay. And who contacted you first? Do
18 you recall?

19 A. Bill Mandir.

20 Q. You've worked with Mr. Mandir before?

21 A. I did.

22 Q. Do you recall when you signed an official
23 engagement letter and started work?

24 A. I would say it was probably in January

1 time frame of this year.

2 Q. Prior to getting involved with these
3 related IPRs, had you ever heard of the company
4 Aztech?

5 A. Not that I recall, no.

6 Q. Had you ever heard of the inventor of the
7 patents involved in these IPRs, Mr. or Dr. Bruwer?

8 A. No.

9 Q. Since the time that you got involved with
10 these IPRs have you had a chance to look into
11 Dr. Bruwer or Aztech?

12 A. No.

13 Q. So did I hear right that your
14 recollection is your first meeting in connection
15 with these IPRs with the lawyers was in January of
16 this year?

17 A. Correct.

18 Q. And how many meetings have you had since
19 the first one?

20 A. I think that was the only one that I've
21 had in person other than prepping for this
22 deposition yesterday. The rest were by telephone.

23 Q. How many, approximately, telephonic
24 meetings have you had in connection with this

1 engagement?

2 A. Dozens.

3 Q. Is it correct that your rate is \$500 an
4 hour?

5 A. Correct.

6 Q. About how much have you billed in
7 connection with these engagements so far?

8 A. I would say on the order of \$50,000.

9 Q. Who wrote the declarations, Exhibits 8
10 through 13?

11 A. It was a collaborative effort. There
12 were a number of authors that deserve credit,
13 myself being principal. There are sections that
14 were written mostly by lawyers, for example, the,
15 you know, the legal understanding of what the legal
16 terms are. I just read, and they wrote that. But
17 the rest of it was something that we wordsmithed
18 and worked on back and forth together. I wrote
19 quite a bit of it.

20 Q. Who wrote the first draft?

21 A. Some sections were written by me in the
22 first draft, others by them.

23 Q. When you were engaged by the Global Touch
24 lawyers, what did they ask you to do?

1 A. Help them represent a Patent Owner in an
2 IPR.

3 Q. I assume they asked you to consider the
4 circumstances of the case and form opinions, right?

5 A. Yes.

6 Q. So what kinds of opinions did they ask
7 you to consider?

8 A. I don't recall that they asked for
9 specific opinions other than they knew that I had
10 experience myself in IPRs, and -- as a Patent
11 Owner -- so I kind of knew what the objectives are
12 from a Patent Owner's point of view. They asked me
13 to render opinions on behalf of the Patent Owner as
14 to whether or not the various claims were obvious
15 or not based on what had been filed by the
16 requester and also the determination of the board,
17 where the board made any comments.

18 Q. The principal question we're here to
19 discuss is the alleged combination of two pieces of
20 prior art. One's called -- they're both -- sorry.
21 They're both patents, and one has an inventor whose
22 name is Jahagirdar and the other has an inventor
23 whose name is Schultz. Are you familiar with
24 this -- these prior art references?

1 A. Yes. And you'll excuse me if I don't
2 pronounce Mr. Jahagirdar's name the same way you
3 do. I don't know if your way is better than mine;
4 it's just that I've come to call him
5 Mr. Jahagirdar -- Jahagirdar.

6 Q. Jahagirdar. I think I can work with
7 that. If I slip back into mine, I really apologize
8 to Mr. Jahagirdar, wherever he is, that we're
9 butchering his name, but we'll do our best.

10 So now that we have the vernacular, the
11 principal question we're here to discuss is the
12 proposed or alleged obviousness combination of
13 Jahagirdar and Schultz, right?

14 A. Correct.

15 Q. And were you asked to consider this
16 combination at the first meeting in January?

17 A. I think that this combination was
18 discussed at that first meeting.

19 Q. When did you form your opinions about
20 this combination?

21 A. Before we had that meeting I was sent by
22 email, I believe, the petition for the IPR,
23 certainly at least one of the IPRs involving that
24 combination, and the board ruling on it and the

1 decision to institute, and the two patents, the
2 Jahagirdar and the Schultz patents, and the patent,
3 whichever one -- I forget which one of these -- but
4 I remember reading through those materials and
5 particularly looking at the, for example, the
6 motivation to combine. And I think there were a
7 list of a number of alleged motivations to combine,
8 and I dug into that stuff and started forming my
9 opinion at that time before the meeting.

10 Q. So when did you reach the conclusions
11 that are expressed in the declarations, Exhibits 8
12 through 13?

13 A. I would say a good portion of what is
14 included in these declarations I had at least the
15 general opinion. I didn't have all the specific
16 details, but I formed a general opinion regarding
17 the motivation to combine, for example, the first
18 time I read it. It was easy.

19 Q. And what --

20 A. Some of the other details were -- had to
21 get into the nitty-gritty of the claim language
22 versus what the combination might teach and things
23 like that. So those I developed as I went along.

24 MR. KELBER: Is this a reasonable time

1 for a break, John?

2 MR. MURPHY: Absolutely.

3 MR. KELBER: Let's take a short one.

4 (Proceedings recessed at 10:17 a.m.)

5 (In session at 10:24 a.m.)

6 (Exhibit 14 marked for

7 identification: Bruwer | U.S.

8 Patent No. 7,265,494 | Microsoft

9 Exhibit 1001)

10 (Exhibit 15 marked for

11 identification: Bruwer | U.S.

12 Patent No. 7,994,726 | Microsoft

13 Exhibit 1001)

14 (Exhibit 16 marked for

15 identification: Bruwer | U.S.

16 Patent No. 7,498,749 | Microsoft

17 Exhibit 1001)

18 (Exhibit 17 marked for

19 identification: Bruwer | U.S.

20 Patent No. 7,329,970 | Microsoft

21 Exhibit 1001)

22 (Exhibit 18 marked for

23 identification: Bruwer | U.S.

24 Patent No. 7,781,980 | Microsoft

1 Exhibit 1001)

2 (Exhibit 19 marked for

3 identification: Bruwer | U.S.

4 Patent No. 8,288,952 | Microsoft

5 Exhibit 1001)

6 Q. Dr. Morley, the reporter has kindly
7 marked Exhibits 14 through 19, which hopefully are
8 the patents at issue in these related IPR
9 proceedings.

10 As you're looking at them, can you confirm
11 that Exhibit 14 is the '494 patent?

12 A. It is.

13 Q. Exhibit 15 is the '726?

14 A. It is.

15 Q. Exhibit 16 is the '749?

16 A. Correct.

17 Q. Exhibit 17 is the '970?

18 A. It is.

19 Q. Exhibit 18 is the '980?

20 A. Yes.

21 Q. And Exhibit 19 is the '952?

22 A. Yes.

23 Q. Okay. Now we'll have these on hand in
24 case we need to refer to them.

1 To refer back to the previous line of
2 questioning about how your declarations were
3 created, there are two or three groups of lawyers
4 involved representing GTS that you're working with;
5 is that right?

6 It's like Monty Python's Trojan Rabbit out
7 there.

8 A. There are certainly a number of
9 attorneys. I don't know exactly the organizations
10 for whom they work. There's Sughrue, there's
11 Mr. Kelber, there's Mr. Cristler, who I believe are
12 not at Sughrue.

13 Q. As far as you can tell, are the IPRs
14 divided up between the lawyers somehow?

15 A. Yes.

16 Q. Would you be able to tell me how?

17 A. I believe the people at Sughrue are
18 involved in -- there are two sets of IPRs, roughly
19 speaking, where the requester is Microsoft on one
20 hand and Apple on the other. Maybe there are other
21 requesters, but I've come to know them sort of as
22 Apple and Microsoft IPRs. And it's my
23 understanding that one of those is being handled by
24 the Sughrue people and the other one is being

1 handled by outside people from Sughrue.

2 Q. When did you start working with
3 Mr. Cristler and Mr. Kelber?

4 A. I met them in January at the first
5 meeting.

6 Q. Did you develop your opinions in these
7 declarations in parallel or not in parallel?

8 MR. KELBER: Objection as to form.

9 THE WITNESS: Parallel opinions in one
10 IPR and in another, that kind of parallelism?

11 Q. Did you --

12 MR. KELBER: I hope they feed it.

13 Q. Did you prepare the declarations in any
14 particular order?

15 A. I was working on several simultaneously.

16 Q. Did the '494 declaration trail behind all
17 the others?

18 A. If that is the one that refers to a
19 find-in-the-dark feature, then, yes, that would
20 have been the last one that I worked on, as I
21 recall.

22 MR. KELBER: Could we go off the record
23 for just a second?

24 MR. MURPHY: Okay.

1 (Discussion was had off the record.)

2 Q. So let me just ask that question again.
3 Did the '494 declaration, Exhibit 8, trail behind
4 the others?

5 A. I believe it did, and I'm just quickly
6 checking my signature dates to confirm.

7 Yes, my recollection is correct, it did
8 trail.

9 Q. Were all the opinions in these six
10 declarations your idea first or were any of them
11 provided to you by counsel?

12 A. The opinions that I rendered were
13 discussed with counsel. They might have asked me
14 what do you think about this, would you agree with
15 an argument that blah blah blah, whatever, and then
16 I would discuss that with them and tell them how
17 I -- what my reading of the situation was. So, you
18 know, it was a give-and-take kind of thing.

19 Q. Did you prepare for this deposition?

20 A. I did.

21 Q. How did you prepare?

22 A. I met with the attorneys yesterday here
23 at this firm and reviewed some documents. I read
24 my declarations on the plane on the way up here

1 from St. Louis the other day.

2 Q. Did you review any documents other than
3 the declarations and the documents listed in the
4 declarations?

5 A. Not that I recall.

6 Q. Thinking about the six patents at issue
7 in these six IPRs, do you have in your mind a way
8 that you summarize at a high level the invention
9 claimed across the six patents?

10 A. I would say, in general, one of the
11 principal ideas that's expressed here would be to
12 forego putting current through a mechanical switch
13 from a battery to a load wherein that mechanical
14 switch, because it's turning the device on and off,
15 would necessarily conduct this relatively high
16 current in the product and wear out over a period
17 of time due to buildup of debris or corrosion, and
18 instead use an electronic switch to conduct the
19 current and turn the current on and off to the
20 load, and have that electronic switch be controlled
21 by a microprocessor, which in turn is sensing a
22 user interface switch that is a low-current switch
23 that won't wear out. And it's a touch-sensitive
24 switch that is on the user interface that is

1 actuated so that the microprocessor can in turn
2 activate the electronic switch to activate the load
3 and give the current to the load. So I'd say
4 that's sort of the most common idea that goes
5 across these patents.

6 Q. So if you're trying to control power to
7 the load, is the simplest way to do it is to simply
8 put a switch in the circuit between the power
9 source and the load, right?

10 A. Well, with the minimum number of
11 components would be, again, to have a battery, a
12 switch and a load.

13 Q. And the Bruwer patents make this somewhat
14 more complicated by interposing a microchip between
15 the power source and the load and then having the
16 microchip be controlled by some kind of switch,
17 right?

18 A. Well, I wouldn't say that the microchip
19 is between the power source and the load because
20 the power source certainly doesn't send current
21 through the micro into the load. The microchip
22 controls yet another electronic switch.

23 So it is more complicated than a battery, a
24 switch and a load, as you said, but it's not quite

1 the same as what you said in that it would entail,
2 not only just adding a micro and the
3 touch-sensitive switch to control the micro, but
4 also the micro has to control an electronic switch
5 to conduct the current to the load.

6 Q. If we can take Exhibit 15 as a
7 representative example of these patents, which is
8 the '726 patent.

9 A. I have it.

10 Q. Can you walk me through in a little bit
11 of detail how the '726 patent shows the microchip
12 controlling an electronic switch to conduct the
13 current to the load?

14 A. There are a couple of figures I could
15 refer to where that occurs. One of them would be
16 Fig. 2 where the micro would be control element
17 201, the switch would be -- that is conducting the
18 current to the load would be switch 202, and switch
19 102 would be the user interface switch. So that's
20 one place where you can see it.

21 The next place I see it, just skimming
22 through here, looks like Fig. 6 -- sorry -- Fig. 5
23 shows, again, a control in this case element 201,
24 which seems to be controlling switch 202 that

1 conducts current between the battery voltage and
2 the load 105.

3 Moving along, also -- let's see. Without
4 reading through and seeing what was intended in
5 some of the other figures, I can state those
6 figures indicate the three elements, a user
7 interface switch, a micro or a control element and
8 then an electronic switch to conduct current to the
9 load from the battery.

10 Q. When I'm comparing Fig. 1 to Fig. 2, is
11 the contents of the dotted box in Fig. 2
12 represented as the solid box that says microchip in
13 Fig. 1?

14 A. Yes, I think that could be a substitution
15 in Fig. -- there's an indicator in Fig. 2 that the
16 dotted box, I believe, is element 103, it shows in
17 the lower right-hand corner, and that's the same
18 number as what's identified as microchip 103 in
19 Fig. 1.

20 Q. Okay. So the way it's represented in
21 Fig. 1, it looks like the power goes through the
22 microchip, but when it's blown out in Fig. 2 shows
23 that the power doesn't go through the control part
24 of the microchip. Do I have that right?

1 A. Correct.

2 Q. I understand. Okay.

3 A. I could tell you that one of ordinary
4 skill would know that microprocessors don't conduct
5 that kind of current that is necessary.

6 Q. I understand. Were these Bruwer patents,
7 these six patents, when you picked them up and
8 looked at them the first time, was that the first
9 time you recall learning about the idea of turning
10 a load on and off under control of a microchip via
11 a switch input to that microchip?

12 A. I don't know for certain if I ever saw or
13 imagined that that's the way a product that I was
14 using did that function. Certainly, as far as I
15 can tell, that was the first time that I saw such a
16 circuit. I may have used one previously or
17 whatever and not thought one way or the other about
18 how it was operating.

19 Q. Do you teach any electronics or
20 electrical engineering classes that have anything
21 to do with circuit design?

22 A. Yes.

23 Q. In many of those classes do you ever
24 teach any material about microcontrollers or

1 microchips?

2 A. For many, many years I did, yes. I
3 taught what was our embedded systems lab and used
4 numerous microprocessors over the years, but
5 starting with the Motorola 6809 and then Motorola
6 68000 and on.

7 So I used to joke that I spent a lot of my
8 life in this one particular lab at the university
9 because that's where that course was offered. So I
10 spent a lot of time teaching microprocessor
11 classes.

12 Q. And in any of those classes that you
13 remember teaching, do you ever recall teaching a
14 circuit that looked like the circuit in Fig. 1 or
15 Fig. 2 or Fig. 3?

16 A. No, offhand I don't. The projects that
17 we did there involved more computer architecture,
18 interfacing, displays and memory chips and things
19 like that to the microprocessor system and didn't
20 really involve turning power on and off to it. The
21 power was usually present.

22 Q. In any of your industrial experience that
23 you've had do you ever recall working with, seeing
24 or designing circuits that looked like the ones in

1 Figs. 1, 2 or 3?

2 A. I think I probably came across in my
3 low-power chip design circuits that could put a
4 portion of a chip to sleep or turn off the power to
5 it to lower the power, but not from a user
6 interface, not -- not where some user would actuate
7 a switch, but some algorithmic decision to enable a
8 block, whether it was needed or not. Sort of like
9 my mom telling me to turn the lights off when I'd
10 leave a room. I would always teach my students to
11 turn the power off to something if it's not needed,
12 but that was algorithmic. It wasn't something from
13 a user interface.

14 Q. Let's turn to Exhibit 9, declaration in
15 2015-1147 for the '726 patent. Okay?

16 A. I have it.

17 Q. In paragraph 7, page 5, it says that your
18 experiences have allowed you to develop a
19 fundamental understanding of the concepts
20 underlying obviousness. Is that right?

21 A. Yes.

22 Q. And then later on in this declaration, I
23 suppose paragraphs 28 through 42, there is an
24 explanation of the law of obviousness. Do you see

1 paragraphs 28 through 42?

2 A. I do.

3 Q. Is the explanation of the law of
4 obviousness in paragraphs 28 through 42 consistent
5 with your understanding of the concepts underlying
6 obviousness?

7 A. It is.

8 Q. Paragraph 25 through 27 falls under the
9 heading "Anticipation." Did you render any
10 opinions on anticipation?

11 A. I don't believe so, no.

12 Q. In paragraph 26, in particular, there's a
13 section that -- a sentence -- that says, "I
14 understand that the express, implicit and inherent
15 disclosures of a prior art reference may be relied
16 upon when analyzing anticipation." Do you see
17 that?

18 A. Yes.

19 Q. Did you render any opinions having to do
20 with inherent anticipation?

21 A. No.

22 Q. In paragraph 27 there's a sentence that
23 says, "I also understand the disclosure in an
24 allegedly anticipating reference must provide an

1 enabling disclosure of the desired subject matter."

2 Do you see that?

3 A. I do.

4 Q. Did you render any opinions as to whether
5 any of the references involved here are enabling?

6 A. No.

7 Q. Turning to paragraph 31, would you agree
8 that this paragraph generally discusses the concept
9 of secondary indicia of nonobviousness?

10 A. Yes.

11 Q. Are you aware of any evidence of
12 secondary indicia of nonobviousness of relevance in
13 these IPRs?

14 A. I don't recall seeing any, no.

15 Q. Did you rely on any such evidence of
16 secondary indicia of nonobviousness in forming your
17 opinions?

18 A. I did not.

19 Q. Paragraph 32, would you agree with me
20 that this paragraph lists what you understand to be
21 exemplary rationales that may support a conclusion
22 of obviousness?

23 A. Yes.

24 Q. Are these rationales in the alternative?

1 Let me ask that more carefully. Sorry.

2 In order for a claim to have been obvious,
3 does it need to have to satisfy all of the
4 rationales listed in paragraph 32?

5 MR. KELBER: Could I hear that question?

6 (The record was read by the reporter.)

7 THE WITNESS: I think that's sort of a
8 little bit beyond my bailiwick. These are general
9 understandings that I've come across, but I think
10 to answer that definitively I should be a patent
11 attorney.

12 I can tell you as an engineer that's
13 involved in IPRs of my own and stuff that I would,
14 given that caveat, I would say these are not meant
15 to all have to take place, but there could be one
16 or more.

17 Q. Did you consider these various rationales
18 when forming your opinions on obviousness in these
19 IPRs?

20 A. Yes.

21 Q. Did you consider none of them to be
22 applicable?

23 MR. KELBER: Objection as to form.

24 THE WITNESS: Yes. I don't believe any

1 of these are applicable in the IPRs that I studied.

2 Q. I want to focus on exemplary rationale,
3 letter G in paragraph 32. Would you agree that, if
4 there is a teaching suggestion or motivation in the
5 prior art that would have led one of ordinary skill
6 to reach the claim combination, that that tends to
7 make it more likely that a claim would have been
8 obvious?

9 MR. KELBER: Objection as to form. You
10 can answer.

11 THE WITNESS: Once again, given the
12 caveat that I'm not an attorney, I certainly have
13 the general understanding from my experience that
14 one of the ways to have a claim be obvious is to
15 say that there is a motivation to combine one or
16 more -- two or more -- pieces of prior art or the
17 teachings of those references.

18 Q. Is a motivation to combine a requirement
19 to reach a finding of obviousness?

20 A. Once again, I have to qualify my answer
21 that I'm not an attorney, but in my opinion there
22 needs to be a motivation to combine by one of
23 ordinary skill in the art.

24 Q. Does the motivation need to be documented

1 or in written form in the prior art in order to be
2 useful for the obviousness analysis?

3 MR. KELBER: Objection as to form.

4 THE WITNESS: Once again, you know, the
5 same qualification, not being an attorney, but I
6 don't believe, unfortunately, that that's a
7 requirement in my own personal case.

8 Q. Why did you say "unfortunately"?

9 A. Well, frankly, in my opinion, it doesn't
10 take much to get someone to swear out a declaration
11 that the combination of two or more references
12 would have been obvious and that one of ordinary
13 skill in the art would have been motivated to
14 combine them when in fact that person is just
15 conducting improper hindsight analysis in my
16 opinion.

17 Q. Do you think that too many patents are
18 invalidated as obvious these days?

19 MR. KELBER: Scope.

20 THE WITNESS: Certainly my patents that
21 have been attacked from an obviousness perspective
22 combining ridiculous pieces of art are such patents
23 that you refer to.

24 Q. Working still in this paragraph 32, go

1 back up to exemplary rationale, letter A, and do
2 you see where it says, "combining prior art
3 elements according to known methods to yield
4 predictable results"?

5 A. I see that.

6 Q. Does that strike you as a legitimate
7 basis for obviousness?

8 MR. KELBER: Objection as to form, scope.

9 THE WITNESS: With the same
10 qualification, me not being an attorney, yes, I
11 have come to understand that that is one of the
12 criteria.

13 Q. Referring to that same rationale letter
14 A, does yield predictable results mean that a
15 person of ordinary skill in the art would have
16 known the results in advance of designing the
17 combination or building the combination?

18 A. Speaking as an engineer, I think you
19 could say that's what yield predictable results
20 might mean.

21 Q. Skipping ahead to paragraph 39, the first
22 sentence of paragraph 39 says, "it is further my
23 understanding that, to be proper for use in an
24 obviousness analysis, a reference must be analogous

1 art to the claimed invention. Do you see that?

2 A. Yes.

3 Q. Are you of the opinion that any of the
4 art at issue in these IPRs is not analogous?

5 A. I don't believe that I rendered any
6 opinion on that subject.

7 Q. Paragraph 41, the last sentence says,
8 "for example, a claimed invention may be found
9 obvious if a person of ordinary skill in the art
10 would view rearrangement as an obvious matter of
11 design choice. What do you mean by "design
12 choice"?

13 A. Well, speaking as an engineer and one who
14 teaches a senior design course, I would say that
15 design choice is one of the things a designer does
16 to decide how he's going to implement a given
17 circuit or algorithm, piece of code, et cetera.
18 It's just -- designers make choices to decide how
19 to make something work.

20 Q. And is it possible in a given situation
21 that there are -- there is -- more than one choice
22 that would have been obvious at the time?

23 A. There are numerous ways to skin a cat, as
24 we say. And so it would -- if someone were limited

1 to one choice, then that makes life easy for a
2 designer. The designer's problem is to choose one
3 of many ways of effecting a desired outcome.

4 Q. Going back to the question of motivation,
5 does a finding of obviousness require showing that
6 the claimed solution was motivated by a recognized
7 problem in the art?

8 A. I'm sorry. Could you -- I'm not sure I
9 understood.

10 (The record was read by the reporter.)

11 A. I wouldn't say it would be motivated by a
12 recognized problem in the art, but that one of
13 ordinary skill in the art would have a motivation
14 to combine these two or more references or
15 teachings in order to devise some product, device,
16 what have you.

17 Q. In order to show that a claim would have
18 been obvious, the challenger is not required to
19 prove that there was a recognized problem with the
20 existing prior art, right?

21 MR. KELBER: Objection. The witness is
22 now being asked to render opinion as to an adequacy
23 of a legal challenge that he doesn't opine on. If
24 you can connect it up to his declaration, that

1 would be helpful.

2 (Exhibit 20 marked for
3 identification: Patent Owner's
4 Response re IPR2015-01147 | Patent
5 No. 7,994,726)

6 Q. Dr. Morley, the reporter has kindly
7 handed you Exhibit 20, which is the Patent Owner's
8 response in 2015-1147 concerning the '726 patent.
9 Did I get that right?

10 A. Yes.

11 Q. Have you read this before?

12 A. I was involved and saw this, various
13 drafts of it, as it was being prepared, to see if
14 it comported with my declaration, I believe.

15 Q. So you considered drafts of this response
16 paper you're holding in forming your expert
17 opinion?

18 A. No, no. I think it relies, if I recall,
19 upon my declaration, and so I was looking to see if
20 I was being quoted accurately.

21 Q. Which one was written first, the
22 declaration or the brief?

23 A. My declaration, I believe, was written
24 first.

1 Q. Was there anything you saw in the early
2 drafts of the brief, Exhibit 20 that you're looking
3 at, that you didn't like or that you edited?

4 A. I'm a stickler for typos. I might have
5 found a typo. I don't remember any substantive
6 disagreements that I might have had.

7 Q. Going back to the objection that counsel
8 made as to the reason that I'm asking the question
9 about whether a requirement for obviousness is that
10 there be a recognized problem in the art, I'd like
11 to refer you to page 14 of Exhibit 20. There's a
12 paragraph that starts, "first," and it says:

13 First, it must be noted that the
14 evidence of record does not in any
15 way show or establish that
16 inadvertent actuation of keys 144
17 in the flip-phone of Jahagirdar was
18 even a recognized problem at the
19 time of the invention or ever.

20 The question I have first is: Do you see
21 that?

22 A. I do.

23 Q. So the question I have is: Do you have
24 any understanding as to whether it is a requirement

1 for obviousness that there be a recognized problem
2 at the time of the invention or ever?

3 MR. KELBER: Same objection as previously
4 offered.

5 THE WITNESS: Once again, with the
6 qualification that I'm not an attorney, the way I
7 look at the motivation and whether or not one would
8 combine two references is do you, by making the
9 combination come up with something that's an
10 improvement, and so engineers, we like to say, if
11 it ain't broke, don't fix it.

12 And so if the combination works worse than
13 either of the references to begin with, then no one
14 would be -- or one of ordinary skill certainly
15 would not be motivated to make the combination if
16 you come up with something that doesn't work as
17 well as what you had before you made the
18 combination.

19 Q. But what --

20 A. I think that's what this is addressing
21 here.

22 Q. I see. But what if the combination works
23 better in some ways and worse in others? Could
24 such a combination be obvious?

1 MR. KELBER: We are way off the scope
2 here. I'll permit it, but we hope to get back to
3 something the witness has said.

4 THE WITNESS: You know, it's a
5 hypothetical. If I modify some design by some way
6 and it causes one portion of the design to work
7 better and another to work less well, is that
8 better or not? I don't know.

9 Q. I have no interest in laying any traps
10 here. The reason that I'm asking this has to do
11 with the opinion that it wouldn't have been obvious
12 to combine Jahagirdar and Schultz because such a
13 combination would be less functional because the
14 touch sensors on the side of the Jahagirdar
15 flip-phone are disadvantageous in various ways that
16 are laid out in the declaration. That's the only
17 reason I'm asking this question.

18 MR. KELBER: That's fine. If you want to
19 ask the witness about he said, that's fine. You
20 haven't asked him that.

21 MR. MURPHY: All right. We're getting
22 there.

23 MR. KELBER: I thought that's where we
24 would start, John. I apologize. I apologize.

1 Q. I have more questions about -- let's go
2 back to the obviousness section here.

3 I just want to try to get a better
4 understanding of how you approached your
5 obviousness analysis and what your understanding
6 was of obviousness. Because you reached
7 conclusions on the question of obviousness, and I'd
8 like to understand how you got there.

9 So in order for a combination to have been
10 viewed as obvious, does it have to be the optimal
11 solution to a problem?

12 A. No, and that's because in my view it is
13 very difficult to prove optimality. That's a
14 maximum. There's only one of those. I always warn
15 my students not to use that term because it's an
16 invitation to an argument with an engineer. They
17 will always say that there's something better. So,
18 no, definitely it does not have to be the optimal
19 if one could prove there is an optimal solution to
20 a problem.

21 Q. If there are several possible
22 combinations that one could envision at the time of
23 the invention, is the obvious one only the best
24 one?

1 MR. KELBER: Could I hear that question
2 back?

3 (The record was read by the reporter.)

4 MR. KELBER: Objection as to form. You
5 can answer.

6 THE WITNESS: Once again, to say best,
7 that implies that there is one that's better than
8 all. In general, I would say what you can look at
9 is two possibilities: The reference without a
10 combination with another one or the reference when
11 combined with another one, and between those two
12 possibilities which one is better, and then you
13 avoid the best or the optimal question.

14 Q. I see. Well, does a proposed
15 combination -- start over.

16 All right. So you say, if I got this right,
17 what you can look at is two possibilities -- and
18 I'm reading here -- the reference without a
19 combination with another one or the reference when
20 combined with another one, and look at which is
21 better, right?

22 A. Correct.

23 Q. What happens if the reference was better
24 by itself as opposed to in combination? What does

1 that mean?

2 A. Then I believe that one of ordinary skill
3 in the art would not have been motivated to make
4 that combination because they would only result in
5 something that was inferior to the reference
6 without the combination. So it takes away any
7 motivation to combine by one of ordinary skill in
8 the art.

9 Q. So how do you judge what's better?

10 A. You use your engineering judgment based
11 on your -- the fact that you are one of ordinary
12 skill means that you can apply engineering judgment
13 and you can make those kinds of decisions.

14 Q. What if there are more than one criteria
15 for judging whether a product is better when
16 compared to another one?

17 A. It's something you take on. You make the
18 decision.

19 Q. Okay. In order to reach a finding of
20 obviousness, do you have to conclude that the
21 proposed combination has no drawbacks?

22 A. Not necessarily.

23 Q. Let's go back to Exhibit 9, paragraph 10.
24 The last sentence in paragraph 10 says:

1 By reliance on a microchip or
2 integrated circuit-based switching
3 system for a load, multiple
4 functions can be combined into one
5 device and power savings and other
6 advantageous features may be
7 realized.

8 Do you see that?

9 A. Yes.

10 Q. What do you mean by "power savings"?

11 A. Well, for example, if you have a
12 microprocessor that's controlling the power, the
13 drain from the battery to the load, you could
14 have -- turn it off after some period of time, and
15 it would prevent draining the battery needlessly.

16 Q. Are there any other advantages to this
17 configuration of the microchip that you discuss
18 here other than that?

19 A. With respect to power savings?

20 Q. No, with respect to the end of the
21 sentence where it says, "and other advantageous
22 features." What would those be?

23 A. You can do things like -- and it's taught
24 in the patents and the specification -- you can in

1 this case make the light flash SOS or you can give
2 an indication of the state of the battery, whether
3 it's getting low or not. So there's -- with a
4 microprocessor, with a small matter of programming,
5 you can do a lot of things.

6 Q. So it's fair to say there's a number of
7 advantages of putting the load under the control of
8 a microchip potentially?

9 A. There are certainly potentially.

10 Q. In paragraph 11, it says, in the first
11 sentence:

12 The innovation specifically
13 addressed in the '726 patent is
14 putting microchip control between
15 the exhaustible power supply and
16 the load that consumes that power
17 supply.

18 The '726 patent doesn't always talk about
19 exhaustible power supplies, right? I can help you.

20 A. Yeah, I'd have to ... does it always talk
21 about ... I think there may -- it talks about mains
22 at some point, I think was the term, rather than
23 exhaustible, but I don't remember at the moment.
24 If you want to point me to a reference in there.

1 Q. Sure. So take column 11, lines 17 and
2 down. You may want to read the balance of that
3 column to refresh your recollection.

4 A. Yes, I see that.

5 Q. So in some respects the '726 patent is
6 offering innovations beyond just dealing with
7 exhaustible power supply, right?

8 A. Correct.

9 Q. So what's the -- what other -- what's the
10 other aspect of the invention? Why would you apply
11 this technology to AC power?

12 MR. KELBER: Objection as to form.
13 Objection as to scope.

14 THE WITNESS: I can tell you what the
15 patent says there in the section that you've
16 pointed me to, and that is that the -- you have low
17 currents and low voltage, so it's safer from a user
18 point of view. If you're going to control the
19 lighting in a room, there's no -- there's less
20 likely that the user could come in contact with the
21 high voltage, the AC voltage, because they are
22 actually just interfacing with the microprocessor
23 that then in turn controls the AC.

24 Q. So would you agree with me that there is

1 at least three potential advantages to the Bruwer
2 technology here, which would be management of an
3 exhaustible power supply, provision of advantageous
4 features to the user and safety?

5 A. I'd say at least those.

6 Q. Can you think of any others?

7 A. I don't remember going through here.
8 Like I said in my report, I think the specific --
9 the innovation specifically addressed is this
10 control of the exhaustible power supply, so, I
11 mean, there are others, as you've just pointed out.
12 It wasn't an exhaustive listing there in paragraph
13 11.

14 Q. And there's some cases here in this
15 column 11 that you just reviewed where the load is
16 powered by mains or AC power such as a light, fan
17 or air conditioner, right?

18 MR. KELBER: Could I hear that question
19 back?

20 (The record was read by the reporter.)

21 A. I don't see anywhere that it mentions air
22 conditioning. Maybe the AC to you means air
23 conditioning, but I think it means alternating
24 current.

1 Q. Sorry. Try line 45.

2 A. Oh, okay. I didn't get down there. I
3 ended at the end of that paragraph. I didn't
4 realize ... yes. I see air conditioner there.

5 Q. Or light or fan, right?

6 A. Light or fan or air conditioner in line
7 45, yes.

8 Q. And in such circuits the respective load
9 would be the light or fan or air conditioner,
10 right?

11 A. Yes, that's what it says.

12 Q. Okay. Coming back to Exhibit 9,
13 paragraph 12, there's a sentence in the middle of
14 paragraph 12 that says:

15 While the terms of the patent are
16 applied directly to a flashlight
17 such that the bulb of the
18 flashlight constitutes the
19 electrical load of the device, in
20 fact the patent makes it clear that
21 this is for purposes of
22 illustration only and in no way
23 limiting of its application.

24 Do you see that?

1 A. I do.

2 Q. Do you recall any examples other than
3 light bulbs, fans or air conditioners in the '726
4 patent?

5 A. Not as I sit here, no. Excuse me.
6 That's not true. LED, a light emitting diode,
7 would be different than those that you mentioned.

8 Q. Could the LED be a load?

9 A. Any energy-consuming module or element in
10 a circuit can be considered to be a load, and an
11 LED does require -- it's what we call an active
12 device. It needs energy to operate, so it could be
13 considered to be a load.

14 Q. Where do you draw the line on load
15 between something that is perhaps clearly a load,
16 like the light bulb in a flashlight, and a tougher
17 question like the wires inside the device which
18 have resistance?

19 A. It's a matter of a judgment call. I
20 mean, the microprocessor itself to someone like me
21 who has designed digital hearing aids that only
22 consume one milliwatt, everything's a load. So
23 it's a matter of, you know, context.

24 The micro in this case would consume very

1 little power compared to the light bulb. So it
2 would -- its energy consumption or its load on the
3 battery would be in the noise, so to speak,
4 compared to the large load of the light bulb. So
5 it's a judgment call.

6 Q. So you're considering a device, like a
7 flashlight or like a flip-phone in Jahagirdar, how
8 do you know which components could be a load and
9 which ones could not be in the way that the '726
10 patent uses the word "load"?

11 A. I would say, by context, the '726 patent
12 is using a load to mean something that has a
13 considerable power drain on the battery.

14 Q. But how do you know what considerable is?

15 A. Well, if you measured the power
16 consumption of each element, did a histogram so you
17 could see what the distribution was, and you found
18 out that there are some things that are much larger
19 than others, you might consider the ones in the
20 large group to be what you would consider a load
21 that needs to be controlled versus the ones that
22 are less determinative of the battery life.

23 Q. In the flashlight that's in the '726
24 patent, which components of the flashlight would

1 you consider to be the load?

2 A. I would consider the light bulb itself, I
3 think, the LED, while technically could be
4 considered a load, I think the teachings say that
5 it's only pulsed on, say, for a few milliseconds
6 every ten seconds or something, so, in effect, to
7 try to make it not act like much of a load.

8 Q. So is the way in which a component is
9 used in the device's design a factor when deciding
10 if it's a load or not?

11 A. I would say that its average current draw
12 on the battery would be the determining factor as
13 to whether I would consider it a load or not
14 relative to other loads.

15 Q. Does the '726 patent or any of the other
16 patents in this proceeding talk about computers at
17 all?

18 A. I think it talks about a micro --
19 microchip, and it calls it a microchip and it shows
20 it as a control block, so -- I don't know that the
21 term microprocessor is used exactly, but to me, as
22 one of ordinary skill in the art, to call something
23 a control block and it's called a microchip,
24 certainly a microprocessor would be one element

1 that could satisfy that role.

2 Q. Does the '726 patent mention portable
3 telephones at all?

4 A. I don't recall that it does.

5 Q. What about portable laptop or tablet
6 computers? Does it mention those?

7 A. I don't believe it does.

8 Q. Did portable telephones or portable
9 computers exist in 1998?

10 A. I believe they did.

11 Q. You used the word in one of your answers
12 also in the declaration "module." What do you mean
13 by that?

14 A. It's a pretty squishy term. It's a, I'd
15 say, in general, a collection of devices.
16 Sometimes something in a block diagram you might
17 draw a block around and call it a module, but you
18 could have a module with modules in it. So it's
19 sort of a relative term, but you have to understand
20 it by context.

21 Q. Okay. In paragraph 13 of Exhibit 9 the
22 last sentence says:

23 A load placed under the control of
24 the microchip to limit diminishing

1 the power supply is referred to
2 throughout the specification and
3 claims of the '726 patent as an
4 energy-consuming load.

5 Do you see that?

6 A. I do.

7 Q. In that sentence are you saying what the
8 definition of energy-consuming load is?

9 A. No. I'm just saying how the '726 refers
10 to energy-consuming load.

11 Q. You're familiar with the concept of claim
12 construction in patent parlance, right?

13 A. Generally speaking, yes.

14 Q. Were you asked to form any opinions on
15 claim construction in these IPRs?

16 A. I was not.

17 Q. Should I take this sentence here that we
18 just discussed as an opinion on the claim
19 construction of the term energy-consuming load?

20 MR. KELBER: Objection, both as to scope
21 and as to the witness's legal education. The
22 witness has been educated as to the law, he's been
23 educated by others. He is not himself a lawyer,
24 thank the gods. Asking him questions about his

1 competency and his statements, those are fair.

2 MR. MURPHY: Fair enough. I just want to
3 know whether the sentence that starts "a load
4 placed" that we just discussed is his opinion on
5 claim construction of the term "energy-consuming
6 load."

7 MR. KELBER: Okay. Same objection. You
8 used the word "claim construction," and that has a
9 very special meaning. If you want to ask him what
10 that means, how the term should be understood,
11 that's fine. If you're asking him to testify as to
12 what is and what is not a claim construction,
13 you're out of bounds.

14 Q. Dr. Morley, do you know what claim
15 construction is?

16 A. I have a general understanding of it. I
17 think I just answered, though, previously that I
18 was not asked to nor did I render any opinions
19 regarding claim construction.

20 Q. Are you telling me that the meaning --
21 start over --

22 When you were considering whether these
23 claims in these patents were obvious, you had to
24 apply the claims to the cited references, right?

1 MR. KELBER: Objection.

2 Q. You had to read the claims, right?

3 A. I certainly read the claims.

4 Q. And you had to interpret in your mind the
5 claim language when you were applying it to the
6 references, right?

7 A. I wasn't asked to render some sort of an
8 infringement analysis where I needed to apply the
9 claims to the references. I just had to come to an
10 understanding of what was being claimed based on
11 the claim language in the specification and whether
12 or not the combination that was urged in the
13 request, whether or not that had all the elements
14 of the claim in the -- in that combination.

15 Q. Let me try it a different way. Does a
16 module have to be placed under the control of a
17 microchip in order for it to be considered an
18 energy-consuming load?

19 A. An energy-consuming load, generally
20 speaking, can be something that's not under the
21 control of a microprocessor, but that's not the
22 teaching of the '726.

23 In the context of the '726? In your
24 question you didn't say in the context of the '726.

1 You just asked if a module had to be under control
2 of a microprocessor in order to be an
3 energy-consuming load in general.

4 Q. I did.

5 A. Okay. Then I think I answered it.

6 Q. Well, let me ask this, then. Does a
7 module have to be placed under the control of a
8 microchip in order for it to be considered an
9 energy-consuming load in the context of the '726
10 patent?

11 A. I think that that's the only way that the
12 '726 refers to an energy-consuming load is a module
13 that is under the control of the micro.

14 Q. If there were a module in a particular
15 circuit that consumed energy but was not under the
16 control of a microchip -- let me do this in pieces.

17 Can you assume with me a circuit where there
18 is a module that consumes energy and is not under
19 control of a microchip?

20 A. I can imagine such a circuit and module.

21 Q. Would such a module not under control of
22 the microchip meet the definition of
23 energy-consuming load in the '726 patent in your
24 view?

1 A. I don't want to nitpick, but I think your
2 question was would such a module not under the
3 control of the micro, and I think maybe you meant
4 to say a module whose power is not under control.

5 I don't know what you mean by the module
6 being under control of the micro. I think what
7 we're really talking about is whether the power to
8 the module is under control.

9 Q. That's right. So would a module whose
10 power is not under the control of the microchip
11 meet the definition of energy-consuming load in the
12 '726 patent in your view?

13 A. I don't believe that there's anyplace in
14 the '726 where it refers to an energy-consuming
15 load that is not a module that's under -- whose
16 power control is not under the control of the
17 micro, so ...

18 Q. Is that a no?

19 A. It's sort of one of these necessary and
20 sufficient. Is it necessary or is it sufficient?
21 I can't -- all I can say is that the '726 is
22 consistent that, wherever it says energy-consuming
23 load, that is a module that's under control, whose
24 power is under control of the micro. It's just a

1 fact.

2 Q. Another part of the same sentence that
3 we're focusing on here says, "to limit diminishing
4 the power supply."

5 Now you agree with me that earlier we
6 discussed that you might place a load under the
7 control of a microchip for a variety of reasons,
8 right?

9 A. I don't remember saying that there were a
10 variety of reasons for putting a -- the power to a
11 load under the control of a micro where there is an
12 exhaustible power source. We talked about that
13 there's a possibility to have control, a light
14 that's AC powered.

15 Q. If a light is AC powered, isn't it still
16 an energy-consuming load?

17 A. You can still have an energy-consuming
18 load, and you don't want to prevent diminishing the
19 exhaustible power source, but you may want to
20 prevent wasting energy, turning off the light
21 automatically or something like that still. It's
22 just not an exhaustible power source.

23 Q. If a circuit designer places a load under
24 control of a microchip for some other reason other

1 than diminishing the power supply -- sorry.

2 If a circuit designer places a load under
3 control of a microchip for some other reason other
4 than limiting diminishing the power supply, could
5 that load still be an energy-consuming load?

6 MR. KELBER: Could I have that question
7 back?

8 (The record was read by the reporter.)

9 MR. KELBER: Objection as to form. I
10 think he wants an answer to the question.

11 THE WITNESS: I'm sorry. Are you waiting
12 for an answer?

13 MR. MURPHY: Yeah. Can you read it back?

14 (The record was read by the reporter.)

15 THE WITNESS: Maybe it would be helpful
16 if we could agree that, when we say a module under
17 the control of the micro, that what we mean by that
18 is controlling the power to the module --

19 Q. Go ahead.

20 A. -- so that we don't quibble over that.

21 Q. That's fine.

22 A. Okay.

23 Q. I want to use that phrase the same way
24 you're using it here.

1 A. Okay. So I believe that something could
2 be an energy-consuming load whether, in general,
3 whether it's under control of a micro or not. If
4 it's a load and it consumes energy, it's an
5 energy-consuming load, generically speaking, yes.

6 Q. All right. I gotcha.

7 MR. KELBER: I'm guessing we're going to
8 have to go past a reasonable lunch hour.

9 MR. MURPHY: Yeah, we'll have to break.
10 Let's let the witness decide.

11 (Discussion was had off the record.)

12 (Proceedings recessed at 11:46 a.m.)

13 (In session at 12:37 p.m.)

14 Q. Dr. Morley, let's go back to Exhibit 9,
15 please. Paragraph 15, the last sentence says,
16 "clearly, control over significant draws on the
17 exhaustible power supply -- in the words of the
18 '726 patent, quote, energy-consuming loads, end
19 quote -- is through the microchip."

20 Do you see that sentence?

21 A. I do.

22 Q. Should I understand that sentence to mean
23 that you think that energy-consuming loads have to
24 be significant draws on the power supply?

1 A. The ones that are disclosed in the patent
2 are, yes.

3 (Exhibit 21 marked for
4 identification: Patent Owner's
5 Response re IPR2015-01928 | Patent
6 No. 7,265,494)

7 Q. Our reporter has kindly marked and handed
8 you Exhibit 21, which is the Patent Owner's
9 Response in 2015-1928 on the '494 patent, right?

10 A. Yes.

11 Q. Have you read this document before?

12 A. I think I have, yes.

13 Q. Did you remember disagreeing with
14 anything in here?

15 A. No, not as I recall.

16 Q. Let's look at page -- pages -- 15 through
17 20 under the heading B. Display 516 is not
18 activated when the load is not activated. Do you
19 find that section?

20 A. I do. I have it.

21 Q. On page 16, underneath the block quote on
22 the top, there are two sentences starting with the
23 phrase "the essential character," going through the
24 end of that paragraph. Do you see those two

1 sentences?

2 A. Yes.

3 Q. The second one of those sentences says,
4 "Importantly, the modification of Jahagirdar to the
5 flip-phones specifically described in the
6 reference, the provision of display 516 and its
7 interaction with 520, quote, does not substantially
8 increase a power consumption or cost of the
9 communication device, end quote."

10 Do you see that sentence?

11 A. Yes.

12 Q. And then the very next sentence says,
13 "Thus, it is not the dual displays of Jahagirdar
14 516, 520 that are, quote, energy-consuming load,
15 quote, of the flip-phone of the reference -- these
16 are indicated to not increase the consumption of
17 power." Do you see that sentence?

18 A. I see it.

19 Q. Do you agree with that?

20 A. Well, I'd have to look at the power
21 consumption of all the modules in there.
22 Candidates for something of considerable load in
23 order to call it the energy-consuming load seems
24 like would be the backlight for those displays,

1 but, for example, the liquid crystal display on the
2 edge, I think it was 516, the external one, would
3 be fairly low power consuming kind of negligible
4 compared to other things.

5 The internal one may or may not be enough
6 power consumption to be considered an
7 energy-consuming load. I note this isn't quoting
8 me here. Somebody else's opinion.

9 Q. Whose opinion is it?

10 A. The author.

11 Q. Who is the author?

12 A. Well, I think it's -- I don't think a
13 single person signs these, do they? Oh. Steve
14 Kelber, the gentleman to my right.

15 Q. I'll ask the reporter to mark Exhibit 22.

16 (Exhibit 22 marked for
17 identification: Jahagirdar | U.S.
18 Patent No. 6,125,286 | Microsoft
19 Exhibit 1004)

20 Q. This is the Jahagirdar reference we've
21 been talking about, right?

22 A. Yes.

23 Q. In case you need to refer to it.

24 In Exhibit 21, again, the brief we were just

1 looking at, the next sentence after the one we last
2 read is, "In a phone such as that of Jahagirdar, it
3 is the transceiver itself that is the, quote,
4 energy-consuming load, end quote, of mobile station
5 102 ..."

6 Do you agree with that?

7 A. I think that the transceiver could be
8 considered to be an energy-consuming load. It
9 certainly is one of the modules in the -- in a cell
10 phone that determines the battery life. When my
11 iPhone battery goes dead frequently, it's due to
12 the fact that I had a low signal, I was too far
13 from a cell tower, and then my transceiver, in an
14 effort to stay in communication, it keeps upping
15 the power output until I can actually feel it get
16 warm in my pocket sometimes. So I certainly think
17 that can be an energy-consuming load. Whether it
18 is the or only one, I think there could be other
19 ones as well.

20 Q. So that's my question. What are all the
21 modules as far as you can tell in Jahagirdar that
22 could be an energy-consuming load?

23 A. Certainly, as I mentioned earlier, the
24 backlight that is shown in Fig. 6, element 608, is

1 something that could be considered an
2 energy-consuming load. The vibrator 511, they are
3 known to take a fair amount of energy when
4 activated. The drivers could be considered
5 generically an energy-consuming load. All these
6 are candidates. They were under control of the
7 controller in this Fig. 5.

8 Q. What about displays 516 and 520?

9 A. Minor load 516, as I mentioned earlier,
10 relative to these other things, I don't think it
11 would rank very high as a candidate. And display
12 2, depending on what type of display technology, it
13 may or may not be.

14 Q. Can you elaborate on what you just said
15 about what type of display technology?

16 A. Yes. If it's an active liquid crystal
17 display, whether it's LEDs, color, monochrome,
18 things of that nature could affect the power
19 consumptions.

20 Q. So which of those examples would be
21 energy-consuming loads and which wouldn't be?

22 A. I just said it's relative. In the
23 strictest engineering definition of an
24 energy-consuming load, anything that is active that

1 requires power to it to operate would be an
2 energy-consuming load.

3 Q. And would that include display 516 or 520
4 regardless of which technology those displays use?

5 A. In the strictest sense, yes, they are
6 active devices that can draw current from the power
7 supply.

8 Q. Now setting aside what you call the
9 strictest sense or engineering sense, I'd like you
10 to use the sense of the claims and claim language
11 that's actually in the '726 patent and these other
12 related patents.

13 And using that context, are there any
14 circumstances where 516 or 520 could be an
15 energy-consuming load?

16 A. They appear that they could satisfy that
17 requirement because the driver that's driving those
18 is under control of the microcontroller, I believe
19 one of the wires of the three wires going to the
20 drivers, driver 1 and driver 2, 514 and 518,
21 there's an enable line that comes from the
22 controller into those drivers to enable the
23 displays.

24 Q. If the top display 520 were an LED

1 instead of an LCD, would that make it more likely
2 that it's an energy-consuming load in your view?

3 A. I think you said the top display 520? In
4 Fig. 5 the one at the higher position on the page
5 that I see is 516.

6 Q. Sorry. I'll correct my question. If the
7 top display 516 were an LED instead of an LCD,
8 would that make it more likely that it's an
9 energy-consuming load in your view?

10 A. In general, the power consumption of an
11 LED display with the same number of digits as a
12 passive or reflective LCD would have somewhat
13 larger power consumption.

14 Q. Is that a yes, then?

15 A. So it has a higher power consumption,
16 under the strict definition I gave, it wouldn't
17 matter, they are both still -- either type of
18 technology would be under control of the controller
19 through driver 1, so it wouldn't change that answer
20 either.

21 Q. You testified earlier that you've read
22 the petitions filed by Microsoft in these IPRs,
23 right?

24 A. I believe I did say that.

1 Q. And the accompanying declarations from
2 Dr. Mark Horenstein, have you reviewed those?

3 A. I did.

4 Q. So you know that, in order to proffer a
5 case of obviousness, one of the things that those
6 petitions had to do was show where in Jahagirdar or
7 Schultz each claim limitation was, right?

8 A. Correct.

9 Q. One of the claim limitations is
10 energy-consuming load, right?

11 A. Yes, in one of the claims, certainly,
12 yes.

13 Q. So my question is: Do you think that
14 Microsoft or Dr. Horenstein did something wrong by
15 assigning the energy-consuming load to, for
16 example, the display 520?

17 MR. KELBER: Objection as to form.

18 THE WITNESS: I thought he identified
19 display 516.

20 Q. I got it wrong again.

21 A. Am I mistaken?

22 Q. Well, I think it depends. To answer your
23 question, I suppose. I think it depends on which
24 one you look at, and, if we need to, we can look at

1 them. But would it be -- let me ask it this way.
2 Would it be incorrect to assign the
3 energy-consuming load to the display 520?

4 MR. KELBER: Objection as to form.

5 THE WITNESS: Display 520 could be an
6 energy-consuming load. There are certain other
7 limitations on that in the claim, though, you know,
8 of things that -- we have to go further than just
9 whether or not it's an energy-consuming load, I
10 think, to see if it satisfies the requirement for
11 the obviousness analysis.

12 Q. Fair enough. I appreciate that caveat.

13 Similar question. Would it be incorrect to
14 assign the energy-consuming load to the backlight?
15 And you can make the same caveat, I understand.

16 MR. KELBER: Objection as to form.

17 THE WITNESS: And, yes, the backlight is
18 a candidate for an energy-consuming load. It's
19 controlled by the microprocessor there, or the
20 controller, as it's called.

21 Q. So going back to the statements on page
22 16 of Exhibit 21 that I was asking you about.
23 Where it says, "thus, it is not the dual displays
24 of Jahagirdar 516, 520 that are an, quote,

1 energy-consuming load, quote of the flip-phone of
2 the reference ... " Do you agree or disagree with
3 that statement?

4 A. I would consider those candidates to be
5 energy-consuming loads. I would not eliminate
6 them.

7 Q. So that means you disagree, right?

8 A. So I would disagree with that statement.

9 Q. Okay. Turning to page 17, there's a
10 parenthetical referring to your declaration, and it
11 starts out, as noted, and it goes:

12 As noted by Morley Exhibit 2005 at
13 paragraphs 46 and 67, cell phones
14 have evolved far beyond the
15 flip-phone of Jahagirdar and
16 application of the terms of the
17 claims to modern phones is not an
18 exercise within the scope of this
19 IPR. Cell phones of today with
20 complex screens and multiple
21 functions may clearly have
22 different power consumption issues
23 than those addressed by Jahagirdar.
24 Do you see that?

1 A. I do.

2 Q. Were you asked to consider how the claims
3 would apply to cell phones of today?

4 A. I don't remember making such a
5 determination.

6 Q. Do you have any opinions as to how the
7 claims would apply to cell phones of today?

8 A. Not without making that study, which I
9 haven't done.

10 Q. All right. Let's go back to Exhibit 9,
11 which is your declaration in 2015-1147.

12 A. I have it.

13 Q. Let's skip ahead to paragraph 56. That
14 was completely wrong. Let's go to a completely
15 different spot. My apologies.

16 Let's go to paragraphs 20 through 23 of the
17 same exhibit.

18 You have here in this section IV what
19 appears to me to be your opinion on the level of
20 ordinary skill. Do I have that right?

21 A. Correct.

22 Q. Did you review Dr. Horenstein's
23 declaration where he provided his opinion of the
24 person of ordinary skill?

1 A. I read his declaration.

2 Q. Did you disagree in any way with
3 Dr. Horenstein's explanation? And I think that was
4 Exhibit -- let me give you one so you can review
5 it.

6 (Exhibit 23 marked for
7 identification: Declaration of Mark
8 N. Horenstein, Ph.D. re
9 IPR2015-01147 | Patent No.
10 7,994,726 | Microsoft Exhibit 1010)

11 Q. I can tell you where to go. It's
12 paragraphs 18 through -- well, it's paragraph 18
13 and then also 20 through 22. And the question I'm
14 going to have for you after you review these is
15 whether you disagree with Dr. Horenstein's opinion,
16 so keep that in mind.

17 A. Okay. I've read his. Do you want me to
18 compare it --

19 Q. If that helps you. The question is
20 whether you have any agreement with
21 Dr. Horenstein's view on the level of ordinary
22 skill.

23 A. I don't have any quibble with it. It
24 seems close enough.

1 Q. All right. That's what I thought too, so
2 that saves me a whole bunch of questions.

3 Now let's skip ahead to paragraph 45 of
4 Exhibit 9. Now this series of questions is all
5 going to fall under the umbrella of activation and
6 deactivation. And in fact the logical starting
7 spot is even earlier than paragraph 45. It is
8 paragraph 18. Back up.

9 This paragraph says, the '726 patent refers
10 frequently to, quote, activation. This term seems
11 to be used consistently to indicate turning
12 something on, and it continues from there. Do you
13 see that?

14 A. Yes.

15 Q. Do you consider this to be the definition
16 of the word "activation" for purposes of reading
17 the '726 patent?

18 A. I believe that that's what he intends
19 activation to mean is to provide power to it, turn
20 it on; deactivate is to take the power away or turn
21 it off.

22 Q. When you say "he," you mean Bruwer?

23 A. Yes.

24 Q. In this sentence you use the word

1 "something," turning something on and turning
2 something off. Do you see that?

3 A. Yes.

4 Q. What is the something?

5 A. An electronic circuit or module, if you
6 will.

7 Q. If the module is a light bulb, I think I
8 have a pretty good idea of what turning a light
9 bulb on is, but I get confused when we talk about
10 turning something on when there's -- when it has
11 more than one component.

12 So can you educate me a little bit on how to
13 understand what turning on is when I'm referring --
14 when we're talking about something more
15 complicated?

16 MR. KELBER: Objection to the form. Is
17 there a question?

18 Q. Yeah, it's can you educate me a little
19 bit on how to understand what turning on is when
20 I'm referring to something more complicated than a
21 light bulb.

22 A. Possibly.

23 Q. Would you please attempt to do so?

24 A. There may be an input to a module that is

1 an enable line that activates that thing, you know.
2 Doesn't directly give it power, take power away
3 from it, but it tells it to become active so it
4 activates it and those wires or signals we
5 typically refer to as enable. So there's an
6 example.

7 Q. So a component of an electronic device
8 could have several subcomponents within it, right?

9 A. Yes.

10 Q. If you turn on that electronic device,
11 are you turning on all of the components of the
12 same device?

13 A. Not necessarily. It depends what the
14 schematic is and how the things are wired inside
15 that component.

16 Q. In Exhibit 10, which is referring to the
17 '749 patent --

18 A. Yes.

19 Q. -- take a look at paragraph 21.

20 A. Okay.

21 Q. I just wanted to ask here, what is
22 activation of a deactivation signal? What does
23 that mean?

24 A. Another word I could have used there was

1 assertion of a deactivation signal. It means just
2 you have a signal that indicates that you want to
3 deactivate something, and that signal can either be
4 asserted, active, or it can be de-asserted,
5 inactive. And it just conveys that you want to
6 perform the function of deactivating the module or
7 whatever you're trying to deactivate.

8 Q. So is activating a signal just turning on
9 a signal? Is that the same thing?

10 A. Asserting it. An assertion could -- is
11 the general term we would use. Sometimes you
12 assert by pulling a voltage high; sometimes you
13 assert by pulling the voltage low. It's an
14 indication that you intend to assert that signal,
15 make it true rather than false.

16 Q. If we're talking about turning something
17 on that is not digital, for example, a light bulb,
18 is the light bulb turned on at the first little bit
19 of power that goes through it? If, for example,
20 it's on a dimmer.

21 A. Is a light bulb turned on if it's
22 connected to a dimmer?

23 Q. Suppose a light bulb is connected to a
24 dimmer and you start to turn the power up. At what

1 point does the light bulb turn on?

2 A. When current is drawn through the load,
3 through the filament, assuming it's an incandescent
4 bulb.

5 Q. So I think the answer to my earlier
6 question is, yes, the light bulb is turned on when
7 the first bit of power starts to go through the
8 bulb; is that right?

9 MR. KELBER: The witness's answer is the
10 witness's answer. Do you have a question for him?

11 Q. Is it fair to say that the light bulb is
12 turned on when the first bit of power starts to go
13 through the bulb?

14 A. There is either current through it or
15 there isn't, and if we provide current through the
16 load, then it's on.

17 Q. Right. I gotcha. Sometimes in the
18 patents in the references, in addition to the word
19 "activate," they use the word "actuate." Do you
20 remember that?

21 A. I do.

22 Q. What's the difference between activate
23 and actuate?

24 A. I believe the way it's used in the

1 patent, to actuate is describing something that's
2 done by the user at the user interface, for
3 example, pressing a button actuating. It involves
4 an action by a user. Whereas, activation always
5 refers to activating an electric -- electronic
6 module or something like that.

7 So it distinguishes between actuation, user
8 interface activity and activation, internal module
9 turning on and off.

10 Q. So if we're talking about a physical
11 button, actuation is pressing the button; is that
12 right?

13 A. Correct.

14 Q. And if it's a touch sensor, actuation is
15 touching it; is that right?

16 A. Correct.

17 Q. Okay. And in the context of these
18 patents, actuation could lead to activation if it
19 were designed to do that.

20 A. That's true.

21 Q. Okay. Now we can go to paragraph 44 of
22 Exhibit 9 -- 45, Exhibit 9.

23 A. Okay.

24 Q. If I had to summarize the point that is

1 made in your declarations about activation of the
2 display, I think it's that, when the flip-phone in
3 Jahagirdar is closed, the top display is always
4 active, and when the flip-phone is open, the top
5 display is always inactive. Is that the gist of
6 it?

7 A. Yes, the two displays are mutually
8 exclusive. One's on when the other's off and when
9 it's closed the outside one's on or active and when
10 it's open the inside one is activated or on and the
11 outside one gets turned off.

12 Q. Right. Now, strictly speaking, I think
13 Jahagirdar discloses some other ways other than
14 opening and closing the phone to turn the top
15 display on and off. In particular, for example,
16 there's the power button, right?

17 A. I don't believe that the power button
18 affects the external display. I believe, to get to
19 the power button, you have to open the phone.

20 Q. Right.

21 A. At which point the external display is
22 off, and I don't believe you can turn it on with
23 the power button.

24 Q. Okay. But if you opened it -- if the

1 phone were off -- okay. I see what you're saying.
2 So are you saying that, if the phone is, say, off,
3 then the top display would be blank or would be
4 off, right? Because the phone is off.

5 A. Presumably, when the phone is off,
6 everything is off, yes.

7 Q. And then if you flip it open, press the
8 power key, and to turn the phone on, the top
9 display would stay off because it's flipped open?

10 A. As far as I know. I'm not sure that he
11 discusses that, but it's sort of an assumption,
12 yeah.

13 Q. And then if you then flip it closed, that
14 turns on the top display; is that right?

15 A. That's my understanding of the operation
16 of Jahagirdar.

17 Q. Okay. What about the holster embodiment,
18 in Jahagirdar, column 7, lines 35 to the bottom
19 approximately? Well, it's actually 35 to 48.

20 A. I need to study it a little bit. This
21 wasn't something that was cited in the request or
22 something I had focused on before, so let me just
23 take a look here.

24 I'm having trouble here. At line 42 it

1 says, when mobile station 102 is outside of holster
2 408 display area 130 is powered off and display
3 area 132 is powered on if exposed, and I don't see
4 an item 132 in Fig. 4. So I'm not -- I don't know
5 what he's referring to as display area 132 in
6 Fig. 4.

7 Q. I think, tell me if you agree, I think
8 the display area 132 is the main display, which is
9 under the clamshell as shown in Fig. 1, for
10 example.

11 A. That may be true. I've yet to come to
12 that agreement. The other problem is that in the
13 last sentence here of this at line 46 it says,
14 display area 130 is powered on while display area
15 130 is powered off. I don't know what that's
16 supposed to mean. Seems like it's got to be one or
17 the other, but that's just my engineering lump
18 mind.

19 Q. Well, it might help a little bit to look
20 at the claims, the way they describe this process.

21 MR. KELBER: If I might, counsel, and I'm
22 going to have to object here, we would appreciate
23 at some time we direct questions, not to help
24 Microsoft make its case, which it didn't, but to

1 ask questions about Dr. Morley's declaration.

2 Because that's what you indicated in the notice you
3 would ask.

4 MR. MURPHY: Right. So the purpose of
5 this question is to challenge the assertion as in
6 the declaration that the activations of
7 Jahagirdar's external and internal displays are
8 mutually exclusive.

9 MR. KELBER: Well, you challenge in your
10 reply. Ask him questions about whatever you find
11 not supported, supported or otherwise indicated in
12 his declaration, but this is not an opportunity to
13 take fresh testimony.

14 MR. MURPHY: Okay. I mean, make scope
15 objections, and deal with it later, I guess.

16 MR. KELBER: If it suits you better,
17 because that's kind of an unhappy attitude, I
18 think, we can call the board now. I'm sure they
19 are going to say you're supposed to ask him about
20 his deposition. You're supposed to depose him on
21 his declaration.

22 MR. MURPHY: Yeah. What I would tell the
23 board is I am specifically interested in paragraph
24 45.

1 MR. KELBER: Great. Ask about paragraph
2 45, not about something he didn't say about a
3 reference that he didn't discuss, for good reason.

4 MR. MURPHY: Counselor, are you seriously
5 saying I'm not allowed to cross-examine him about
6 aspects of the reference that he didn't discuss? I
7 feel like that's exactly the kind of thing a person
8 would cross-examine on usually.

9 MR. KELBER: I've absorbed enough of your
10 time. I disagree with you, quite fundamentally.
11 If you read the rules, you get to depose on his
12 declaration. You are doing routine discovery here.

13 The rule provides for discovery, not as to
14 anything, but as to his declaration. To the best
15 of my knowledge, this does not go to his
16 declaration other than the fact that he answered
17 your question, does activation mean on and off,
18 yes.

19 MR. MURPHY: All right. Well, I'm good
20 with my position. So if we have to call the board,
21 I'm fine with that.

22 MR. KELBER: Well, go a little bit
23 farther, but try and at least tie things to
24 something he said or didn't say.

1 Q. All right. Just to be a hundred percent
2 clear on my questions, Dr. Morley, what I'm trying
3 to get at is whether there are any counterexamples
4 in Jahagirdar with regard to your statement that
5 activations of the external and internal displays
6 are mutually exclusive. That's what I want to
7 know. And I want to know whether the holster
8 example is contrary to your statement.

9 A. Well, assuming that there's a
10 typographical error in that last phrase that I
11 pointed out, that display area 130 is powered on
12 and the other display area 130 is powered off, I
13 don't see how that contradicts my assertion that,
14 assuming one of these is meant to be one display
15 and the other is the other one, that these aren't
16 the same, then this is saying what I said, which is
17 that they are mutually exclusive. It's turning one
18 on while it's turning the other one off. So
19 that -- I don't see that that contradicts my
20 assertion that they are mutually exclusive. It
21 supports it.

22 Q. But is it fair to say that insertion and
23 removal from the holster can turn on or off the top
24 display in this embodiment?

1 A. I think logically to contradict my
2 statement that the operation of the two displays
3 are mutually exclusive, that one is on and the
4 other is off, we have to see a case, other than the
5 de minimis case of both of them off when the phone
6 is turned off, we have to see an instance where
7 both of them are turned on, and I don't see any
8 support in the specification and not in this area
9 here that says that both displays are turned on
10 simultaneously. So I can't agree with you that my
11 assertion that the operation of the two displays is
12 mutually exclusive.

13 Q. I see. But having read the holster
14 embodiment, do you stand by your statement that the
15 position of the flap is all that controls which
16 display is activated?

17 A. I do. I think that, if you read this, it
18 says, in order to put it in the holster, I would
19 imagine that the flap is closed, and let's make
20 that assumption. Well, if the flap is closed,
21 that's what determined that when you put it in the
22 holster it turned on the external display because
23 the flap was closed.

24 Q. So what does it mean when it says here,

1 around lines 41 and down, when mobile station 102
2 is outside of holster 408 display area 130 is
3 powered off and display area 132 is powered on if
4 exposed, when mobile station 102 is inserted into
5 holster 408, two of electrical contacts 404 are
6 shorted from conductive element 412 and in response
7 to this display area 130 is powered on by
8 controller 504 ...?

9 A. While display area 130 is powered off, I
10 add. It's nonsense.

11 Q. Assume for me that -- assume with me that
12 the last instance of 130 should say 132.

13 A. Well, at the beginning of that section
14 that you just cited, the mobile station is outside
15 of the holster and one display area is off while
16 the other one is on. They are mutually exclusive.

17 Q. Okay.

18 A. And then at the bottom it seems to
19 indicate that one is turned on and the other is
20 turned off, which is also mutually exclusive. So I
21 just don't see anywhere where this teaches anything
22 but mutually exclusive and determined by the
23 position of the flap. It says, if exposed. That
24 means the flap is open.

1 Q. Okay. But when it's outside the holster,
2 display area 130 is off. That's the top
3 display ... right, that's the top display, right?
4 And it's off, right?

5 A. If exposed, if the internal display is
6 exposed, meaning the flap is open, yes, then the
7 external display is off, just like any other
8 embodiment.

9 Q. Let's suppose the flap is closed and so
10 132 is not exposed and it's outside of the holster.

11 A. It doesn't say what takes place, then, in
12 that statement. It says what happens if it is
13 exposed. If the flap is open is what that is
14 directed to.

15 Q. So is this describing inserting the phone
16 into the holster while the flap is open? Is that
17 what this is describing?

18 A. No. It says that it's outside of the
19 holster.

20 Q. These two sentences are describing taking
21 the phone from outside of the holster and putting
22 it into the holster, right?

23 A. It talks about if it is in the holster,
24 right? It talks about inserting it into the

1 holster and it talks about having it on the outside
2 of the holster, yes. And in either case the
3 operation of the displays are mutually exclusive
4 and they are determined by the position of the
5 flap, just like I said in my declaration.

6 Q. Do the displays change at all upon
7 insertion into the holster?

8 A. It doesn't say.

9 MR. KELBER: You beat me to ask and
10 answer. I really think we need to call the board
11 if you want him to testify as to subject matter
12 that is not in his declaration.

13 MR. MURPHY: Fine. Okay. We got to get
14 a phone.

15 MR. KELBER: We all have a phone.

16 MR. MURPHY: Let me get the phone number.

17 (Discussion was had off the record.)

18 MR. KELBER: I'll find the phone while
19 you continue to ask questions.

20 MR. MURPHY: Thank you.

21 Q. All right. Let's switch over from this
22 little section of the spec to Claim 1, which is
23 column 8.

24 A. Of this patent?

1 Q. That's right.

2 MR. KELBER: Of the Jahagirdar patent?

3 MR. MURPHY: That's right.

4 THE WITNESS: I can't say that I really
5 studied the claims of this patent, but ...

6 Q. Take a minute to read Claim 1.

7 A. It's one of the longest claims I've ever
8 seen, so ...

9 Q. It's wordy.

10 MR. KELBER: Let the record reflect that
11 counsel for the Patent Owner with everybody in
12 attendance tried to reach the board to ask for
13 guidance and was unable to contact the guy.

14 Please continue, John, and I apologize for
15 the interruption otherwise.

16 MR. MURPHY: That's fine. Almost done
17 with this section anyway. And I appreciate your
18 standing objection.

19 Q. So what -- did you have a chance to
20 review Claim 1?

21 A. I read Claim 1.

22 Q. Okay. I'm particularly interested in the
23 last two clauses and I'm sure you can imagine why.
24 So it says:

1 When the portable electronic device
2 is outside of the holster, the
3 first display area is powered off
4 by the controller, and the second
5 display area is powered on if the
6 moveable element is in the open
7 position, and when the portable
8 electronic device is inserted into
9 the holster the first display area
10 is powered on by the controller
11 while the second display area is
12 powered off if the moveable element
13 is in the closed position.

14 Does that change -- does that clarify your
15 reading of the column 7 at all?

16 A. It just emphasizes what I wrote in
17 paragraph 45. They agree exactly. The position of
18 the flap is all that controls which display is
19 activated. That's what this Claim 1 just said.
20 They are mutually exclusive and it depends on the
21 position of the flap. It doesn't matter in or out
22 of the holster really. What matters is to which --
23 the external display 516 is never turned on when
24 the phone is open, when the flap is open. It's

1 always -- it's only turned on when the flap is
2 closed. The internal display 520 is only activated
3 when the phone flap is open. And that's what I
4 said here. I think those two agree with each
5 other.

6 Q. Going back to column 7, lines 40, 41, do
7 you have any sense from reading this what the
8 purpose of the conductive element on the holster
9 surface would be?

10 A. To let it know that it's in the holster,
11 to somehow convey to the mobile phone that the
12 mobile phone is parked in a holster.

13 Q. And why would the mobile phone -- why
14 would the designer of the mobile phone want the
15 phone to know that?

16 A. I don't know. I didn't design it. It's
17 speculation on my part.

18 Q. But you don't think that a reason for the
19 phone to know when it's in the holster is to turn
20 on or off any of the displays.

21 A. Yeah, I don't know that's the reason for
22 that.

23 Q. All right.

24 A. Like I said, I didn't study this because

1 it wasn't in the materials that were pertinent. It
2 wasn't in the request or the decision by the board.
3 It's all new to me today. I'm doing the best I can
4 under the circumstances.

5 Q. Just to confirm, you did read the entire
6 Jahagirdar reference, right, at some point?

7 A. I did, but I didn't focus on sections
8 that I wasn't opining on.

9 Q. Let's move on to paragraph 46 of Exhibit
10 9. The last sentence of paragraph 46 says, given
11 the relevant time (Jahagirdar was filed in 1997)
12 the display of the phone did not have a complicated
13 function or numerous applications to drive. Do you
14 see that?

15 A. I do.

16 Q. What does that mean?

17 A. It's not like a smartphone, an iPhone,
18 that does everything but brush your teeth and shine
19 your shoes, you know. It's a simple -- it was back
20 in the days when phones were phones.

21 Q. So you're talking about the apps running
22 on the phone essentially?

23 A. Yes.

24 Q. Why is this here? What is this sentence

1 relevant to?

2 A. That the flowcharts are directed towards
3 a simple phone with just a couple of displays to
4 deal with and no apps. Just putting it in context.

5 Q. Would it change your analysis if it did
6 have a complicated function?

7 A. It might.

8 Q. Okay. In paragraph 49 you say that
9 Jahagirdar indicates that, in part, such keys were
10 selected to mimic the pushbutton keypads of phones
11 prevalent at the time ... Do you see that?

12 A. Yes.

13 Q. You're talking about the keys on the
14 front of the phone there?

15 A. The phone keypad, the multiple keypad
16 that is visible when you open the phone up, when
17 you take the flap to the open position.

18 Q. Gotcha. As opposed to the keys on the
19 side.

20 A. Right.

21 Q. Okay. At the bottom it says, at the end
22 of the same sentence I was just reading, "while
23 providing additional keys for functions specific to
24 the phone such as illuminating the displays." Do

1 you see that?

2 A. Yes.

3 Q. When you say "illuminating," what are you
4 talking about?

5 A. Well, I think one of those buttons on the
6 side that are grouped as, I believe it was group
7 144 of function keys on the side if we look at
8 Fig. 1 or 2 and then there are three of those keys,
9 146, 148 and 150. I believe one of those -- I
10 forget which -- 146 or 148 -- is identified as a
11 switch that can activate the backlight for the
12 external display 516.

13 Q. So when you say illuminating, you're
14 referring to the backlight?

15 A. Yes.

16 Q. Could you also be referring to an LED
17 display when you say illuminating?

18 A. No, that's a non sequitur. LED displays
19 don't have backlights.

20 Q. But do they illuminate?

21 A. They do, but you don't need to turn on a
22 backlight that doesn't exist.

23 Q. Gotcha. Moving ahead to paragraph 52.

24 (Exhibit 24 marked for

1 identification: Schultz | U.S.

2 Patent No. 4,053,789 | Microsoft

3 Exhibit 1005)

4 Q. Paragraph 52 talks about a reference
5 called Schultz, which I believe has just been
6 marked as Exhibit 24 for you; is that right?

7 A. Correct.

8 Q. Prior to reading the Schultz reference,
9 had you ever seen any description of how touch
10 sensors like this work?

11 A. I'm sure I came across some multiple
12 times in my career. They have been around for
13 quite a while. I can't tell you when I first --
14 this was certainly not the first time I had heard
15 of a touch sensitive sensor.

16 Q. I got the impression from reading
17 paragraph 52 and some of the other portions that
18 you have concerns about the size of the touch
19 sensor in Schultz. Do I have that right?

20 A. I'd say it's a minor concern. It was
21 just something for completeness that I pointed out.

22 Q. Is there something specific in Schultz
23 you can point me to that would make me understand
24 that Schultz could not be made small enough to fit

1 into a phone like the one described in Jahagirdar?

2 A. I know he talked about having a pet
3 activate or -- sorry -- actuate his switch he uses.
4 I'd have trouble getting my dog to hit a small
5 target with his nose, but maybe he has a smarter
6 dog.

7 Q. Do you have the impression from Schultz
8 that the only thing that -- start over.

9 Do you have the impression that the touch
10 sensor of Schultz has to be usable with an animal
11 like a dog?

12 A. It's just one of the entities that he
13 says can actuate his switch. It doesn't have to be
14 a dog -- or it doesn't have to be capable of being
15 operated by a dog. So you could adapt it for other
16 purposes. He just doesn't say what size it is.

17 Q. Do you agree that the touch sensor of
18 Schultz could be made into devices of a variety of
19 different sizes?

20 A. I believe the size is a design choice of
21 the designer, yes.

22 Q. In this paragraph 52 it also mentions how
23 many touch sensors can be provided together. Do
24 you have concerns about more than one Schultz type

1 touch sensor being used together in a device?

2 A. Well, certainly if you're, for example,
3 going to replace those keys 144 in the Jahagirdar
4 reference in Fig. 1 and 2 that you just referred
5 to, they are positioned quite close to each other.

6 A pet that is indicated to be one of the
7 actuators of the Schultz reference would be hard
8 pressed, no pun intended, to activate or actuate
9 one of those switches without actuating them all.

10 It's just, yes, I'd say there's a limitation
11 to the size if you're going to have a pet actuate
12 those switches, you have to separate them so you
13 can get one without getting the others.

14 Q. That's the question. Is it your view
15 that Schultz only discloses a touch sensor of
16 sufficient size that has to be able to be activated
17 by a dog's nose?

18 A. He says that his sensor is usable by
19 pets. So if that's to be the case, if it's going
20 to be usable by pets, then it has to have
21 separation between the touch-sensitive elements so
22 that the pet can actuate one without actuating the
23 others. If it's a human or somebody smaller,
24 actuators, like fingers, then they can move them

1 closer together.

2 Q. Just so I understand, is it your opinion
3 that it wouldn't have been possible to use the
4 Schultz touch sensor in Jahagirdar because you
5 couldn't have made the Schultz touch sensors small
6 enough and discrete enough?

7 A. No, that's not my problem with combining
8 those, not at all. It's not about the size.

9 Q. Could a person of ordinary skill have
10 taken the circuitry of Schultz and put it into
11 touch sensors the size of the buttons on the side
12 of Jahagirdar?

13 A. I believe they could have.

14 Q. Okay. Gotcha. Let's go to paragraph 67.

15 Well, actually, this is a good time to focus
16 on the key portion of Jahagirdar that's discussed
17 in your declaration, which is in column 5, lines 22
18 through 50.

19 I assume you're very familiar with that
20 portion; is that correct?

21 A. I was at one time. Wouldn't take much to
22 regain that familiarity.

23 Q. Sure. We're going to have a whole bunch
24 of questions about this. So column 5, lines 23

1 through 50-ish. Go right ahead.

2 A. Okay.

3 Q. All right. Let's start with, in column
4 5, about line 29 -- well, 26. And this refers to
5 flowcharts 8A and 8B, and starts out with, closing
6 the phone at block 800. Do you see where I am?

7 A. Yes.

8 Q. And then the next thing that happens, it
9 says, is controller 504 enables power to driver 514
10 and display element 516 through line 524.

11 A. Okay.

12 Q. All right. I have several questions
13 about that sentence. First is, what is the driver?

14 A. The driver in Fig. 5 is labeled driver 1
15 block 514 and it's connected to display 1, 516.

16 Q. What does a driver do?

17 A. It provides power and data to a display
18 in this case.

19 Q. Where do the power and the data come
20 from?

21 A. From controller 504 in that figure.

22 Q. Why do you need the driver instead of
23 just going direct from the controller to display?

24 A. It could be for various reasons. In

1 general, isolation between the controller and the
2 display, for protecting the controller. It could
3 be for current gain or power gain to drive the
4 display, that the controller doesn't have enough
5 power capability to satisfy the needs of the
6 display.

7 Q. What about the display element? What
8 would that consist of?

9 A. I believe what he teaches here is a
10 liquid crystal display, and it seems to be a
11 passive or reflective type of display that in
12 ambient light you can see because it reflects the
13 ambient light. In the dark you would need a
14 backlight to be able to see it, to see the contrast
15 in the elements of the display.

16 Q. Okay. When it says -- when Jahagirdar
17 says, enables power to driver and display element,
18 what does it mean by "enables power"?

19 A. This gets back to something I said
20 earlier. You can have an electronic module that
21 has a signal wire coming into it called enable, and
22 it also has power connections to the power supply.
23 And what happens when the enable line is asserted
24 to that module, internally power is turned on in

1 the module. So you have the requisite switching to
2 turn the power on and off inside the module, and
3 all it needs to turn it on or off is this enable
4 signal to activate it.

5 Q. Once the display element has had power
6 enabled to it, is it activated in your opinion?

7 A. The activation is in this case when the
8 enable line is asserted to activate or turn on the
9 driver, which powers up the driver and the display,
10 yes.

11 Q. At the time that it's -- at the time that
12 power is enabled to the display, is the display
13 consuming energy?

14 A. Not until that activation signal or the
15 enable goes to the driver to tell the display and
16 the driver to turn on.

17 Q. Okay. But then once that's happened,
18 then the display is activated?

19 A. Correct.

20 Q. When the display is on, it's been
21 activated, specifically what is using power in the
22 display?

23 A. I believe some of the liquid crystal
24 displays require electrostatic charge or voltage in

1 order to hold the crystals in the orientation that
2 gives you the contrast display.

3 Q. What if the display is blank? Then is it
4 using power?

5 A. It could be blank because power has been
6 removed, you know. For example, a little handheld
7 calculator that are solar powered or light powered,
8 right, when there's no light, not enough light to
9 power it, it will go blank or when you turn it off
10 it will go blank.

11 So you can't tell if it's blank because you
12 may have sent it -- you could have sent data to it
13 that says display all spaces or blanks. So just by
14 looking at the display you can't tell if it's on or
15 off.

16 Q. Suppose we did send data to this display
17 saying display all blanks. Would it still be
18 turned on in your view?

19 A. Absolutely. It would be enabled, yes,
20 and power would be applied. It's just that what it
21 is -- and it is actively displaying. It's
22 displaying what you told it to, which happens to be
23 it looks like it's blank, but that's information,
24 and it's displaying it for you.

1 Q. But you couldn't tell from looking at it
2 whether it was on or off.

3 A. No, but if the intent was to blank the
4 screen, you've achieved that goal.

5 Q. Does the blank screen use a different
6 amount of power than the screen when it's just off?

7 A. Yes.

8 Q. Why?

9 A. Because you're holding the liquid
10 crystals in the orientation that maintains that
11 blank screen. If you let go, they could drift and
12 cause some weird contrast.

13 It takes energy to maintain the crystals in
14 their orientation, to display whether it's blank or
15 some numbers or something like that.

16 Q. So if you turn an LCD screen off, it
17 might get some pattern on it just by sheer --

18 A. Well, could.

19 Q. What if it's an LED instead of an LCD?
20 Then how would your answer be different?

21 A. It's possible to have an LED display
22 powered or activated and yet none of the segments,
23 if it's a seven-segment type display, it could be a
24 grid of LEDs, but, anyway, you could have them all

1 turned off, each element off, and yet there is
2 still power applied to the module. The module has
3 other electronics in it, for example, to receive
4 data and do a conversion from binary coded decimals
5 to the seven segments in the LED, you know. You
6 have to decode that somewhere. So there's other
7 circuitry that could be consuming power when it's
8 activated, but you couldn't tell by looking at it
9 whether it was on or off.

10 Q. But in the LED example, once you start
11 sending data to the LED and cause elements to the
12 LED to light up, it would then be using more power,
13 right?

14 A. When the LED is emitting light, then it
15 is using more power than when it's not emitting
16 light.

17 Q. I don't know a lot about LEDs, but can
18 you explain to me like an LED that you might use on
19 a phone like this, would it be a matrix of little
20 lights? Is that how it would work?

21 A. I can't say for sure. I mean, a matrix
22 of elements, little dots in an LED, is more capable
23 of displaying different things. Maybe even if you
24 had enough elements you could do Chinese letters or

1 something. Whereas, the seven-segment LEDs or LCDs
2 are very limited in what they can display.

3 Q. Are those the ones that look like the
4 number 8 sort of?

5 A. Yeah, when they're all on, the number 8
6 turns on all seven of the segments, and usually
7 they also have a decimal point at the right or the
8 left that's available in one of those elements.

9 Q. Right.

10 A. And they are labeled A through G in
11 general, those seven segments.

12 Q. Now if you're driving that kind of LED,
13 what -- does the driver provide power to the
14 individual LED segments or does the LED unit itself
15 distribute the power to the right segments?

16 A. Well, I think the way it's shown here,
17 you have this driver that is for the LCD. They
18 don't show what I think is the appropriate block
19 diagram if you replace the LCD with an LED.

20 The LED, in general, you wouldn't have a
21 driver for it. You would just send -- you'd have
22 an enable line, and then you would send data to it
23 and it would do the decoding internally.

24 Q. So, if I heard you right, once a display

1 is enabled, it's turned on, meaning activated,
2 right?

3 A. Correct.

4 Q. And even if that display area is clear,
5 then, nonetheless, it's still turned on assuming
6 that power is enabled to it.

7 A. Correct.

8 Q. Is there an analogy for what you're
9 describing to me in the flashlight example in
10 Bruwer?

11 A. An analogy of what? Of displaying a
12 blank? I mean, what part -- we've talked about a
13 lot of functionality here in this LCD or LED. I
14 don't ...

15 Q. Well, let's look at Bruwer Fig. 11, I
16 guess. It doesn't matter which Bruwer, but let's
17 say, just for sake of keeping this all straight,
18 let's say Exhibit 15, the '726 patent.

19 A. And Fig. 11?

20 Q. Yeah. And Fig. 11 in this embodiment,
21 1104 is an LED, right?

22 A. I believe that's the case, yes.

23 Q. And this would be the visible indicator
24 that would be activated upon appropriate input,

1 right?

2 A. It is activated if switch 1111 is closed.

3 Q. Right. In this design there's no way for
4 the LED to be activated yet, nonetheless, not lit
5 up; is that right?

6 A. In this example the LED is either on or
7 off depending -- activated or deactivated --
8 depending upon the position of switch 1111.

9 Q. And when it is activated, the LED is
10 shining, right?

11 A. If it's operating correctly, yes.

12 Q. While you're looking at that '726 patent,
13 Exhibit 15, take a look at Claim 4. Claim 4 uses
14 the language, "the step of activating or
15 deactivating the product." Do you see that?

16 A. Yes.

17 Q. When we're talking about the flip-phone
18 in Jahagirdar, what is the product to you?

19 A. I guess I wasn't asked to do a read of
20 Jahagirdar on Claim 1 or vice versa here. If you
21 want, in general, what Jahagirdar seems to be
22 disclosing as a product would be a flip-phone.

23 Q. Right. Well, let me -- let's look at --
24 to refer you to your declaration, let's look at

1 Exhibit 9, paragraph 70, which I think is
2 discussing Claim 4.

3 A. Okay.

4 Q. In Claim 4 it says, "activating or
5 deactivating the product." What does it mean to
6 you to activate or deactivate the phone?

7 A. To turn it on or off.

8 Q. In other words, all of its components on
9 or off?

10 A. Right. I think, as I say here, to do
11 that you'd open the phone up and you press the
12 on/off button that's on the keypad inside.

13 Q. You make the observation in paragraph 70
14 that the power button is not a touch sensor, which
15 makes me wonder why you said that. That's not a
16 question. I'm sorry.

17 Referring to Claim 4, it says, "the step of
18 activating or deactivating the product via commands
19 received from the user interface."

20 Is it your understanding that the commands
21 received from the user interface must be received
22 from a touch sensor?

23 A. They do in Claim 1. Claim 4 depends from
24 Claim 1, there's only one user interface that is

1 cited or disclosed in Claim 1, and, therefore, 4.

2 So in Claim 1 clearly is directed, according
3 to your expert, to the user interface that is on
4 the outside of the flip-phone, the keys 144, and
5 this is yet a different user interface, according
6 to him. The keypad inside the phone is what I'm
7 saying there.

8 Q. Is it your opinion that there's two
9 separate user interfaces on Jahagirdar?

10 A. I believe there are two separate user
11 interfaces, at least two.

12 Q. Could there be more than two?

13 A. You've pointed out that there's some
14 context for the holster. Maybe you could consider
15 that to be a user interface. It's user controlled
16 whether they push it into the holster or not.

17 Q. I want to focus on the term "user
18 interface" as used in Claim 1.

19 A. Okay.

20 Q. How do you know when you're looking at
21 the parts in Jahagirdar what constitutes a user
22 interface as claimed?

23 A. To me, a user interface is what it says
24 in the plain use of the language. It's an

1 interface on a device that allows a user to
2 interact with the device. So it's something that a
3 user interacts with on a product, user interface.

4 Q. So how do you know that the buttons on
5 the side are a separate user interface than the
6 buttons on the front?

7 A. Because the user doesn't have access
8 to -- you couldn't call it -- you'd have to say
9 there's one section of the user interface that's
10 hidden and one that's open. It seems to me that
11 that's not logical. They're really two different
12 things. Either you have access to -- and that's
13 the one on the outside you always have access to.
14 And then the one on the inside you have access to
15 only when you open it up. Look, voilà, there's
16 another user interface here.

17 Q. But if the phone is open, then you can
18 access both the front buttons and the side buttons,
19 right?

20 A. That's correct.

21 Q. One of the features of a user interface,
22 if I'm reading the claim right, is that it has a
23 microchip. Would you agree with that?

24 A. Yes, the microchip is part -- forms part

1 of the user interface.

2 Q. According to Jahagirdar's circuit diagram
3 in Fig. 5, don't the front buttons and the side
4 buttons share the same microchip?

5 A. They do.

6 Q. If the phone is off, the Jahagirdar phone
7 is off, and then I press the power key, not every
8 module of the phone becomes activated at that time,
9 right?

10 A. Okay. So if you're going to press the
11 power key, the flap is open. If the flap is open
12 and you press the power key, certainly external
13 display 516 will not be activated because the flap
14 is open, and whenever the flap is open, that
15 display is turned off. So that's one. I don't
16 know if there are other modules, but certainly that
17 module would be deactivated.

18 Q. Is there some key module that has to be
19 activated in order for the phone to be considered
20 turned on?

21 A. Well, I think when you press that key --
22 I don't know the exact circuitry in there, so it's
23 a bit of speculation -- but certainly I would
24 expect that, when that key is pressed, the

1 controller is activated, the micro, so that it can
2 then look for other user interface activities.

3 Q. So it's possible to activate a device
4 without activating all of its individual
5 components, right?

6 A. Yes.

7 Q. And then later you could activate
8 particular individual components that weren't
9 activated at first, right?

10 A. If there were a means for doing that. I
11 mean, you would have to have some way to convey
12 that, device, with other devices inside, I want you
13 to turn on just this portion but not another
14 portion, and I don't see where in Jahagirdar that
15 is disclosed.

16 Q. Well, an example would be -- I think an
17 example would be, I flip open the phone, I press
18 the power key, that activates the phone, then I
19 close the top flap, and, in your view, that
20 activates the top display.

21 A. Okay. So your module being the product,
22 and so -- okay. It depends where you draw the line
23 on where the modules live, so --

24 Q. You're with me.

1 A. Gotcha.

2 Q. Okay. Understood. I'll ask a couple of
3 questions about the section immediately following
4 where we are, D-71 through 73, and this is about
5 automatic -- automatic deactivation, and I want to
6 make sure I understood this section right. So if
7 you need to review it, that's fine.

8 But my question is, I think that your
9 objection -- I'm sorry. I think that your opinion
10 with regard to automatic deactivation flows from
11 the same view of the top display being activated
12 upon closing of the lid, and, once the lid is
13 closed, it's activated and stays activated, thus,
14 it cannot be automatically deactivated because it's
15 always activated when the lid is closed. Did I say
16 that right?

17 A. I agree with that, yes.

18 Q. All right. Then I don't need to ask
19 questions about that.

20 Let's talk about touch sensors on the side
21 of the phone.

22 MR. MURPHY: Should we take a break
23 before we do that? I need a break.

24 (Proceedings recessed at 2:15 p.m.)

1 (In session at 2:21 p.m.)

2 Q. Dr. Morley, we're going to talk about
3 touch sensors on the side of the Jahagirdar
4 flip-phone. So just to make sure we're on the same
5 page, do you agree with me the fundamental question
6 here is would it have been obvious to incorporate
7 touch sensors on that side panel of the Jahagirdar
8 phone?

9 A. No. It's would one of ordinary skill in
10 the art be motivated to put a touch sensor there
11 and replace the ones that were already working much
12 better than a touch sensor would.

13 Q. Fair enough. You're ready. Okay.

14 First of all, speaking generally about the
15 phone in Jahagirdar, a phone like this, it might be
16 handled or kept in a few different ways. The ones
17 I could think of off the top of my head were in the
18 holster, in your hand, in a pocket, in a bag, on a
19 surface. Do those all sound reasonable?

20 A. To name a few, yes.

21 Q. Okay. And the first question I have for
22 you is about this concept of inadvertent actuation.

23 In your declaration, Exhibit 9, stick with
24 that, if I'm reading it right, you mentioned maybe

1 two types of inadvertent activation, and the reason
2 I think there might be two types is mainly the
3 beginning of paragraph 60 where it says, "the only
4 inadvertent activation avoided ... is activation by
5 inanimate objects." Do you see where it says that?

6 A. Yes.

7 Q. So I think there are at least two types
8 of inadvertent activation, one by animate objects,
9 I guess people, and the other by inanimate objects,
10 right?

11 A. Yes. The objects are either animate or
12 inanimate. I think that covers the whole Venn
13 diagram of objects.

14 Q. If I understand your opinion right,
15 covered across these pages, putting touch sensors
16 on the side of the Jahagirdar phone would
17 exacerbate the problem of inadvertent actuation by
18 animate objects.

19 A. Correct.

20 Q. But would it exacerbate the problem with
21 respect to inanimate objects?

22 A. If you use the touch sensors of Schultz
23 that require capacitance to ground on the order of
24 that of an animal, such as a human, then it would

1 not exacerbate the problem for inanimate objects.

2 Q. Wouldn't it actually alleviate the
3 problem with respect to inanimate objects?

4 A. Yes.

5 Q. I didn't get to say "butt dialing" yet,
6 but, to the extent that butt dialing is caused by
7 pressure on a physical button, could it cut down on
8 the butt dialing problem to substitute in the
9 Schultz touch sensors?

10 A. If it were the case that the butt dialing
11 was due to pressure on a mechanical-type switch,
12 like a membrane switch that we have on the outside
13 of phones, on the edge of the phones, that's true,
14 but the butt dialing that occurs on an iPhone is
15 due to the pressure, the touch-sensitive switches
16 on the face of the thing.

17 Q. Right. Now anyone who has tried to use
18 winter gloves that don't have any kind of special
19 thread in them knows that it's at least more
20 difficult to activate a touch sensor -- I'm
21 sorry -- actuate a touch sensor when there's a
22 barrier between the skin and the sensor, right?

23 A. Correct.

24 Q. Okay. So I guess, then, what I want to

1 ask you about is, why -- what's your reasoning for
2 reaching the overall conclusion that it would have
3 been undesirable to put the touch sensors on the
4 side of Jahagirdar when, in some respects, it would
5 in your opinion make inadvertent actuation worse
6 but in other respects make it better?

7 A. Because the detriment would far outweigh
8 the benefit. One of those switches, as he
9 discloses in Jahagirdar, turns on the backlight,
10 which is -- which consumes significant power, and
11 you know that because it says that you want to have
12 a timer that turns it off automatically.

13 And so if, when I use the phone in its
14 normal, desired way, you know, and take it out of
15 my holster or pocket or whenever when the thing
16 rings, I find it unbelievable that I'm not going to
17 touch one of those buttons on the side and turn on
18 the backlight, for example, or, worse yet, I think,
19 one of the other buttons there is for sending the
20 call to voicemail. And here I'm trying to answer
21 the call, I pull the phone out of my pocket to
22 handle it, my hand pretty much covers the edge of
23 both sides of that phone, it's unimaginable to me
24 that I'm not going to make contact with the touch

1 sensor that says put it into voicemail.

2 And so now I've defeated the purpose of
3 pulling the phone -- I might as well leave it in my
4 pocket and let it go to voicemail automatically
5 rather than pull it out of the pocket and send it
6 to voicemail accidentally

7 Q. A couple of follow-up questions. The
8 first one is, the obviousness combination that's at
9 issue here between Jahagirdar and Schultz, it only
10 requires the replacement of one button with a touch
11 sensor, right, not all three?

12 A. I thought that what was proposed I don't
13 recall -- I don't have the petition in front of me.
14 I thought what was proposed was to replace the
15 buttons 144 with touch sensors. If that's not the
16 case ...

17 Q. Well, let's suppose it's only one button.
18 Let's suppose it's only the button that -- let me
19 be specific. Forget the question that's pending.
20 Let me do a couple of orientation steps here.

21 In Jahagirdar key 146 is for the backlight,
22 right?

23 A. If you say so. Maybe you could direct me
24 to the portion.

1 Q. Column 5, line 47.

2 A. Yes, 146 is the backlight.

3 Q. 150 is for sending display data to driver
4 514, et cetera, right?

5 A. Yes.

6 Q. And then I don't think I ever found
7 anything for button 148. Did you ever find
8 anything for 148?

9 A. I did not.

10 Q. Okay.

11 A. Which makes it a candidate for
12 replacement by a touch sensor because you wouldn't
13 care.

14 Q. Okay.

15 A. Sorry.

16 Q. Mr. Sarcastic. That was lighthearted for
17 the record.

18 A. Very lighthearted.

19 Q. But let's -- I think that the key, the
20 key key, so to speak, is key 150, because in the
21 combination proposed in the petitions that is the
22 key that is the step that the petitions say is the
23 activation of the display. Is that familiar to
24 you?

1 A. Yes.

2 Q. Okay. So backing all the way back up to
3 where we were, let's suppose we just replace that
4 key.

5 A. Okay. My understanding is that, when a
6 phone call comes in, what would be displayed in the
7 external display 516 would likely be the phone
8 number, caller ID phone number, so that you could
9 see whether or not you want to answer the call. If
10 you grab the phone and inadvertently actuate key
11 150, the data display there changes, and so now you
12 lose the ability to see the caller ID to make your
13 decision as to whether you want to answer the
14 phone. So I think it would defeat the purpose by
15 having it accidentally actuated.

16 Q. Now I'm with you at the beginning of your
17 answer where it says, in column 6, line 28, "visual
18 information corresponding to step 836 includes
19 caller ID," et cetera.

20 A. Okay.

21 Q. Why do you think that at that point, when
22 the call's coming in, that pressing 150 would
23 change the display?

24 A. Well, at that point in time, if we refer

1 to Fig. 8A, the phone is closed, right? And so in
2 Fig. 8 wherein the Fig. 8A portion of Fig. 8 and
3 there is what we call a loop in there, wherein
4 there are decision blocks 808 backlight key
5 question mark followed by block 814 info key
6 question mark, and if --

7 So at the time when this call would have
8 come in, the phone would be closed and the external
9 first display is turned on, and the microprocessor
10 is in a loop checking those external buttons, the
11 backlight key and the now, per your suggestion,
12 touch-sensitive info key. And so it's going to, if
13 I inadvertently actuate the info key, it's going to
14 display other info in first display, which, to me,
15 is replacing the caller ID info that was there
16 previously.

17 Q. But hold on. At box 820 there's the
18 interrogatory call, and if it's yes, then it
19 diverts over to Fig. 8B, right?

20 A. Okay. I see that, yes.

21 Q. Okay. So once the call comes in, you're
22 over in Fig. 8B, and Fig. 8B in step 830, as you
23 say, displays the caller ID, right?

24 A. Yes.

1 Q. And then the next interrogatory is answer
2 call, yes or no.

3 A. Okay. So I take it back. I see the
4 error in my logic there. It appears that having an
5 inadvertent actuation of key 150, if you wanted to
6 replace that key and none of the others, while it
7 wouldn't be a detriment to the operation, it
8 certainly wouldn't help in any way.

9 Q. There would still be, as you suggest, the
10 potential for inadvertent actuation by the finger
11 of 150 when you're handling the phone and you
12 didn't mean to change the display. That's your
13 view, right?

14 A. That's true.

15 Q. Right. I understand.

16 A. Furthermore, the inadvertent actuation by
17 an inanimate object of Schultz's touch sensor is
18 not clear to me that it's superior to the
19 inadvertent actuation of the type of switches that
20 one finds on the side of a telephone anyway, which
21 are these membrane detent switches that require a
22 certain amount of force to actuate.

23 Q. In Schultz, which was Exhibit 24, at the
24 beginning of the background of the invention,

1 column 1, Schultz says that the deficiencies of
2 these types of switching systems are overcome by
3 the present invention, and the switching system
4 he's referring to are either conventional electric
5 switches, which require movements, or switches
6 which respond to electric capacity.

7 Do you have any reason to disagree with
8 Schultz that his invention would overcome these
9 deficiencies?

10 A. I don't believe that either of those
11 switches that he's referring to are the type that
12 are commonly found in Jahagirdar's 144 and on the
13 side of the iPhones that are laying around on the
14 desk here today, which are called membrane or
15 detent switches, which do not have the problems
16 that these switches here have. They don't move
17 other than to a little dimple. They don't get
18 contaminated because they're completely enclosed.
19 So I think that he's complaining about switches
20 other than the type that are on Jahagirdar's phone.

21 Q. When I read your declaration, I got the
22 impression that you thought that membrane switches
23 would be a superior alternative for use on
24 Jahagirdar's phone, but I didn't get the impression

1 that you thought the switches on Jahagirdar's phone
2 were in fact membrane switches. Is that your view?

3 A. My expectation would be, although he
4 didn't say it, just because I know that the type of
5 switches that -- the only type of switch I've ever
6 seen on the side of a phone up to this point in
7 time, as I mention in my declaration, are the
8 membrane-type switches.

9 Q. Would a person of skill refer to
10 membrane-type switches as keys?

11 A. The actuator, the button on top of the
12 switch, would be called a key, but it's just a hunk
13 of plastic or rubber that, when you press on it, it
14 actuates the membrane switch underneath.

15 Q. If water or debris were to get between
16 the key and the membrane switch, would it interfere
17 with its operation?

18 A. No, they're sealed. They're hermetically
19 sealed switches. You think of a little dome of
20 metal and metal underneath, and when you press on
21 it, the dome on top collapses and makes contact
22 with the bottom piece of metal. It's a
23 metal-to-metal contact in general or it's a
24 conductor-to-conductor contact in a membrane

1 switch. And those pieces of metal are hermetically
2 sealed and free from any kind debris or
3 contamination. That's how those switches work.

4 Q. Is there any evidence you can point to in
5 Jahagirdar itself, in the written document, that
6 makes you think that the switches on the side of
7 the phone in Jahagirdar are membrane switches?

8 A. Yes. I'm one of ordinary skill in the
9 art. I know that those switches are not slide
10 switches that you slide from one position to
11 another. He doesn't talk about sliding the switch,
12 moving its position. He talks about actuating
13 those switches. That correlates to a membrane
14 switch.

15 There's nothing in there that suggests any
16 type of switch other than a membrane-type switch.
17 And so, as one of ordinary skill in the art, that's
18 what I believe are the keys of Jahagirdar on the
19 outside, the 144s.

20 Q. What about the possibility of
21 mechanical-push-type switches? Could they have
22 been mechanical-push-type switches?

23 A. Mechanical-push-type switch is a --
24 membrane switches are mechanical-push-type

1 switches, but the switches certainly are not -- the
2 two types that Jahagirdar is complaining about here
3 that he's going to improve, it's not a proximity
4 switch or there would have been an anticipation
5 issue here rather than an obviousness, and it's not
6 a switch, electric switch, which require movements
7 that are susceptible to contamination, I don't
8 believe.

9 MR. KELBER: If it helps counsel, the
10 witness was referring to Schultz when he said
11 "here."

12 THE WITNESS: Sorry about that.

13 Q. That's fine. In the '726 patent itself,
14 in fact in all these patents, but let's take the
15 '726, Exhibit 15, there's kind of a lingo for
16 referring to different kinds of inputs, right? Do
17 you have a sense for that?

18 A. If you could direct me to what you mean.

19 Q. Sure. Take column 3, line 18, it says:

20 Most conventional flashlights like
21 those described above are actuated
22 by mechanical push or slide button
23 type switches requiring, of course,
24 mechanical implementation by an

1 operator. Over time the switch
2 suffers wear and tear which impairs
3 the operation of the flashlight as
4 a result of, for example, repeated
5 activations by the operator and/or
6 due to the fact that the switch has
7 been left, quote, on for a
8 prolonged period of time.

9 Do you see all that?

10 A. Yes.

11 Q. So when Bruwer here is criticizing prior
12 art switches, he's not talking about membrane
13 switches, I assume.

14 A. I don't believe he is.

15 Q. And then when he introduces the concept
16 of low-current signal switches at the very bottom
17 of column 3 and the top of column 4, he uses the
18 phrase, "using touch pads or carbon-coated
19 membrane-type switches."

20 A. Yes, and the distinction there being in
21 the first citation that you mentioned, the
22 mechanical switches, the reason I say they wouldn't
23 be membrane switches there is because membrane
24 switches aren't considered to be low current -- or

1 high-current switches that you would use to direct
2 the current from the battery to the light, whereas
3 here he clearly identifies membrane switches as
4 low-current signal switches.

5 Q. But you could use a physical button
6 switch as a low-current input, right?

7 A. You can use a physical mechanical
8 pushbutton switch for high currents or low
9 currents, but you can't use a membrane switch for
10 high currents.

11 Q. Or a touch sensor, for that matter,
12 right?

13 A. Or a touch sensor. Furthermore, touch
14 sensors require circuitry to make them work,
15 whereas a membrane switch is simpler. It's just a
16 couple hunks of metal that get pressed together
17 when you actuate it. So it's more costly
18 circuit-wise to use a touch-sensor switch.

19 Q. So why would anyone ever use a touch
20 sensor?

21 A. Because there are applications where they
22 actually are better.

23 Q. Like what?

24 A. Like on the screen of your iPhone. Once

1 you've turned it on and you're willing to risk
2 inadvertent activation or actuation, then, you
3 know, for the benefit -- the greater good of being
4 able to run all your apps and everything, then it's
5 very handy. And you can have multitouch and all
6 these great things with the touch sensor that you
7 can't do with membrane switches or other types of
8 switches.

9 So there's no substitute for the
10 touch-sensitive switches for some applications.
11 They're just the best thing available.

12 Q. What about using touch sensors outside of
13 the context of a touchscreen? Ever be any benefit
14 or attraction to doing that, that you can think of?

15 A. I think certain elevator buttons are
16 touch-sensitive. Just makes it easier to operate,
17 probably less maintenance or something, you know,
18 less -- less movement. Mechanical things
19 eventually, you know, break, whereas things that
20 don't move, the fewer moving parts, the less to go
21 bad.

22 Q. Why not just use a membrane switch in the
23 elevator?

24 A. There may have been. With elevators too,

1 there's aesthetics where people might use the touch
2 sensor because it's sexier, you know, somehow it
3 has advantages beyond those known to an engineer.

4 Q. So there are certain circumstances where
5 a touch sensor might be a viable alternative or
6 even a preferable alternative to a membrane switch
7 or a physical button, but in your view that
8 wouldn't be applicable to the Jahagirdar phone.

9 A. Or any phone, for that matter, or we
10 would find them all over, those phones, and they
11 just don't exist.

12 Q. You've looked at all of the challenged
13 claims across these six patents, right?

14 A. Yes, at one time I did certainly.

15 Q. Do you remember any claim that's
16 challenged in any of these IPRs where there was a
17 claim limitation on the physical form of the touch
18 sensor?

19 A. Not as I sit here, no.

20 Q. Do you remember any claims that placed
21 any limitations on the internal architecture of the
22 touch sensor?

23 A. Not that I recall.

24 Q. Do you remember any claim limitations in

1 any of the challenged claims in these IPRs where
2 there was a limitation on how much space the touch
3 sensors could take up?

4 A. No.

5 Q. Do you remember any claim limitations
6 throughout the challenged claims in these IPRs
7 where there were claim limitations on the
8 arrangement of the touch sensors relative to one
9 another?

10 A. I don't believe so.

11 Q. One of the things you mentioned before
12 were these detented membranes. What is that,
13 detented, what is that?

14 A. Well, by detent I mean that there's --
15 you know those little toy clickers that you can
16 press and it goes click, click, click --

17 Q. Yeah.

18 A. -- because you've bent a piece of metal
19 that causes that? So the membrane, that dome that
20 I mentioned that you press, there's a detent in the
21 membrane switch.

22 Q. If you have a flip-phone like Jahagirdar
23 with those type of switches on the side of the
24 phone, even just one, and it's rolling around in

1 your gym bag, isn't there -- there's a chance it
2 could be inadvertently actuated by your shoe or
3 anything else that's in there, right?

4 A. Yeah, could be. It's possible.

5 Q. And is there some way that you could
6 design those membrane switches to reduce that
7 problem?

8 A. Sure. The spring tension of that dome or
9 the detent decides how much force you have to apply
10 to actuate the switch.

11 Q. In the flip-phone in Jahagirdar there's
12 this statement in column 8, it's like line 7, and
13 it says:

14 For example, display area 130 of
15 Fig. 1 may be placed along any
16 suitable side of housing portions
17 112 and 114 for displaying visual
18 information to a user.

19 Other than what's shown, can you think of
20 any other suitable sides?

21 A. If you're going to put it in a holster
22 and be able to view it where the holster seems to
23 obscure what would then be the two vertical sides,
24 I mean, you could put it on the back, you could put

1 it on the flap so that you see it when the flap is
2 closed.

3 It seems like the intention here is to be
4 able to have it, as you mentioned, the embodiment
5 where you can -- or even if it's laying on the
6 table and you can see it, you know. You could put
7 it other places, if you wanted to, I guess. Seems
8 like there's not much space on it, like the side
9 where the keys 144 are, might be hard-pressed to
10 find room there without making the phone larger.

11 Q. It's a matter of design choice, I guess,
12 right?

13 A. Yes.

14 Q. And wouldn't it be equally a matter of
15 design choice if you're moving the screen 130
16 around to move the side buttons to other places as
17 well?

18 A. Yeah. They're kind of handy where they
19 are literally.

20 Q. Well --

21 A. You could move them to less useful places
22 maybe, but it seems like, you know -- whoever
23 designed this had a reason for putting them where
24 they are. You have a choice. Design, as I tell my

1 students, is all about choice.

2 Q. Is there any technical reason you can
3 think of in Jahagirdar why it would be a problem to
4 put the buttons anywhere else?

5 A. I think they were put there to be readily
6 available, so that when you grab the phone you can
7 operate those in the natural way that you would
8 hold the phone. You could put them somewhere else
9 that was harder to get to them. We put a man on
10 the moon and brought him back safely. Anything can
11 be done. You can move those buttons.

12 Q. Would it have been particularly difficult
13 as a matter of design to move the buttons even if
14 the result, as you say, would be undesirable?

15 A. It's certainly possible to move the
16 buttons. I'm not going to argue about that.

17 Q. Okay. Thinking back to when you were --
18 when we laid out the legal framework for
19 obviousness in paragraph 32 of Exhibit 9, and in
20 that paragraph 32 there was a letter A., combining
21 prior art elements according to known methods to
22 yield predictable results, and you agree that the
23 flip-phone of Jahagirdar and the sensor of Schultz
24 are prior art elements, right?

1 A. Correct.

2 Q. And you agree that it's technically
3 possible to combine them, right?

4 A. Yes.

5 Q. And is the result of combining them
6 predictable?

7 A. Yeah, I would add to that, that in order
8 to be obvious, to me, it has to yield predictable
9 useful results. I mean, that, sure, you could
10 combine things and get an abomination that wouldn't
11 work and that's predictable, but that doesn't make
12 it obvious, I don't think, under, you know -- it
13 doesn't satisfy the intent here.

14 Q. Is a Jahagirdar flip-phone with button
15 150 being a touch sensor an abomination that
16 wouldn't work, to use your words?

17 A. It's not something that would be an
18 improvement, I don't believe, overall. I think it
19 would be a step backwards. It would be against the
20 rule number one of engineering of don't fix
21 something that ain't broke. And I don't see that
22 it's obvious to do that, even though it may be --
23 and it's not clear that you would call that a
24 predictable result when you have inadvertent

1 activation of a switch.

2 Q. Well, you just predicted it.

3 A. There are times when its behavior would
4 be predictably bad. Whether it would be
5 predictably good I beg to differ.

6 Q. But would the phone of Jahagirdar with
7 the Schultz touch sensor at button 150 not work?

8 A. It just wouldn't work as well as if you
9 left well enough alone and let Jahagirdar be as it
10 was and not replace that button. It would be more
11 costly because you need the circuitry to detect
12 that there has been a press compared to just the
13 simple mechanical button that was there, what I'll
14 call the membrane switch. You've added that cost
15 and I think you've made the performance of the
16 product deteriorate.

17 Q. But I think we agreed earlier that, in
18 some respects, the performance would improve, and
19 that is with respect to inadvertent actuation by
20 inanimate objects, right?

21 A. That's right. For the robots that want
22 to use that phone, they're not going to actuate
23 it accidentally, but then humans, they're going to
24 have troubles.

1 Q. In the petition I think offered for
2 consideration were three potential motivations to
3 combine, and I think that those were --

4 MR. KELBER: Petition? Which petition
5 are you talking about?

6 MR. MURPHY: In all of the petitions for
7 all six of these IPRs.

8 THE WITNESS: Can I see one of them,
9 please?

10 Q. Sure. You have a Horenstein declaration
11 there. What exhibit is that?

12 A. Okay. It is Exhibit 23.

13 Q. Okay. Let's look at Exhibit 23. In that
14 exhibit, okay, paragraph 68 --

15 A. Got it.

16 Q. -- Dr. Horenstein suggested three
17 potential reasons why you might have wanted to put
18 a touch sensor onto the side of the Jahagirdar
19 flip-phone. One is to minimize accidental
20 actuation, which --

21 A. Sorry. Paragraph 68 doesn't say that.
22 This is Exhibit 23. It's the IPR 2015-1147.

23 Q. I got the wrong one. My bad. Sorry.
24 I'm getting tired.

1 A. No worries.

2 Q. Okay. How about 58?

3 MR. KELBER: Try this one. 58 works
4 better.

5 THE WITNESS: Yes.

6 Q. Dr. Horenstein suggests here in paragraph
7 58 three potential reasons why one of skill might
8 have wanted to put the touch sensors of Schultz
9 into the flip-phone of Jahagirdar.

10 First is minimization of accidental
11 actuation, which we've discussed; second is
12 elimination of contamination of failure problems,
13 which we've just discussed; and then the third is
14 to enhance convenience and esthetics for the user.
15 Do you see that?

16 A. I do.

17 Q. I don't know if I missed it, but I didn't
18 see in your declaration where you addressed
19 specifically this -- specifically this reason to
20 combine other than the discussion about accidental
21 actuation. Is that right?

22 A. I don't believe I addressed this. I
23 didn't see anything to address from his side other
24 than this unsupported statement here.

1 I might add that the lead-in to this, I
2 believe, tips the motivation, where it says that
3 one of ordinary skill would have been motivated
4 with method and system of Jahagirdar to arrive at
5 Claim 1 of the '726 patent.

6 As a Patent Owner, you asked me earlier when
7 did I first start forming my opinion on
8 obviousness. When I saw that it seemed that a goal
9 was to arrive at Claim 1, to me that really
10 bristled me. Why don't it say and arrive at
11 Claim 1. It implies to me as a Patent Owner that
12 the goal here was a hindsight analysis to arrive at
13 Claim 1, and so that's when I first started to form
14 my opinion.

15 Q. Fair enough. All right. Look at
16 paragraphs 63 through 65, which is where
17 Dr. Horenstein addresses potential aesthetic
18 attractions of touch sensors.

19 A. Yes, I see that.

20 Q. You didn't discuss in your declaration
21 the Norimatsu reference where someone saw fit to
22 design a telephone with touch sensors on the side.
23 Why not?

24 A. Because Norimatsu is a desk telephone

1 where it makes sense to have touch sensors. You
2 don't want to fumble, when a call comes in, have to
3 look for the button that says answer or whatever,
4 and push that button. It actually provides a
5 benefit on a desk phone to be able to reach over
6 and as soon as you touch it it's on. That makes
7 sense because you're not normally touching it;
8 whereas, with the cell phone you are. So it's a
9 different animal here and it just not applicable to
10 cell phones.

11 Q. But why wouldn't a user of a Jahagirdar
12 type flip-phone not want to be able to change
13 what's on the top display very easy without
14 fumbling?

15 A. Because he would be doing it whether he
16 intended to or not. If it's a touch sensor, it's
17 going to be -- touch sensors are touchy. It's
18 going to be inadvertently actuated.

19 Q. But what if -- I mean, the question is,
20 inadvertent actuation in that scenario suggests
21 that there's some significant harm to inadvertent
22 actuation, but what's the harm to inadvertently
23 changing the top display?

24 A. Annoyance to the point of damaging the

1 phone. I've seen somebody throw an iPhone. It was
2 pretty funny. Pardon me. But anyway ...

3 Q. But to some users might they not perceive
4 it as a benefit to be able to change the display by
5 holding the phone, picking it up, without having to
6 actually find the button?

7 A. Like I say, some of these things are out
8 of the purview of engineers. The aesthetics,
9 whether -- I didn't do the market research as to
10 whether it's a benefit or not. I view that it's a
11 detriment to the design to have touch sensors and
12 I've laid out my reasons for that. I don't think
13 that aesthetics is going to overcome the
14 inadvertent actuation issue.

15 Q. Fair enough. Let's go back to Exhibit 9,
16 paragraph 64. In this paragraph you make the
17 assertion that those of ordinary skill in the art
18 have yet to substitute any type of touch-sensitive
19 switches taught by Schultz or anyone else for the
20 membrane switches used on the outer edges of
21 today's cell phones. Do you see where that says
22 that?

23 A. Yes.

24 Q. Did you do any research before you

1 reached that conclusion?

2 A. Just personal knowledge. I'm saying here
3 I've yet to see it. "I am not aware" is what it
4 says.

5 Q. Did that observation impact your
6 obviousness conclusion?

7 A. No, it's just, I think -- well, it
8 emboldened it, if you will. I mean, it didn't
9 change my opinion that it would not be obvious to
10 one of ordinary skill in the art nor somebody out
11 on the street, if you asked them if they would like
12 to have a touch-sensitive switch on the side of
13 their phone, I think you don't have to be one of
14 ordinary skill to say no thanks. But what it did
15 was it influenced my decision, my opinion, to make
16 my opinion stronger that the fact that it, to my
17 knowledge, it's never been done, there may be
18 something to this, that it isn't desirable.

19 Q. If you learn that since the time of 1997
20 that a number of phones had incorporated
21 touch-sensitive switches into the side, would it
22 change your opinion?

23 A. It might reduce my certainty, but it
24 wouldn't change the overall opinion that it's not

1 something that one of ordinary skill in the art
2 would be motivated to do.

3 Q. Where it says here, for example, all
4 models of the iPhone by Apple have employed
5 nontouch membrane switches for the volume controls,
6 power and home keys, is the home key on an iPhone
7 the round thing at the bottom?

8 A. Correct.

9 Q. You're not aware of any type of iPhone
10 that has a touch-sensitive switch there?

11 A. Not for doing the home function with the
12 home key. There's a fingerprint sensor in there
13 now, but the home function that the home key
14 provides has always been you have to press it.

15 Q. But there is a fingerprint sensor that
16 does what?

17 A. The fingerprint sensor senses
18 fingerprints.

19 Q. Does it wake the phone up?

20 A. I don't know.

21 Q. Have you --

22 A. I think in fact you have to press the
23 home key to wake the phone up and then that
24 activates the fingerprint sensor. No, the

1 fingerprint sensor itself, the touch function of
2 that key, does not wake the phone up.

3 Q. After the step of fingerprint detection,
4 what happens on the phone, if you know?

5 A. Prior to the step of fingerprint
6 detection the phone is actuated -- that switch is
7 actuated by pressing it mechanically, and then the
8 fingerprint sensor is activated and senses the
9 fingerprint, and if it matches, it goes -- it
10 unlocks the phone.

11 If you press that button with a finger other
12 than one that has the fingerprint registered, the
13 only thing that happens is that the fingerprint
14 sensor detects that that finger isn't registered
15 and the phone doesn't unlock.

16 Q. Backing up slightly, in paragraph 49 of
17 Exhibit 9, you say, while it is clear that the
18 inventors of Jahagirdar were acquainted with a
19 variety of circuitry approaches, et cetera. Do you
20 see that?

21 A. Yes.

22 Q. What did you mean by that statement,
23 "circuitry approaches"?

24 A. There are a lot of different circuits in

1 Jahagirdar, some of which are shown in the figures
2 in block diagram form, different ways of doing the
3 displays, Figs. 5, 6 and 7, and then discussions
4 throughout, LEDs, LCDs ...

5 Q. Okay. Let's change gears a little bit
6 and talk about Exhibit 11.

7 A. Okay. I give. What was that one?

8 Q. 11, which was your declaration in
9 2015-1149 for the '970 patent.

10 A. Okay. Okay. Got it.

11 Q. In this one I want to focus on the
12 material in pages 27 to 32 having to do with the
13 luminous visible location indicator.

14 A. Okay.

15 Q. All right?

16 A. Okay.

17 Q. The first question is, in your view what
18 is a luminous visible location indicator?

19 A. I think, as taught by Bruwer, it could be
20 the LED that flashes intermittently, so that if a
21 kid leaves it out in the yard or someplace, you can
22 look and, you know, out of the corner of your eye
23 see it's flashing over there, I know where the
24 flashlight is, I'll go get it.

1 Q. But is any LED on any electronic device a
2 luminous visible location indicator?

3 A. Not necessarily.

4 Q. So what makes some LEDs luminous visible
5 location indicators and others not?

6 A. The fact that it operates to help you
7 locate it. It's not something that illuminates,
8 for example, only when the item is in your hand
9 where you know the location, for example,
10 Jahagirdar and the ideas proposed by your expert.

11 Q. Let's look at the '970 patent itself,
12 which is Exhibit 17. Let's look at Claim 1 of the
13 '970 patent.

14 A. I have it.

15 Q. Do you see in Claim 1 where there's a
16 little letter A followed by "wherein"?

17 A. I do.

18 Q. So it says:

19 Wherein the visible indicator at
20 least indicates a condition of the
21 product upon receiving a signal
22 from the user interface switch and
23 wherein the switch is a touch
24 sensor type switch.

1 Do you see that?

2 A. I do.

3 Q. In order to make the visible indicator
4 show you the condition of the product, you'd have
5 to touch the touch sensor, right?

6 A. I believe that's what that means there,
7 yes.

8 Q. In that case you're already holding the
9 product, right?

10 A. I believe that's the -- for A here, I
11 think it's talking about when you want to check to
12 see, for example, what the battery condition is,
13 it's a condition of the product, I think that's
14 referring back into the spec about checking the
15 battery state.

16 Q. So with regard to this clause A here, if
17 the visible indicator is doing what clause A
18 requires, is it not a luminous visible location
19 indicator?

20 A. It is not indicating location under the
21 description in A, yes.

22 Q. I'm starting to understand. I think if I
23 understood, one way that something that lights up
24 could, nonetheless, not be a luminous visible

1 location indicator is if it only lights up when
2 you're holding it because then you already know
3 where it is, right?

4 A. Correct.

5 Q. Are there any other ways that you could
6 think of that something that lights up would not be
7 a luminous visible location indicator?

8 A. If it only lit up when you couldn't see
9 it somehow.

10 Q. Like when you're out of the room?

11 A. Well, I think then it still would be an
12 indication; you just can't see it, you know. But,
13 seriously, I haven't thought of these other
14 possibilities here.

15 Q. Okay. For a luminous visible location
16 indicator, what is it indicating the location of?

17 A. The product that it is part of.

18 Q. So it's giving you the location of the
19 product relative to the space you are in like a
20 room; is that right?

21 A. Yeah, or outside, you know, if it's a
22 flashlight.

23 Q. Suppose the visible location indicator is
24 just telling you where the user interface is, could

1 that still be a luminous visible location
2 indicator?

3 A. I don't think in the sense of the
4 teachings of this patent that that would be the
5 same.

6 Q. Suppose you had a flashlight with a main
7 power button and on that power button there's an
8 LED that is sensitive to touch or proximity. If
9 you're holding the flashlight, then that LED might
10 light up to show you where the power button is,
11 where to make the main flashlight turn on, right?

12 A. Well, there's actually another patent in
13 this family that is directed exactly to that, and
14 it's called a find-in-the-dark function; it's not
15 called a visible location indicator. So that was
16 contemplated but separately claimed.

17 Q. So you see a difference between luminous
18 visible location indicator and find-in-the-dark
19 indicator?

20 A. Yes, according to the teachings of these
21 patents -- of those two patents.

22 Q. And is the difference that luminous
23 visible location indicator is helping you find the
24 product in the room and then find-in-the-dark

1 indicator is helping you find the user interface on
2 the product?

3 A. I think that's safe to say. I think one
4 of the examples of the find-in-the-dark indicator,
5 I guess the product would be the car, where it
6 talks about waving your hand around the courtesy
7 light, and then the light comes on dimly so the
8 switch -- so that you can see where to press, that
9 would be part of the product. So, yeah, I think
10 that's a fair distinction.

11 Q. What's your basis for your opinion that
12 luminous visible location indicator would not
13 include a light whose function is to help you find
14 the user interface on the product?

15 A. I just --

16 MR. KELBER: Go ahead.

17 THE WITNESS: I just didn't see that
18 taught in the specification of this '970 patent
19 that claims that particular element. I don't see
20 the teaching there. And my understanding is you
21 read the claims in light of the specification, in
22 light of, no pun intended.

23 Q. Were you asked to offer an opinion on the
24 definition of luminous visible location indicator?

1 A. No.

2 Q. In the '970 patent you're telling me that
3 your understanding of luminous visible location
4 indicator was informed by the specification of the
5 figures in the patent, right?

6 A. Correct.

7 Q. Which parts?

8 MR. KELBER: Can I hear the question
9 before?

10 (The record was read by the reporter.)

11 THE WITNESS: Okay. I've found it at
12 column 9 at line 49. It says, it may also be
13 suitable to assist in locating a device, example,
14 but not limited to a flashlight in the dark. This
15 may be a separate output pin or may be according to
16 another embodiment shared with another switch
17 input. This output indicator may be an LED ... and
18 then it says at line 60, according to further
19 specific embodiment, referring to Fig. 11,
20 microchip 1113 can activate the LED 1104 for a
21 short time, example, every 100 milliseconds, every
22 10 seconds, I think it's a typo, it should be an
23 example for 100 milliseconds every ten seconds.

24 This indication will let potential users

1 know the device is in a good state of functionality
2 and will enable fast location of the device in the
3 dark in times -- example, in times of emergency.
4 Low duty cycles also prevent unnecessary battery
5 depletion. There's one place.

6 Q. Okay. That's enough. I think that might
7 be the only place. I'm not sure.

8 A. It may.

9 Q. But it's enough. If you have a
10 flashlight that has an LED on it somewhere and
11 you're in the dark and the LED is lighting up, the
12 LED would help orient you to where the main power
13 button is on the flashlight, right?

14 A. Depending upon where the LED is mounted
15 it could.

16 Q. The LED would be mounted in a fixed
17 location relative to the main button, right?

18 A. Yes.

19 Q. And so if you were familiar with the
20 flashlight, it would orient you to the user
21 interface, right, meaning the main power button?

22 A. Yes, it could.

23 Q. Okay. Going back to Exhibit 11, I want
24 to focus on throughout, basically, throughout your

1 opinions in paragraph 68 through 76 and beyond, the
2 example I want to focus on is the example where the
3 top display is an LED. Is that okay?

4 A. In Jahagirdar?

5 Q. Yeah.

6 A. Okay.

7 Q. And I think you start discussing this at
8 paragraph 74. Just so I understand, an LED is
9 luminous, right?

10 A. Emits light. That's what the E in LED
11 stands for, emit.

12 Q. And assuming the lighting conditions are
13 suitable, it's visible, right?

14 A. Generally speaking, it's always visible,
15 yes, light or dark.

16 Q. So the issue with the LED top display
17 being a luminous visible location indicator is
18 whether it's indicating location. That's the
19 difficulty, right?

20 A. Correct.

21 Q. Okay. And why don't you think the LED
22 can indicate location?

23 A. Well, it's not taught in Jahagirdar how
24 the LED would be operated. For example, Fig. 8A

1 and 8B seem to be directed towards the display
2 being an LCD because of the backlight issue, which
3 LEDs don't need.

4 So it seems as if these figures become
5 irrelevant for describing the embodiment that he
6 imagines having an LED in. Okay? So now --

7 Q. Totally -- sorry. Go ahead.

8 A. Well, he doesn't say how they would be
9 modified should you have an LED. Okay? This is
10 for -- I think Fig. 8A and B are given for a
11 specific embodiment that does not include the LED.

12 An LED, in order to emit the light, becomes
13 a significant load, more so than display 516 an LCD
14 with the backlight off would be. The LEDs draw
15 more current.

16 So it seems, if you were going to have an
17 embodiment of Jahagirdar with the LED, you would
18 most likely want to limit its time on. You
19 wouldn't want to just leave it on all the time.

20 So it's not clear in the teaching of
21 Jahagirdar how you would incorporate the LED into
22 an embodiment without draining the battery or
23 turning the thing off, in which case it's not going
24 to be a very good location indicator.

1 Q. It says in Jahagirdar where it introduces
2 and discusses the LED -- that's not right.

3 It says in Jahagirdar in one place where it
4 discusses the LED, bottom of column 7, starting at
5 the very bottom of column 7, display area 914
6 preferably includes a single line LED display and
7 display area 916 preferably includes a large
8 graphics LCD.

9 So you would agree that this is a version of
10 the Jahagirdar phone where the top display is an
11 LED? You might want to refer to Fig. 9.

12 A. The copy of Jahagirdar -- oh, there it
13 is, sorry.

14 Q. 914 is the top display, right?

15 A. It's actually a front-facing display,
16 914.

17 Q. It's the lesser display; is that right?

18 A. Yes, but it is a front-facing. It didn't
19 just replace the display on the top edge. They
20 moved it for some reason.

21 Q. Well, I suppose it's consistent with
22 where it said earlier in Jahagirdar that you could
23 move the display around. So in this case, if I'm
24 understanding Fig. 9, they moved the main display

1 to the flap itself and the little display now is
2 above the keys 912.

3 A. That's -- I agree with that, yep.

4 Q. Okay. And then it just says at the top
5 of column 8, mobile station 902 operates similarly
6 or in the same way as mobile station 102 as
7 described in relation to the flowchart of Figs. 8A
8 and 8B.

9 A. Okay.

10 Q. So there Jahagirdar is saying that, if
11 you make the smaller display an LED, it's going to
12 operate either similarly or in the same way as 8A
13 and 8B.

14 A. Okay.

15 Q. Now if it operates the same way, then the
16 little display is on all the time, whenever the
17 flap is closed, right?

18 A. That's correct.

19 Q. And then it would be a luminous visible
20 find-in-the-dark indicator, right?

21 A. For a short while until the battery dies.

22 Q. Now if it operated in the way that you
23 suggest with a timer to turn it off, which sounds
24 like a reasonable design choice, it would still be

1 a luminous visible location indicator for the
2 period when the timer was running, right?

3 A. For those with short-term memory problems
4 where they -- because they would have had it in
5 their hand to close the lid, to turn it on, and
6 then it would turn off shortly thereafter, so, yes,
7 it would -- but little value, I would think. I
8 think to find -- as a location indicator, it would
9 be nice that it were -- you were able to find it
10 after you had used it for some time and you don't
11 remember where it is.

12 Q. Right. In the situation you're supposing
13 where the LED would turn off after a short period
14 of time, how would you get it to turn back on?

15 A. By pressing maybe the backlight button on
16 the side that no longer needs to control a
17 backlight.

18 Q. Got it.

19 A. Potentially inadvertently if it's a touch
20 button.

21 Q. All right. I want to switch to Exhibit
22 8. I think Exhibit 8 is 2015 --

23 A. 1928.

24 Q. Thank you. 1928, on the '494 patent.

1 And you also still have Exhibit 21 handy, which is
2 2015-1928, Patent Owner's response.

3 A. I have it.

4 Q. Okay. These are the two documents we're
5 going to use.

6 Let's start with in Exhibit 21 -- I'm sorry,
7 Exhibit 8, sorry -- paragraph 5. Paragraph 5
8 starts out:

9 As noted, I am familiar with the
10 type of technology addressed in the
11 '494 patent as of 1998, which I
12 understand to be the year in which
13 the patent application from which
14 priority is claimed in the '494
15 patent was originally filed.

16 Were you asked to assume that the priority
17 date of the '494 patent was 1998 or did you reach
18 that conclusion on your own?

19 MR. KELBER: Objection as to form.

20 THE WITNESS: Yes, I understand, I mean
21 there that I was told. I don't -- I'm not an
22 expert on citing the priority date of a patent
23 necessarily.

24 Q. Did you ever engage in any kind of

1 analysis designed to determine the proper priority
2 date of the '494 patent?

3 A. No.

4 Q. Are you aware generally that the
5 specification of the '494 patent is different than
6 the specifications of the other five patents we've
7 been discussing?

8 A. Correct.

9 Q. Okay. In paragraph 19 of this Exhibit 8
10 declaration there's a list of the things you
11 considered in formulating your opinion. Do you see
12 that?

13 A. Yes.

14 Q. Just so I'm clear, the top block of that
15 table says, "petition for IPR '494 patent
16 2015-1616." Is that a typo?

17 A. It is.

18 Q. Should it say 1928?

19 A. It should.

20 Q. Okay. Just to prove I'm not being
21 nitpicky, are you aware that there was another
22 petition filed by Microsoft with regard to the '494
23 patent?

24 A. Like I said, I had a cheat sheet of -- a

1 table of all these, and it wouldn't surprise me if
2 there was more than one in that.

3 Q. Do you ever remember reading a decision
4 by the board denying a Microsoft petition on the
5 '494 patent?

6 A. No, I don't.

7 Q. Which claims of the '494 patent did you
8 focus on for this report?

9 A. I think I focused on the find-in-the-dark
10 function. Which claims call that out, I don't
11 recall at the moment.

12 Q. Based on paragraph --

13 A. Yeah, sorry, looks like -- no, that's all
14 the listed ones. Sorry. Go ahead, please.

15 Q. Based on paragraphs 16 to 18, does it
16 sound right that you focused on Claims 1, 3 and 20
17 of the '494 patent?

18 A. Yes.

19 Q. Do you recall reviewing any of the other
20 claims of the '494 patent?

21 A. I read them all at one point for sure.

22 Q. Did you form any opinion as to whether
23 any claims other than 1, 3 and 20 were valid or
24 not?

1 A. I don't recall at the moment, no.

2 Q. Paragraph 10 of Exhibit 8 there's a
3 phrase that got my attention here, about in the
4 middle of the paragraph, "touch sensor proximity
5 switch." What's that?

6 A. Well, a touch sensor, if it's really
7 sensitive, can sense proximity as well as actual
8 touch. So depending upon how you treat the signal
9 that is coming out of the touch sensor, you can use
10 it as a proximity switch or a touch sensor.

11 Q. And can a resistive touch sensor do that?

12 A. No.

13 Q. Can a capacitive touch sensor do that?

14 A. Yes.

15 Q. And if a capacitive touch sensor were
16 designed to sense proximity, you would still refer
17 to it as a touch sensor; is that what you're
18 saying?

19 A. Yes. It has two modes of operation.

20 Q. What do you have to do to a capacitive
21 sensor to make it sense proximity in addition to
22 touch?

23 A. You just have to be able to couple the
24 signal that -- generally speaking, one type of

1 touch or proximity sensor you actually are
2 activating -- you're sending a signal to one plate
3 of the capacitor and you're seeing what the
4 impedance is to ground by how much that signal
5 attenuates as someone comes close, and then as
6 someone actually comes and touches it, then the
7 attenuation is severe rather than when they get
8 close. Sort of a gradation of attenuation as the
9 capacitance of the user or the person gets closer.

10 Q. Paragraph 56 of Exhibit 8, this starts
11 out by saying:

12 The '494 patent makes it clear that
13 when the user is in the dark and
14 wants to find the device (e.g., a
15 flashlight, a switch) all the user
16 needs to do is wave his hand in the
17 vicinity of the proximity detector
18 (touch sensor) of the device, and
19 the FITD indicator glows -- it's a
20 visible FITD.

21 Where you put "touch sensor" in parentheses
22 after "proximity detector" are you trying to say
23 that the touch sensor detects proximity?

24 A. Yes.

1 Q. In the '494 patent itself, which is
2 Exhibit 14, can you look at Claim 1 of Exhibit 14?

3 A. Yes.

4 Q. Claim 1, element C is a touch sensor. Do
5 you see that?

6 A. I do.

7 Q. Is your view that that touch sensor
8 that's claimed in Claim 1 could be a proximity
9 sensor?

10 A. Yes.

11 Q. What's your basis for that?

12 A. That depending upon how you use it and
13 how you process the signals involved in the touch
14 sensor, it can perform either function: proximity
15 detection or touch detection.

16 Q. Can you show me where that's described in
17 the '494 patent?

18 A. The first place I see it is in the
19 abstract. At the beginning it talks about a
20 user -- first sentence, "user interface also
21 comprises touch-sensor technology that
22 differentiates between proximity and physical
23 contact to activate and control various loads." So
24 that's talking about a touch sensor doing both, I

1 believe.

2 Here's column 13, line 56:

3 In certain embodiments the touch
4 sensor interface switch 106 (see
5 Figs. 4 and 6) that allows the user
6 to operate and select functions may
7 also allow the user to select or
8 give a signal to the microchip 103
9 based on proximity and not
10 necessarily physical touch or
11 contact. This feature is an
12 inherent characteristic of some
13 touch sensor or touchpad
14 technologies, for example, the type
15 described in U.S. Patents blah and
16 blah.

17 And then it says, it is then also
18 feasible to define a user interface
19 that accepts both touch sensor
20 signals as well as
21 electromechanical switch.

22 No, it doesn't say proximity there. Okay.

23 So, anyway, there's one spot

24 Q. That's good. So going back to the claim,

1 the touch sensor that's recited in element C there,
2 it could be a touch sensor that senses proximity or
3 that doesn't, either one?

4 A. Yes. You have to read on and see what
5 other limitations there are, if any, about the
6 touch sensor in the claim.

7 Q. As you do read on in the claim, it says:
8 Wherein the microchip, in response
9 to at least a signal from the touch
10 sensor, is configured for
11 activating a visible
12 find-in-the-dark indication when
13 the load is not activated.

14 Do you see that?

15 A. I do.

16 Q. So in order to activate the visible
17 find-in-the-dark indication, you have to actuate
18 the touch sensor, right?

19 A. Well, it says in response to at least a
20 signal from the touch sensor, signal from the touch
21 sensor could convey proximity information rather
22 than actual touch.

23 Q. I would think under your theory that it
24 would have to be proximity. Because if it were

1 touch, then you would already be holding the device
2 and you wouldn't need a find-in-the-dark
3 indication; isn't that right?

4 A. Yes, I would agree with that, that this
5 seems to be directed to the proximity function.
6 This contemplates a separate switch, it looks like,
7 for activation and deactivation of the load.

8 Q. In the other five patents that are
9 involved here other than the '494 patent, is it
10 your view that everywhere in those patents, when
11 the patents use the phrase "touch sensor," they
12 could be referring to a touch sensor that detects
13 proximity?

14 A. That could be capable of if the circuitry
15 were adapted for that, yes.

16 Q. Is any of that circuitry described in any
17 of these patents?

18 A. Not that I know of.

19 Q. Okay.

20 A. There were no figures added when this
21 specification was expanded to include the
22 find-in-the-dark disclosure.

23 Q. In paragraph 56 of Exhibit 8, the first
24 sentence concludes, all the user needs to do to ...

1 "all the user needs to do is wave his hand in the
2 vicinity of the proximity detector," right?

3 A. Yes.

4 Q. It doesn't conclude, but it's in the
5 middle, right?

6 A. Yes.

7 Q. How close do you have to get?

8 A. There would be an adjustment, a
9 threshold, if you will, that says that the effect
10 that is being measured is strong enough to call it
11 a detection, and that would be something that the
12 design would have, you know, had decided when the
13 thing was designed, how sensitive it was going to
14 be.

15 Q. As a practical matter, what's the
16 farthest away you can envision a proximity sensor
17 in a portable device like a flashlight being able
18 to detect?

19 A. A capacitive proximity sensor?

20 Q. Whatever you think is relevant.

21 A. There are proximity sensors that detect
22 that you've walked into somebody's backyard and
23 you're 20 meters away. I don't think that's what's
24 contemplated here. Those would be a different

1 technology than a touch sensor that can also be
2 used as a proximity sensor.

3 This would imply capacitive. So I would say
4 it's, you know, a foot or less is the range that it
5 could detect for proximity if it's a capacitive
6 sensor.

7 Q. So it's only going to help you find the
8 device in the dark under your theory here if you're
9 within a foot.

10 A. On that order, yes.

11 Q. In paragraph 57 you start out by saying,
12 "the same cannot be said of the external display of
13 Jahagirdar," and you go on from there, right? And
14 I believe that this is similar to what we discussed
15 before, with respect to the '970 patent, that you
16 were of the view that, by the time you were in
17 position to close the flip-phone of the phone to
18 activate that display, you would already be holding
19 the phone, and, thus, would not need a
20 find-in-the-dark function, correct?

21 A. Correct.

22 Q. But in this declaration you don't discuss
23 the LED embodiment at all. Why is that?

24 A. I didn't view that the LED would be on in

1 that embodiment or the battery would have drained.
2 So I don't see that it would be a pertinent
3 reference for a find-in-the-dark function.

4 Q. But is there something different between
5 the '494 situation and the '970 situation that made
6 you put it in the '970 declaration and not the '494
7 declaration? Just caught my interest.

8 A. Yeah, I don't know if it was cited by the
9 petitioner in one and not in the other or maybe it
10 was an omission on my part. I don't know. I can't
11 recall at the moment.

12 Q. But with respect to the contents of the
13 '970 declaration and your testimony regarding the
14 '970 declaration, would you think it would be
15 equally applicable to the '494 situation?

16 A. What I said about how I expected the LED
17 to behave and should it be replacing the LCD
18 display 516, in that one it would be the same
19 expected operation for the purposes of the '494.

20 Q. Exhibit 21, which is the response
21 accompanying the declaration for the '494, let's
22 look at pages 15 through 17 roughly.

23 Sorry. That was a waste of time.

24 A. It was a good read.

1 Q. I realized I already asked you about
2 that.

3 MR. MURPHY: So could we take a break
4 right now? I'm pretty close to done. I want to
5 collect my thoughts, and then, after the break,
6 I'll be able to ask a few finish-up questions or
7 tell you I'm done.

8 (Proceedings recessed at 4:08 p.m.)

9 (In session at 4:25 p.m.)

10 BY MR. MURPHY:

11 Q. Just a couple more questions, Dr. Morley.

12 I want to ask you a little bit more about
13 activation. Now you're of the view that activate
14 in the context of these patents means turn on,
15 right?

16 A. Correct. Where it's an electric, you
17 know, turn on, apply power.

18 Q. Right. In the patents, let's say the --
19 just to use an example, let's say Exhibit -- do you
20 have Exhibit 16 in front of you?

21 A. I'm sure I do somewhere in this pile.
22 Let's see. Yeah, I got it.

23 Q. Exhibit 16 is the '749?

24 A. Yes.

1 Q. The '749, column 10, in like around line
2 15 of column 10, it's talking about Figs. 8A and 8B
3 and says, "which allows for said microchip to thus
4 receive additional commands, for example, a second
5 on activation within a given period after a first
6 on and off activation," and so forth.

7 In the context of this whole paragraph,
8 which you should read, I suppose, are they using
9 activation in the way you understand it should be
10 used?

11 A. I think that this is an exception to the
12 rule. It seems that what they are saying here is
13 an actuation. This is something -- it says that
14 the microchip is receiving this, so it's obviously
15 already turned on or it couldn't receive it.

16 So this is what I would call an actuation,
17 that's some input -- it says a command. It's
18 receiving a command, presumably from the user
19 interface, so it's an actuation, I would say,
20 rather than activation.

21 Q. What about further down in column 10,
22 line 35, where it says:

23 Alternatively, two successive
24 closures may instruct the microchip

1 103 to intermittently activate
2 current switch 202 for a
3 predetermined length of time and
4 sequence, for example, a SOS
5 sequence.

6 A. Now there I would say that it's using it
7 in a parlance that I would suggest that it's
8 actually turning that switch on. It's activating
9 the switch to provide current to the load.

10 Q. What about the next paragraph, line 43,
11 44, where it says, "for example, but not limited
12 to, according to one embodiment of the present
13 invention, it may include multiple activating
14 switches," et cetera?

15 A. Once again, the switch to me -- this type
16 of switch is an input switch, so I would prefer the
17 use of actuating switches where they said
18 activating there.

19 Q. Can the word "activate" mean to make more
20 active?

21 A. I sort of think of it as an all or
22 nothing. It's something either active or it isn't.
23 Certainly there are degrees of activity, but I
24 don't know that I would -- I personally -- would

1 use activate to indicate -- I'm not sure what sort
2 of context I would use activate to mean be more
3 active.

4 Q. It's a little challenging in the context
5 of the flashlight because, as we've discussed, the
6 flashlight bulb is on or it's off, but other types
7 of electronic components can be very low power
8 state, or could be higher power states. And what
9 I'm wondering is whether taking something from a
10 low power state to a high power state could be
11 considered activation of that electronic component.

12 A. I think actually earlier today we were
13 talking about the flashlight example and whether
14 just a small amount of current was -- would
15 consider it on. So we weren't really -- we've
16 actually already looked at the flashlight in that
17 sort of context of sort of on, not full on, but,
18 you know, gradations of on. And I think I said
19 then either you have current through the load or
20 you don't, and, if you do have, whether it's low or
21 high, it's still on, it's activated.

22 Now from the perspective of a user of the
23 device, you know, speaking from the perspective of
24 an electrical engineer -- and we can be picky about

1 words -- from the perspective of the user of the
2 flashlight, if there's a small amount of current
3 going through the filament but it's not serving any
4 purpose of illuminating anything, they might call
5 the thing off, not activated.

6 So depends upon the context and the
7 perspective of whether you would say it is
8 activated or not when you're switching from a low
9 mode to a higher mode.

10 Q. In an LED display that has a number of
11 independently lightable elements, which I think the
12 display contemplated in a phone like Jahagirdar
13 would have, right, how does the LED know which
14 elements to light up and which ones not to?

15 A. Somewhere in the path between the
16 controller and the actual LED elements there's
17 something called a decoder, and, for example, you
18 send a code to that decoder and it decodes that,
19 typically a 4-bit code, and decides which one of
20 the segments to illuminate and then directs current
21 through that segment.

22 Q. When current is directed to that segment,
23 is that segment activated?

24 A. From the perspective of the LED

1 display -- the LED display had to be activated so
2 that it could do the decode function to decide
3 which element, if any, to illuminate.

4 So the overall module of the LED display,
5 even if it's a single element, it needs a decoder
6 for it. So it would be activated whether or not
7 any element is activated -- or illuminated.

8 Q. But when current is directed to a
9 specific segment of the LED display, at that time
10 is that specific segment of the LED display
11 activated?

12 MR. KELBER: Asked and answered.

13 THE WITNESS: The unit itself gets
14 activated, and then it's a matter of directing the
15 power that's been -- that activated that unit to
16 one of the elements or not. So it's just a
17 directing of the voltage that's been provided or
18 the current.

19 Q. Can a segment of an LED be turned off or
20 on independently of the others?

21 A. You can direct current through any one or
22 actually one at a time. You have to -- when you
23 see more than one on, typically it's actually
24 sequencing through them rapidly.

1 Q. Is that a yes?

2 A. So, yes, you can turn current on or off
3 to any element.

4 Q. Okay.

5 MR. MURPHY: All right. No more
6 questions.

7 EXAMINATION

8 BY MR. KELBER:

9 Q. I just have a few questions on redirect.
10 If you have the reference we've been calling
11 Jahagirdar, the U.S. Patent in front of you,
12 remember discussing with counsel for petitioners
13 earlier the nature of key 148? You had a little
14 back-and-forth on what is key 148 or what it might
15 not be.

16 A. Yes.

17 Q. If you would take a look at column 6,
18 about lines 44 to 45 of Jahagirdar, there's a
19 sentence, "after the call is completed, an
20 actuation of one of the plurality of keys 144 may
21 terminate the call." Could key -- could one of
22 those keys be key 148?

23 MR. MURPHY: Objection, leading.

24 THE WITNESS: So I remember our

1 discussion earlier, and at the time I was unaware
2 of the function of all three of the keys 144 -- I
3 knew that 150 was the info key, I knew that one
4 was -- 146, I guess it was, was for maybe the
5 backlight, and didn't know -- I had not seen a
6 function for 148, I guess it is. So this seems
7 like a logical match to what key 148 could do.

8 Q. If key 148 in fact did that, that is,
9 terminate the call, then it was actuated
10 inadvertently before the caller was done, would
11 that be convenient or inconvenient or neither?

12 MR. MURPHY: Objection, form, leading,
13 calls for speculation.

14 Q. You can answer.

15 A. Yes, if there were a key that terminated
16 a call and it was inadvertently actuated by the
17 user, such as a touch-sensitive key, it would be
18 very detrimental to the function of the phone.

19 Q. You talk or -- sorry. You discussed
20 earlier today with counsel for petitioners the
21 concept of an energy-consuming load. Do you
22 remember that discussion?

23 A. Yes.

24 Q. Would a load that does not -- sorry. Let

1 me back that up.

2 And you also talked about modules that are
3 part of an electronic circuit. Do you recall the
4 use of the word "module"?

5 A. I do.

6 Q. Would a module that does not increase the
7 power consumption of that circuit be likely to be,
8 in the words of the Bruwer patents that you
9 discussed, an energy-consuming load?

10 MR. MURPHY: Objection, form, leading,
11 calls for speculation.

12 THE WITNESS: I think in the context of
13 the Bruwer patents an energy-consuming load is one
14 that has considerable not irrelevant power
15 consumption.

16 MR. KELBER: Bear with me one second.

17 Your witness.

18 MR. MURPHY: No questions.

19 MR. KELBER: Before we leave the record,
20 are you agreeable to the witness reviewing and
21 signing but dispensing with the other obligations
22 of the reporter provided in the rules?

23 MR. MURPHY: What would those be? I
24 actually don't know.

1 MR. KELBER: If you do it according to
2 the rules without any agreement, and the agreement
3 has to be on the record, everything gets filed
4 through the reporter. The witness has to sign in
5 front of a notary. That goes back to the reporter.
6 She circulates an agreement sheet as well as an
7 errata sheet. That goes back to the reporter and
8 she submits it to the board.

9 MR. MURPHY: That's what we did for
10 Horenstein. That's not so bad. So what are you
11 proposing instead?

12 MR. KELBER: The witness reads, makes
13 whatever corrections he believes are appropriate,
14 he signs and we submit it as an exhibit.
15 Otherwise, both parties have to claim it as an
16 exhibit.

17 We submitted Horenstein's declaration as an
18 exhibit. Sorry, not declaration -- deposition
19 transcript as an exhibit. You would submit
20 Morley's deposition transcript as an exhibit, if
21 you elected to rely on it. We would submit it if
22 we elected to rely on it. It's just a big hassle.

23 THE WITNESS: It saves me the notary.

24 MR. KELBER: It does. It saves us

1 calling Linda's company and saying where the heck
2 is it. You got to put it in a sealed envelope, all
3 that stuff. It is conventionally submitted by one
4 side or the other or not submitted at all if nobody
5 cares.

6 MR. MURPHY: Okay. I agree.

7 MR. KELBER: Cool. Now we can go off the
8 record.

9 //

10 (The deposition of ROBERT E. MORLEY, JR.,
11 Ph.D. adjourned at 4:42 p.m.)

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ACKNOWLEDGMENT OF DEPONENT

I, ROBERT E. MORLEY, JR., Ph.D., do hereby
acknowledge that I have read and examined the
foregoing testimony and that the same is a true,
correct and complete transcription of the testimony
given by me, with the exception of the noted
corrections, if any, appearing on the attached
errata page.

DATE ROBERT E. MORLEY, JR., Ph.D.

Subscribed and sworn to before me this _____ day of
_____, 20_____.

_____ (Notary Public)

My Commission expires: _____

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ERRATA

NAME OF CASE: Microsoft v. Global Touch Solutions

DATE OF DEPOSITION: May 13, 2016

INSERT REASON FOR CHANGE:

1. To clarify the record.
2. To conform to the facts.
3. To correct a transcription error.

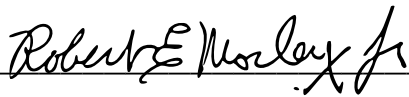
Page 20 Line 19 Reason 3
Text
From Sidney to Sydney

Page 123 Line 17 Reason 3
From lump to logical

Page 146 Line 4 Reason 3
From decimals to decimal

Page 181 Line 10 Reason 3
From don't to doesn't

Page 209 Line 12 Reason 3
From design to designer


ROBERT E. MORLEY, JR., Ph.D.

Subscribed and sworn to before me this ____ day of
____ 20 ____.

____ (Notary Public)

My Commission expires: _____

C E R T I F I C A T E

I, LINDA S. KINKADE, Registered Diplomate
Reporter, Certified Realtime Reporter, Registered
Merit Reporter, Certified Shorthand Reporter, and
Notary Public, do hereby certify that prior to the
commencement of examination the deponent herein was
duly sworn by me to testify truthfully under
penalty of perjury.

I FURTHER CERTIFY that the foregoing is a
true and accurate transcript of the proceedings as
reported by me stenographically to the best of my
ability.

I FURTHER CERTIFY that I am neither counsel
for nor related to nor employed by any of the
parties to this case and have no interest,
financial or otherwise, in its outcome.

IN WITNESS WHEREOF, I have hereunto set my
hand and affixed my notarial seal this ____ day of
_____ 2016.

My commission expires: July 31, 2017

NOTARY PUBLIC IN AND FOR
THE DISTRICT OF COLUMBIA