



Planet Depos®
We Make It *Happen™*

Transcript of Daniel Foty, Ph.D.

Date: December 5, 2024

Case: Mianyang BOE Optoelectronics Tech. Co., et al -v- Samsung Display Co.
(PTAB)

Planet Depos

Phone: 888.433.3767 | **Email:** transcripts@planetdepos.com

www.planetdepos.com

Michigan #8598 | Nevada #089F | New Mexico #566

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2 -----

3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4 -----

5 MIANYANG BOE OPTOELECTRONICS TECHNOLOGY CO., LTD;
6 WUHAN CHINA STAR OPTOELECTRONICS SEMICONDUCTOR
7 DISPLAY TECHNOLOGY CO., LTD; TIANMA
8 MICROELECTRONICS CO. LTD.; AND VISIONOX
9 TECHNOLOGY, INC.

10 Petitioner,

11 v.

12 SAMSUNG DISPLAY CO., LTD.

13 Patent Owner,

14 -----

15 Case No. IPR2024-00620

16 U.S. Patent No. 9,330,593

17 -----

18 REMOTE VIDEOTAPED DEPOSITION OF

19 DANIEL FOTY, Ph.D.

20 December 5, 2024

21 Reported by: Susan S. Klinger, RMR-CRR, CSR

22 Job No. 562356

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

December 5, 2024

9:03 a.m.

Remote Videotaped Deposition of DANIEL FOTY, Ph.D.,
held before Susan S. Klinger, a Registered Merit
Reporter and Certified Realtime Reporter of the
States of Texas and California.

A P P E A R A N C E S:

Attorneys for Petitioner:

K. Patrick Herman, Esquire

ORRICK HERRINGTON & SUTCLIFFE

51 West 52nd Street

New York, New York 10019

212.506.5000

Attorneys for Patent Owner:

Derek J. Andros, Esquire

Jared Frisch, Esquire

COVINGTON & BURLING

850 Tenth Street, NW

Washington, DC 20001-4956

202.662.5137

Also Present:

Jesse Castro, videographer

I N D E X

WITNESS	PAGE
DANIEL FOTY, Ph.D.	
EXAMINATION BY MR. ANDROS	6
EXAMINATION BY MR. HERMAN	97
EXAMINATION BY MR. ANDROS	99

E X H I B I T S

No.	Description	Page
Exhibit 1003	Foty Declaration	13
Exhibit 1004	Kimura reference	16
Exhibit 1005	Shin reference	46
Exhibit 1006	Tobita reference	60
Exhibit 1014	Sasaki reference	47
Exhibit 2024	Circuit diagram	84

1	P R O C E E D I N G S	09:02:42
2	VIDEOGRAPHER: Here begins Media Number 1	09:02:42
3	in the videotaped deposition of Daniel Foty, Ph.D.	09:03:39
4	in the matter of Mianyang BOE Optoelectronics Tech	09:03:43
5	Company, et al v. Samsung Display Company, PTAB,	09:03:49
6	in the United States Patent and Trademark Office	09:03:53
7	before the Patent Trial and Appeal Board, Case	09:03:56
8	Numbers are IPR2023-00941, 0987, 0988, 1075 and	09:04:00
9	00620.	09:04:13
10	Today's date is December 5th, 2024. The	09:04:14
11	time on the video monitor is 9:04 a.m. The remote	09:04:18
12	videographer is Jesse Castro representing Planet	09:04:24
13	Depos. All parties of this video deposition are	09:04:25
14	attending remotely.	09:04:28
15	Would counsel please voice-identify	09:04:29
16	themselves and state whom they represent?	09:04:31
17	MR. ANDROS: Derek Andros, Covington &	09:04:33
18	Burling representing patent owner. With me is my	09:04:36
19	colleague Jared Frisch.	09:04:39
20	MR. HERMAN: This is Patrick Herman from	09:04:41
21	Orrick Herrington & Sutcliffe here on behalf of	09:04:44
22	petitioners.	09:04:47

1 And just to be clear, this deposition is
2 relating to a single IPR proceeding that is
3 IPR2024-00620.

4 VIDEOGRAPHER: The court reporter today is
5 Susan Klinger also representing Planet Depos. The
6 witness may now be sworn.

7 DANIEL FOTY, Ph.D.,
8 having been first duly sworn testified as follows:

9 EXAMINATION

10 BY MR. ANDROS:

11 Q Good morning, Dr. Foty.

12 A Good morning, counselor.

13 Q Would you please state your full name for
14 the record?

15 A Daniel Patrick Foty.

16 Q You have been deposed a number of times
17 before including in a number of proceedings
18 between BOE and SDC; is that right?

19 A Both of those are correct. I've been
20 deposed many times throughout the years and I've
21 been deposed several times in other aspects of
22 this general matter.

1	Q I will just -- I will hit some highlights	09:05:40
2	of the basics today. I will be asking you	09:05:43
3	questions during the deposition. If you don't	09:05:44
4	understand one of my questions, just please ask me	09:05:48
5	to clarify and I will do so; is that okay?	09:05:50
6	A Understood.	09:05:54
7	Q If you do answer a question, I will	09:05:55
8	understand that you have understood my question;	09:05:58
9	is that fair?	09:06:00
10	A Understood.	09:06:01
11	Q And we're holding the deposition remotely	09:06:02
12	today, but you understand that this will be	09:06:05
13	treated the same as if it was an in-person	09:06:07
14	proceeding, right?	09:06:10
15	A Yes, I understand that.	09:06:11
16	Q And where are you physically located this	09:06:12
17	morning?	09:06:14
18	A I am physically located at my residence in	09:06:14
19	Fletcher, Vermont.	09:06:18
20	Q Do you have anyone else there with you	09:06:21
21	today?	09:06:23
22	A Just the cats.	09:06:23

1 Q And do you have any communication tools or
2 utilities open on your computer other than the
3 Zoom that we're using for the deposition today?

4 A No, I do not. And if you want to give me
5 a moment, I forgot -- I can go disconnect the VoIP
6 box so I won't get a telephone interruption. I
7 forgot to do that, I will be right back.

8 Q Okay.

9 A Apologies, I usually do that before a
10 deposition, but I realized when you asked that I
11 could get interrupted by a ringing phone, and now
12 we won't. There is nothing that can interrupt
13 me. My mobile phone is off, the landline is
14 disconnected and so forth.

15 Q Appreciate it.

16 Do you have any folders saved on your
17 computer with documents for this deposition?

18 A Not for this deposition, no. What I do
19 have is I have a clean copy of my declaration, no
20 writing in it. It is just for today to make this
21 easier. I have a binder to my right here which
22 has all -- again, clean copies of all of the

1 exhibits that were cited. And I have a blank pad
2 of sticky notes, which are -- if we need to use
3 them for bookmarks, if we're flipping around in my
4 declaration sometimes it can save trouble if I
5 slip a blank sticky note on the edge so I can find
6 a page we might come back to.

09:07:29

09:07:33

09:07:36

09:07:38

09:07:41

09:07:44

7 Q You are a couple of steps ahead of me,
8 so --

09:07:46

09:07:49

9 A I've done this plenty of times.

09:07:50

10 Q You are a pro.

09:07:51

11 Other than the clean documents, the hard
12 copy documents that you noted, do you have
13 anything else with you today for the deposition?

09:07:53

09:07:56

09:07:58

14 A Just coffee, water and cough drops to keep
15 this from hopefully bogging down.

09:07:59

09:08:04

16 Q Great. So as I go through exhibits today,
17 we will try to bring them up on the screen, we
18 will also drop them in the chat. But you can feel
19 free to use those clean, hard copies that you
20 mentioned. Just whatever is easiest for you to
21 navigate the documents today; is that okay?

09:08:06

09:08:09

09:08:11

09:08:14

09:08:16

09:08:19

22 A Yes, that is fine. The only request I

09:08:21

1 might make to again help the smooth -- if you --
2 since I know you will be introducing exhibits and
3 numbering them consecutively for the deposition,
4 if you could also just tell me what the exhibit
5 number -- if you happen to know it in my
6 declaration it might make it a little quicker to
7 find.

8 Q Sure. I think we will use the IPR exhibit
9 numbers, so those should be consistent. But if
10 there is any -- any question, I will be happy to
11 clarify what those -- what those exhibit numbers
12 are.

13 A I appreciate that. I have the -- the
14 binder has inserts that allow me to -- that have
15 the exhibit numbers, so it should be easy to find.

16 Q Great. So during the deposition I would
17 ask that you not engage in communications with
18 anyone else other than this Zoom platform that
19 we're communicating across; is that okay?

20 A That is okay. It would only be if there
21 is some sort of technical difficulty. I did once
22 have a power outage in the middle of a deposition.

09:08:23
09:08:26
09:08:28
09:08:31
09:08:33
09:08:36
09:08:38
09:08:38
09:08:42
09:08:44
09:08:47
09:08:49
09:08:49
09:08:52
09:08:55
09:08:57
09:09:02
09:09:04
09:09:08
09:09:09
09:09:12
09:09:15

1	Q All right. And if someone attempts to	09:09:17
2	communicate with you during the deposition, will	09:09:19
3	you please let me know for the record?	09:09:21
4	A I will do so, yes. It should be fine.	09:09:24
5	The only other way I could be interrupted if	09:09:26
6	someone physically comes to the door, which I	09:09:29
7	don't expect. I am -- actually I am expecting a	09:09:31
8	package to be delivered today, but it will	09:09:33
9	probably be much later. On the odd chance it	09:09:36
10	shows up early, I will just have to stop and go	09:09:38
11	get it.	09:09:40
12	Q Understand. All right. Is there any	09:09:40
13	reason that you can't give full and accurate	09:09:42
14	testimony today?	09:09:46
15	A As long as this big guy isn't bothering	09:09:47
16	you.	09:09:50
17	Q Cats aside.	09:09:51
18	A Shouldn't have a problem. Yeah, he's very	09:09:51
19	friendly. He likes you, counselor, so you may	09:09:54
20	want to say hi a few times. But other than the	09:09:55
21	cats trying to interrupt me here, there shouldn't	09:09:58
22	be any problems.	09:10:00

1	Q All right. And what did you do to prepare	09:10:01
2	for your deposition today?	09:10:04
3	A I reviewed the materials, the declaration	09:10:05
4	and the exhibits and I had a few discussions and a	09:10:11
5	meeting yesterday with counsel.	09:10:16
6	Q So you say you had a few discussions. Who	09:10:19
7	were those discussions with?	09:10:22
8	A They were just a few email exchanges with	09:10:23
9	Mr. Herman, and we met for about an hour and a	09:10:26
10	half yesterday.	09:10:29
11	Q Okay. Did you -- other than the about an	09:10:29
12	hour and a half meeting with Mr. Herman yesterday,	09:10:34
13	did you have any other meetings to prepare for	09:10:36
14	your deposition?	09:10:38
15	A No, I did not.	09:10:38
16	Q And did you speak to anyone other than	09:10:41
17	counsel in preparing for your deposition today?	09:10:46
18	A No, I did not.	09:10:48
19	Q And you mentioned that you reviewed your	09:10:50
20	declaration as well as the cited exhibits; is that	09:10:53
21	correct?	09:10:57
22	A That's correct.	09:10:57

1 Q So let's turn now to your declaration,
2 which should be Exhibit 1003, the declaration of
3 Dr. Daniel Foty. If we could get that up on the
4 screen and also dropped in the chat that would be
5 great.

6 (Exhibit 1003 marked.)

7 A And I have my paper copy open. One thing
8 I will try to do to help, is if I turn to look at
9 it, the microphone -- maybe this microphone will
10 be better, it has trouble picking me up. I will
11 try to turn back before I verbalize, but if I
12 don't do that, and it is a problem, you know, just
13 somebody let me know if that causes an audio
14 problem.

15 REMOTE TECHNICIAN: Stand by, this is
16 marked Exhibit 1003.

17 MR. ANDROS: Yes.

18 REMOTE TECHNICIAN: Now dropping IT into
19 the chat. Now pulling it up on the screen.

20 Q Dr. Foty, do you recognize this as a copy
21 of your declaration?

22 A This appears to be the cover page of my

09:10:59

09:11:07

09:11:12

09:11:16

09:11:19

09:11:19

09:11:19

09:11:23

09:11:25

09:11:28

09:11:30

09:11:33

09:11:36

09:11:38

09:11:45

09:11:46

09:11:51

09:11:58

09:12:00

09:12:25

09:12:28

09:12:29

1 declaration, yes. And I see it has appeared in 09:12:31
2 the chat as well, but I won't download that copy. 09:12:33
3 I will be referring to my paper copy, which should 09:12:35
4 be the same. 09:12:38

5 Q Understood. So if we can turn to the last 09:12:38
6 page of the declaration, which should be page 306, 09:12:42
7 scroll down a little bit there. 09:12:51

8 Is that your signature on page 306, Dr. 09:12:52
9 Foty? 09:12:57

10 A Yes, it is. 09:12:57

11 Q So your declaration was signed on March 09:12:58
12 6th, 2024; is that right? 09:13:02

13 A That is correct. 09:13:04

14 Q And is that when you finished working on 09:13:05
15 your declaration? 09:13:08

16 A Yes, that was the due date for the 09:13:10
17 declaration back in March or last, I apologize, 09:13:13
18 there was -- it was -- the day we filed. There is 09:13:18
19 not a deadline, it was just the filing date we 09:13:21
20 used. 09:13:23

21 Q And when did you start working on your 09:13:24
22 declaration? 09:13:28

1	A I probably started doing some background	09:13:31
2	on it, I believe, in December.	09:13:35
3	Q Okay. And how much time did you spend	09:13:41
4	working on your declaration?	09:13:44
5	A I didn't go check my invoices for the	09:13:46
6	hours. Those, of course, are discoverable if need	09:13:51
7	be, but it was probably something like 100 hours,	09:13:54
8	something in that neighborhood.	09:13:58
9	Q So between December 2023 and March 2024	09:14:00
10	you said about 100 hours; is that --	09:14:07
11	A That is a rough guess. It would be	09:14:10
12	something -- I would have to go check my invoices.	09:14:12
13	It might be 120, it might be 80, it was not a	09:14:15
14	trivial amount though.	09:14:18
15	Q And did you write your declaration?	09:14:19
16	A Yes, I did.	09:14:23
17	Q Did anyone else help write your	09:14:24
18	declaration?	09:14:27
19	A Well, as usual, you know, drafts went back	09:14:27
20	and forth with counsel for analysis and	09:14:32
21	discussion.	09:14:34
22	Q Let's -- let's turn to paragraph 133 of	09:14:38

1 your declaration. This should be on page 68.

09:14:48

2 A I have that open in my paper copy.

09:14:58

3 Q This is where your analysis of the Kimura
4 reference begins; is that right?

09:15:01

09:15:05

5 A Yes, that is correct. The unpatentability
6 was all sequestered in Section 12, and 12A is the
7 Ground 1 Kimura discussion.

09:15:07

09:15:10

09:15:14

8 Q So actually let's quickly pull up on the
9 screen and drop in the chat Exhibit 1004, which
10 should be Kimura, Dr. Foty, if you are looking for
11 a paper copy.

09:15:18

09:15:20

09:15:35

09:15:39

12 (Exhibit 1004 marked.)

09:15:40

13 A I'm just verifying that we have the
14 exhibit numbers right, that's all, so we don't
15 spend 20 minutes talking past each other and
16 figure that out after the fact, but Kimura --

09:15:40

09:15:41

09:15:41

09:15:43

17 Q That is appreciated.

09:15:43

18 A I don't want anyone to have to stay later
19 than they need to, so me included.

09:15:44

09:15:47

20 So Kimura is Exhibit 1004.

09:15:49

21 Q So Dr. Foty, just what is up on the
22 screen, Exhibit 1004, is that the Kimura that you

09:15:56

09:15:59

1 referred to in your declaration?

09:16:02

2 A That appears to be the case, and there is
3 only one Kimura reference in this matter.

09:16:03

09:16:06

4 Q And so if I refer to Exhibit 1004 today as
5 Kimura, you will understand what I am referring
6 to?

09:16:09

09:16:13

09:16:15

7 A That should be fine. Again, unlike some
8 other matters there is only one Kimura reference,
9 so we shouldn't have any confusion, I hope.

09:16:15

09:16:18

09:16:21

10 Q Okay. So if we can turn back to Exhibit
11 1003 now. And let's -- let's go to paragraph 160.

09:16:24

09:16:30

12 A I have that open in front of me now.

09:16:59

13 Q Are you with me, great.

09:17:00

14 So here you describe that transistors
15 making up the circuit of figure 27C operate to
16 supply logic low and logic high signals to the
17 output line.

09:17:02

09:17:09

09:17:12

09:17:16

18 Do you see that?

09:17:17

19 A Yes, that is a generic description of what
20 the circuit functionality is.

09:17:17

09:17:19

21 Q Could you explain for me what you mean by
22 logic low signal?

09:17:21

09:17:25

1 A I have chosen that generically to mean
2 that if there is binary logic being used, you have
3 a high voltage and a low voltage to discriminate
4 between the two binary states. So that is
5 basically standard terminology for using the
6 different voltages to reference by the two
7 different binary states.

09:17:27

09:17:36

09:17:39

09:17:42

09:17:44

09:17:48

09:17:52

8 Q Okay. So as to those two binary states, a
9 low level would be a logic low and a high level
10 would be a logic high. Do I generally have that
11 right?

09:17:53

09:17:58

09:18:01

09:18:03

12 A That is generally right. Of course
13 circuitry can output other voltages sometimes
14 besides those, but that gives you the idea of how
15 these circuits function. They're digital logic
16 circuits essentially.

09:18:05

09:18:08

09:18:12

09:18:14

09:18:17

17 Q And so then if we scroll down a little bit
18 in paragraph 160 you have got a timing diagram
19 figure 21B, get that up on the screen.

09:18:19

09:18:22

09:18:28

20 A I do have that on my paper copy if there
21 is a technical issue.

09:18:34

09:18:37

22 Q Okay. All right. And so in this diagram

09:18:38

1	we have got signals, different signals listed on	09:18:44
2	the left; is that right?	09:18:49
3	A I would not call them all signals. It	09:18:54
4	depends how you define signal, because the inputs	09:18:56
5	at the top are obviously signals. The voltages	09:18:59
6	below that are labeled V refer to voltage levels	09:19:03
7	inside the circuitry, voltages and nodes.	09:19:07
8	Q Okay. So we've got input signals, IN1,	09:19:11
9	IN2, IN4, and then we have got the voltages of	09:19:17
10	nodes within the circuitry V11, V12, and V13; is	09:19:21
11	that right?	09:19:26
12	A Yes, that is my understanding of how	09:19:26
13	Kimura works. And the circuitry on the next page	09:19:31
14	shows nodes 11, 12 and 13 as labeled by Kimura.	09:19:35
15	Q And so if we look, for example, at V12, we	09:19:38
16	see here sort of a square waveform where there is	09:19:49
17	a low and then it goes up to high back down to low	09:19:53
18	and sort of repeats. Do you -- do you see that?	09:19:58
19	A Yes, that is what the behavior in this	09:20:00
20	timing diagram of the voltage at node 12.	09:20:03
21	Q Okay. And so if we look, for example, in	09:20:06
22	that first time period, which is labeled time	09:20:09

1 period B, we see V12 low, so that would be a logic
2 low; is that correct?

3 A It is an internal voltage. The logic
4 levels only really matter at the output. So I
5 don't know if I would characterize that
6 necessarily as being -- it doesn't have to be the
7 exact logic low value, but it is certainly the
8 node can take on a high value and a low value,
9 which reflects some sort of a logic value.

10 Q Okay. So for the -- for the voluntary
11 voltage of the node here we would say that it is a
12 low level but it may not be, as you put it, the
13 exact logic low for the -- for the output of the
14 circuit; is that -- is that accurate?

15 A That may be the case, because as I said
16 the logic level, exact logic levels really only
17 matter for the output.

18 Q So then if we look at GOUT, if we look at
19 the time period labeled D, there would be a high
20 -- a logic high output in period D. Do I have
21 that correct?

22 A That appears to be the case, yes.

09:20:13

09:20:19

09:20:23

09:20:26

09:20:30

09:20:31

09:20:33

09:20:38

09:20:40

09:20:43

09:20:46

09:20:48

09:20:50

09:20:54

09:20:56

09:20:58

09:21:02

09:21:04

09:21:09

09:21:14

09:21:17

09:21:18

1 Q Okay. So if we look then at paragraph
2 160, you're discussing figure 27C in that
3 paragraph, right?

4 A That is correct. That is the circuit that
5 I was analyzing here.

6 Q Right. And that is the circuit that you
7 primarily rely on for your analysis of the
8 independent claims; is that correct?

9 A That is the -- that is -- I believe that
10 is correct, yes. I would have to review to be
11 sure, but that was certainly the primary
12 embodiment that I focused on in my declaration.

13 Q And you agree that Kimura doesn't provide
14 a timing chart that is specific to the circuitry
15 of figure 27C, right?

16 A He doesn't provide one specifically, but
17 27C is a derivative of the circuitry he has
18 associated with the figure 21B timing diagram, so
19 it seemed appropriate to use it.

20 Q Okay. So in your opinion, the circuitry
21 of 27C would be supplied with the same timing that
22 is shown in figure 21B; is that right?

1	MR. HERMAN: Objection, form.	09:22:36
2	A It could be used that way to do the	09:22:38
3	functionalities in the same way since it is	09:22:41
4	basically the same circuit with just the	09:22:43
5	modifications made to it.	09:22:45
6	Q And in fact, you say in paragraph 160, it	09:22:48
7	is readily comprehensible and would so be	09:22:52
8	understood by a POSITA that this circuitry of	09:22:55
9	figure 27C would be supplied with input signals in	09:22:57
10	the same manner and with the same timing with	09:23:00
11	reference to figure 21B; is that right?	09:23:03
12	A I have to go read that. It was on the	09:23:07
13	previous page, so I was looking and didn't see	09:23:10
14	what you just said. Please give me a moment to	09:23:12
15	read that.	09:23:14
16	Q Certainly.	09:23:14
17	A Yes, that is what I did say there in the	09:23:24
18	previous page of paragraph 160.	09:23:25
19	Q So let's go down a couple of paragraphs to	09:23:29
20	paragraph 166. Will you let me know when you are	09:23:38
21	there?	09:23:54
22	A Oh, I'm sorry, I am there and I was just	09:23:54

1	looking at that preemptively, sorry.	09:23:57
2	Q Certainly. So here is where you begin	09:23:59
3	providing your analysis of claim limitation 1B,	09:24:02
4	right?	09:24:07
5	A Yes, that is the analysis of that claim	09:24:07
6	element.	09:24:11
7	Q And recognizing that we're shorthanding	09:24:12
8	the language here a little bit, can we refer to	09:24:15
9	that limitation 1B as the first driver limitation?	09:24:18
10	A I think that will work, that should be	09:24:27
11	fine.	09:24:30
12	Q Thank you. So if we go now to paragraph	09:24:30
13	171, in paragraph 171 you identify the elements	09:24:42
14	that comprise the first driver, right?	09:25:00
15	A That is correct. They're highlighted in	09:25:08
16	the blue boxing here.	09:25:12
17	Q And within that blue boxing, you have	09:25:13
18	identified a number of transistors?	09:25:16
19	A Yes, I believe four transistors are	09:25:22
20	included in that so labeled first driver.	09:25:24
21	Q And so those are 205, transistor 205,	09:25:27
22	transistor 206, transistor 207, and transistor	09:25:34

1 204. Did I get all of them?

09:25:40

2 A I believe you did. I believe those are
3 the four that I mentioned a moment ago.

09:25:44

09:25:46

4 Q And then in the -- in the top left of the
5 annotated figure you have identified the third
6 input terminal in purple and you have identified
7 wiring 112; is that correct?

09:25:50

09:25:54

09:25:57

09:26:01

8 A I've identified the third input terminal,
9 which goes to what Kimura has labeled as wiring
10 112.

09:26:03

09:26:09

09:26:13

11 Q And if we look at wiring 112, it is
12 connected to the gate of transistor 204, right?

09:26:17

09:26:21

13 A That appears to be the case, yes.

09:26:29

14 Q And of the four transistors that we were
15 discussing that you have identified on the first
16 driver, transistor 204 is the only one of those
17 four that has its gate connected to wiring 112,
18 right?

09:26:31

09:26:37

09:26:39

09:26:45

09:26:50

19 A That appears to be the case, yes.

09:26:50

20 Q I want to keep discussing this transistor
21 204 a little bit if we can move now to paragraph
22 175. There you say the structure also includes

09:26:54

09:27:02

09:27:07

1	yet another transistor, transistor 204.	09:27:19
2	Do you see that?	09:27:23
3	A Yes, I do.	09:27:24
4	Q Okay. And then in paragraph 175 you have	09:27:27
5	got an annotated version of figure 27C and, then	09:27:32
6	just below that the first new full sentence	09:27:37
7	starts, this transistor 204 allows the potential	09:27:42
8	of the node 13 to be lowered to prevent dielectric	09:27:46
9	breakdown or deterioration of transistors	09:27:51
10	connected to the node.	09:27:54
11	Do you see that?	09:27:55
12	A Yes, I see that and I'm quoting Kimura to	09:27:56
13	that effect, hence, the quotation marks.	09:28:04
14	Q And your citation there is Id, right?	09:28:07
15	A The citation after the figure refers to	09:28:12
16	the figure and there is some reference above the	09:28:19
17	figure to particular paragraphs in Kimura.	09:28:22
18	Q Right. So you were -- you were	09:28:25
19	referencing back to paragraphs 285 and 286 of	09:28:26
20	Kimura; is that right?	09:28:31
21	A That appears to be the case, yes.	09:28:33
22	Q Okay. Let's -- let's look at those	09:28:34

1	quickly.	09:28:37
2	So if we can pull up Exhibit 1004, which	09:28:38
3	is Kimura, go to paragraph 285.	09:28:41
4	A And I extracted the page from the binder	09:29:05
5	with those paragraphs I think, hang on a moment.	09:29:06
6	Q You are living dangerously. I wouldn't be	09:29:13
7	able to keep individual looseleaf safe and	09:29:15
8	organized.	09:29:17
9	A We will take the chance. This binder is	09:29:18
10	too big. If I drop it on the desk it may break	09:29:20
11	the camera and we would be done, so let's see.	09:29:23
12	Sorry, I had the wrong page. Now I have the pages	09:29:31
13	for 285 -- that have 285 and 286 on paper copy, if	09:29:34
14	that makes my life easier.	09:29:38
15	Q Okay. Now, the language that you were	09:29:39
16	referencing about lowering the potential of the	09:29:44
17	node to prevent breakdown or deterioration, that	09:29:50
18	comes out of paragraph 286, right?	09:29:54
19	A That appears to be the case, yes.	09:29:57
20	Q Okay. And if we read that in its entirety	09:30:00
21	it says, thus -- I'm reading about halfway through	09:30:04
22	paragraph 286, thus in a period D, the potential	09:30:09

1 of the node 13 can be lowered, therefore,

09:30:13

2 dielectric breakdown or deterioration of

09:30:17

3 transistor connected to the node 13, e.g., the

09:30:22

4 transistor 102, the transistor 203, the transistor

09:30:24

5 205 or the transistor 206 can be prevented.

09:30:28

6 Did I -- did I get that right?

09:30:31

7 A I believe you did. If there is any

09:30:33

8 problems with that obviously your reading could be

09:30:35

9 compared against the document, but I read along

09:30:38

10 with you. I believe you were correct.

09:30:41

11 Q Right. So Kimura is discussing the

09:30:43

12 specific period D when the potential of the node

09:30:46

13 13 can be lowered; right?

09:30:50

14 A That is what he specifically says, yes.

09:30:51

15 Q And that is what you cite for the

09:30:56

16 proposition that that transistor 204 can operate

09:31:00

17 to lower the potential of node 13, right?

09:31:06

18 A Yes, that is correct.

09:31:10

19 Q So let's turn back now to the timing

09:31:13

20 diagram we were looking at in figure 21B of

09:31:23

21 Kimura.

09:31:26

22 It will be at the top of the document with

09:31:38

1	the figures.	09:31:54
2	A Unfortunately some of these figure numbers	09:31:58
3	as we just found out don't appear in the search.	09:32:00
4	Q Yeah, they don't OCR correctly.	09:32:04
5	A Sometimes they do, sometimes they don't.	09:32:06
6	Q Okay. So looking at figure 21B, one of	09:32:08
7	the voltages that is listed here, one of the	09:32:23
8	voltage of the nodes that we were just discussing	09:32:27
9	a moment ago is V13.	09:32:29
10	Do you see that?	09:32:34
11	A I see that, yes.	09:32:34
12	Q And so that would be the voltage or the	09:32:37
13	potential of node 13, right?	09:32:41
14	MR. HERMAN: Objection, form.	09:32:46
15	A That is my understanding, yes.	09:32:47
16	Q And so if we look down at the bottom of	09:32:49
17	figure 21B, there is only one time period labeled	09:32:57
18	as time period D, right?	09:33:04
19	A That is correct.	09:33:05
20	Q And in time period D here, V13 is not	09:33:07
21	shown to be at a low potential, right?	09:33:17
22	MR. HERMAN: Objection, form.	09:33:23

1 A Node V13 as shown in the -- as this --
2 this output, this node here refers to figure --
3 the figure 21A circuit up above. And in this
4 case, because it doesn't have that transistor, the
5 output bootstraps back to that node and raises the
6 voltage, which is why Kimura made the
7 modifications to figure 27 to prevent that from
8 happening.

9 Q Okay. Well, we will get there, but my
10 question is just in 21B, you will agree with me
11 that during time period D the voltage of node 13
12 is shown to be high, right?

13 A It is shown to be in this case high and
14 higher.

15 Q In fact, in period D it is shown to be the
16 highest at any point in operation in the circuit,
17 right?

18 A In the operation of the figure 21
19 transistor, yes.

20 Q And 21B is the timing diagram that -- that
21 you rely on in your declaration, correct?

22 A As I said in my declaration, I relied on

1 it for the inputs, because 27C is a modification
2 of the 21A circuit, and so I relied on the inputs.

3 Q And this -- this figure does not reflect
4 the lowered potential that you cited in -- in your
5 analysis of limitation 1A, right?

6 A Yes. My analysis of limitation -- is it
7 1A or 1B? I thought we were talking about 1B
8 actually.

9 Q I apologize, I believe we were talking
10 about 1B, the first driver?

11 A The first driver is 1B, sorry.

12 Sorry, could you repeat the question then
13 I got lost there on that confusion.

14 Q Sure. So in your analysis of limitation
15 1B, you reference a lowered potential of node 13,
16 right?

17 A Yes, with respect to the circuitry of
18 figure 27C.

19 Q And this figure 21B does not show a
20 lowered potential of node 13 during time period D,
21 correct?

22 MR. HERMAN: Objection, form.

1 A I will agree that to the extent that it
2 shows that for the behavior -- the voltages below
3 are the behavior of the circuit above. And that
4 behavior would not be there in figure 27C
5 circuitry. It just does not show an explicit
6 diagram showing the internal voltages like this
7 for 27C.

8 Q So you would have to change this timing
9 diagram in order to show what the timings of the
10 figure 27C circuit would look like, right?

11 MR. HERMAN: Objection to form.

12 A Not the inputs. As I said in my
13 declaration, I used this because it is essentially
14 the same circuit to be run in the same way I use
15 the inputs. The voltages are results, and so he
16 actually modifies 27C to prevent what we're
17 looking at from happening. He doesn't show a
18 diagram, but he verbally states so.

19 Q If we look at paragraph 160 of your
20 declaration again.

21 A Sorry, I'm looking at that now. I see it
22 is scrolling up, too, but I'm looking at that.

1 Q You don't -- you don't explain any of what 09:36:43
2 you just explained to me when you are describing 09:36:44
3 your reliance on figure 21B, right? 09:36:48

4 MR. HERMAN: Objection to form. 09:36:54

5 A Well, I say at the -- right at the bottom 09:36:55
6 of the page there I say that it is readily 09:37:00
7 comprehensible that the circuitry would be 09:37:04
8 supplied with input signals in the same manner and 09:37:06
9 with the same timing. That is what I was 09:37:08
10 referring to. 09:37:10

11 Q So you're only taking effectively the top 09:37:11
12 half of figure 21B and applying that to the figure 09:37:15
13 27C circuit; is that right? 09:37:19

14 A Yes, because those are inputs. The other 09:37:21
15 ones are internal results shall we say, the 09:37:25
16 voltages. The internal nodes respond to the 09:37:29
17 inputs for the particular circuit. And Kimura 09:37:31
18 modifies this circuit to address the problem we 09:37:36
19 were just discussing, but the circuit would use 09:37:38
20 the same inputs and be run in the same way. 09:37:42

21 Q And how do you know that? 09:37:45

22 A Well, because Kimura discusses as we just 09:37:52

1 were looking at modifying the 21A circuit to 09:37:56
2 address the problem we just discussed by making 09:38:00
3 the modification that leads to 27C. So otherwise 09:38:02
4 I would assume the circuit would be operated in 09:38:05
5 the same way. 09:38:07

6 Q So you assumed that the circuit would be 09:38:10
7 operated in the same way after this modification? 09:38:12

8 MR. HERMAN: Objection, form. 09:38:16

9 A Well, again, Kimura says he's modifying 09:38:17
10 the circuit to address the problem we just 09:38:20
11 discussed of a possible dielectric breakdown and 09:38:23
12 deterioration of the transistor. And other than 09:38:26
13 that, he is trying to use the same inputs to 09:38:29
14 produce the same outputs, so it seems like it is a 09:38:32
15 reasonable assumption to make. 09:38:34

16 Q Kimura never provides a full-timing 09:38:36
17 diagram for the figure 27C circuit that would 09:38:42
18 reflect this lower potential, correct? 09:38:44

19 A He does not provide an explicit diagram 09:38:47
20 showing the internal node voltages. He just 09:38:52
21 addresses that verbally for that one particular 09:38:54
22 node. 09:38:56

1 Q By "verbally" you mean within the 09:38:56
2 paragraph 286 we were looking at? 09:39:01

3 A Sorry, that is -- essentially that is what 09:39:03
4 I meant. That he describes the quota we had 09:39:06
5 earlier about addressing the overvoltage that 09:39:08
6 appears in that node in the 21A embodiment. And 09:39:12
7 he, therefore, is making that modification to 09:39:16
8 prevent the bootstrapping of node 13 and prevent 09:39:19
9 that voltage from going as high as that, which is 09:39:22
10 what would cause -- it is well-known in the art 09:39:25
11 that excessive voltage could cause dielectric 09:39:27
12 breakdown, it could cause transistor 09:39:30
13 deterioration. 09:39:32

14 Q Where does Kimura say that it doesn't 09:39:33
15 change the inputs from the figure 21A circuit to 09:39:49
16 the 27C circuit? 09:39:59

17 MR. HERMAN: Objection, form. 09:40:05

18 A I don't -- 09:40:05

19 THE WITNESS: Go ahead, Patrick, sorry, I 09:40:08
20 stepped on you. 09:40:10

21 MR. HERMAN: Objection, form. 09:40:11

22 A Sorry about that. 09:40:13

1 I don't believe. He may say that 09:40:13
2 explicitly, but it is basically the same circuit 09:40:15
3 and he makes a modification to it. The circuit is 09:40:18
4 intended to function in the same way other than 09:40:21
5 that problem internally that he addresses. So he 09:40:23
6 figures that -- he addresses that problem and 09:40:26
7 would use the circuit in the same way. That seems 09:40:28
8 like a reasonable assumption. 09:40:31

9 Q So you said it is intended to operate in 09:40:33
10 the same way other than the way that it is 09:40:37
11 modified. Did I hear that correctly? 09:40:40

12 A The modification addresses that 09:40:44
13 overvoltage, otherwise you are trying to do the 09:40:47
14 same inputs to produce the same outputs from the 09:40:48
15 same sort of circuit. 09:40:51

16 Q But again, that is an assumption, right? 09:40:52
17 Kimura -- you just told me Kimura doesn't tell you 09:40:54
18 that it is using the same inputs? 09:40:56

19 MR. HERMAN: Objection, form. 09:40:59

20 A I would have to review Kimura to see 09:41:02
21 exactly what he says there, but he certainly 09:41:04
22 doesn't provide a full diagram like 21B. But 09:41:08

1 again, since it is -- he is taking 21B and 09:41:12
2 addressing this overvoltage problem at one node, 09:41:16
3 otherwise it seems reasonable to assume since he 09:41:19
4 does not provide a timing diagram, in fact, that 09:41:23
5 tends to indicate that the circuit is being used, 09:41:25
6 would be used in the same way in his teachings 09:41:27
7 with the same inputs. 09:41:30

8 Q Could you -- could you point me to a 09:41:31
9 passage or passages in Kimura that support that 09:41:35
10 assumption that you are making? 09:41:38

11 A Well, probably the best support for off 09:41:44
12 the cuff here is the beginning of 285 where he 09:41:55
13 just refers to all these structures including 21A, 09:41:58
14 and et cetera, et cetera. And then he says that 09:42:01
15 in the next paragraph 286, he says, 11C is 09:42:05
16 addressing a problem. This -- this bootstrapping, 09:42:10
17 the output bootstraps the floating node to a 09:42:14
18 higher voltage. 09:42:18

19 Q Did you say 11C? I'm trying to follow 09:42:19
20 along. 09:42:22

21 A I don't know if I said 11C. If I did, I 09:42:22
22 don't know where that came from, let me try again. 09:42:26

1 He addresses at the beginning of paragraph
2 285 a variety of embodiments. He has a list there
3 that includes 21A. And he does go into 286. He
4 refers to the change he makes to 27C with that to
5 the -- he makes a slight change to prevent the
6 output from bootstrapping the floating node 13 by
7 actually connecting the node to something that
8 prevents the bootstrapping.

9 So he lists a large number there including
10 21A. And so this would indicate that it is a
11 general timing diagram that applies for the inputs
12 to more than just the 21A embodiment. And since
13 he's talking about the same type of circuits
14 throughout these staged circuits, that seems like
15 a reasonable assumption to make.

16 Q And you say that he's talking about the
17 same types of stage circuits, but there is a
18 number of different figures listed here in the top
19 of 2 -- paragraph 285 that you just referenced,
20 right?

21 A Yes. Those are all -- there is a number
22 of embodiments, but the embodiments here as far as

1 I can tell are all involving staged circuits, at 09:43:45
2 least the ones I looked at which are intended to 09:43:48
3 basically do the same sort of thing. 09:43:51

4 Q But Kimura discusses various conditional 09:43:52
5 modifications to different embodiments, right? I 09:43:57
6 mean, even just from what we're looking at here, 09:44:02
7 you know, in 285 the first terminal of the 09:44:03
8 transistor 204 can be connected to a wiring which 09:44:05
9 is different from the wiring 115. 09:44:08

10 So these embodiments are varied and 09:44:10
11 describe different modifications, so how do you 09:44:14
12 know that what he's talking about in 285 refers 09:44:18
13 specifically to the 27C circuit he relied on? 09:44:21

14 MR. HERMAN: Objection, form. 09:44:24

15 A Well, first of all, he lists all of those 09:44:25
16 things and then he proceeds in paragraph 286 to 09:44:30
17 discuss 27C explicitly. And so these are all -- 09:44:33
18 appear to be birds of the same feather. 09:44:37

19 Q So you assume that because they're all 09:44:40
20 staged circuits, that they must refer to the same 09:44:42
21 input timings anyway? 09:44:46

22 MR. HERMAN: Objection, form. 09:44:49

1 A Well, there is a general response to that,
2 that since it is a staged circuit, you are going
3 to be wanting to run them in the same way. And
4 again, 27C is a modification of 21A. And so
5 otherwise he's modifying it to just address one
6 issue in 21A. And so otherwise, there is no -- no
7 reason to assume that he would be using it
8 differently as a staged circuit.

9 Q But the addition of transistor 204
10 isn't -- isn't the only modification as between
11 21A and 27C, right?

12 A I would agree topologically it is not the
13 only modification, but the architecture is clearly
14 the same.

15 Q When you say the architecture is clearly
16 the same, can you explain what you mean?

17 A They're both staged circuits, which are
18 designed to have multiple inputs controlling
19 drivers that are to produce the output as a first
20 scan signal, which is basically what all of
21 Kimora's embodiments are about.

22 Q So again, because it is a staged circuit,

09:44:51

09:44:54

09:44:57

09:44:59

09:45:05

09:45:07

09:45:12

09:45:15

09:45:16

09:45:20

09:45:24

09:45:28

09:46:16

09:46:20

09:46:20

09:46:23

09:46:25

09:46:48

09:46:52

09:46:56

09:46:59

09:47:02

1 these are all interchangeable embodiments?

09:47:04

2 MR. HERMAN: Objection, form.

09:47:09

3 A Well, there is some differences. The
4 basic input/output functionality should be the
5 same across all of them.

09:47:10

09:47:22

09:47:25

6 Q By that you mean the output will either
7 output a logic high or a logic low?

09:47:29

09:47:33

8 A That is the function that a staged circuit
9 provides.

09:47:36

09:47:38

10 Q But if we look as between figure 21A, the
11 circuit in 21A and the figure -- or the circuit in
12 27C, there are various different inputs that in
13 the figure 27C circuit that are not shown in 21A,
14 right?

09:47:40

09:47:43

09:47:46

09:47:53

09:47:59

15 A There are some other additions from 21A to
16 27C. As far as I can tell, everything that is in
17 21A is in 27C. And there are various additions
18 including the discussion we just had of the
19 architecture that prevents the bootstrapping to a
20 very high voltage of node 13.

09:47:59

09:48:10

09:48:14

09:48:18

09:48:22

09:48:26

21 Q And that also includes an additional input
22 signal 213, right?

09:48:29

09:48:32

1	A That appears to be the case, yes.	09:48:34
2	Q And a number of additional transistors,	09:48:40
3	right?	09:48:45
4	A Yes, there are some additions, but as far	09:48:45
5	as I can tell there are no subtractions.	09:48:49
6	Q So again, I can't remember, I apologize if	09:48:53
7	I -- if you already answered this, but did you	09:48:59
8	point me to a place where Kimura says that figure	09:49:02
9	27C is a modification of figure 21A?	09:49:06
10	A I thought I did. I don't know if I can	09:49:10
11	find it again. I quoted something.	09:49:21
12	Q I think you were in paragraph 285, but I'm	09:49:24
13	not sure that says that 27C is a modification of	09:49:26
14	21A.	09:49:32
15	A Please give me a moment, my binder got a	09:49:54
16	little screwed up.	09:49:57
17	Q Please take your time.	09:49:58
18	A I have my paper copy of 285 now.	09:50:07
19	Well, again, what I cited before I believe	09:50:16
20	when you did ask me this question, and I don't	09:50:18
21	have the transcript, so I can't go back and reread	09:50:21
22	it, so hopefully what I say again won't conflict	09:50:24

1	with that.	09:50:27
2	In 285 he describes a whole bunch of	09:50:28
3	embodiments. He has a long list and describes	09:50:32
4	some things about them. Then he specifically says	09:50:35
5	for 27C that he makes the modification to deal	09:50:37
6	with that bootstrapping of the voltage on node 13,	09:50:44
7	which would -- which could be the problem he	09:50:48
8	lists. And so that is the main modification he	09:50:52
9	adds to 27C to the prior discussions of various	09:50:56
10	circuits.	09:50:59
11	Q But in paragraph 286 where he discusses	09:51:02
12	the modification in figure 27C, it doesn't	09:51:05
13	reference 21A at all, right?	09:51:08
14	A Not explicitly, no.	09:51:11
15	MR. HERMAN: Objection, form.	09:51:14
16	A Sorry, Patrick.	09:51:17
17	My answer after the objection is still not	09:51:19
18	explicitly, no.	09:51:21
19	Q It seems to reference actually figure 27A,	09:51:22
20	right, with respect to the change, right?	09:51:27
21	A That is the lineage he gives, but this	09:51:34
22	clearly also points back to 21A in terms of the	09:51:55

1 architecture. And again, since he doesn't have 09:51:59
2 everything I said earlier about using that timing 09:52:01
3 diagram is still valid because there is a 09:52:04
4 progression through all of these embodiments of 09:52:08
5 the same sort of circuitry that would be run in 09:52:11
6 the same way be that 21A, 27A or 27C. 09:52:14

7 Q Okay. But my question was that when in 09:52:19
8 286 Kimura is discussing the modification that is 09:52:23
9 being, you know, discussed for -- for the figure 09:52:26
10 27C circuit, that modification is not provided 09:52:29
11 with reference to figure -- the circuit in figure 09:52:33
12 21A, right? 09:52:35

13 MR. HERMAN: Objection, form. 09:52:37

14 A He, again, he does not explicitly say 09:52:38
15 that, but his flow goes through from 1 -- from all 09:52:41
16 those circuits in his -- in his list above. 09:52:45

17 Q And in fact, the only circuit that Kimura 09:52:48
18 references with respect to that modification is a 09:52:53
19 change with respect to figure 27A, right? 09:52:56

20 MR. HERMAN: Objection, form. 09:52:59

21 A That is what he explicitly says in 286 and 09:53:01
22 again 285 at the beginning shows his general group 09:53:04

1 of embodiments, which includes 21A and 27A of
2 course.

3 Q Okay. But there is no explicit discussion
4 anywhere in Kimura that 27C is a modification of
5 21A, right?

6 MR. HERMAN: Objection, form.

7 A The modification he makes in 27C could be
8 made to either 21A or 27A. It is the same sort of
9 modification. And again, that is why the timing
10 diagram that is associated with 21A is more
11 general than just for the 21A in terms of the
12 inputs.

13 Q Okay. But you told me a moment ago that
14 he doesn't expressly say anywhere that the 27C
15 modification is a -- is a modification to the 21A
16 circuit, right?

17 MR. HERMAN: Objection, form.

18 A He doesn't say so explicitly, but again,
19 as someone reading this such as a POSA would be
20 able to look at 21A and 27A and see that the same
21 situation is being addressed in both of them in
22 terms of why the changes for 27C are being made to

09:53:07

09:53:13

09:53:13

09:53:17

09:53:22

09:53:24

09:53:27

09:53:33

09:53:38

09:53:42

09:53:45

09:53:48

09:53:52

09:53:54

09:53:58

09:54:03

09:54:04

09:54:06

09:54:10

09:54:13

09:54:18

09:54:21

1 deal with the problem that Kimura discusses with
2 regard to why he's made the 27C modification.

3 Q But again, that is not -- Kimura never
4 says that?

5 MR. HERMAN: Objection, form.

6 A He does not explicitly say it, but it
7 seems fairly obvious that since it is the same
8 situation he's addressing in 27A as he did in 21A,
9 that the timing -- it is an issue of what -- he
10 doesn't provide an input diagram for 27C. And the
11 modification he makes to 27A is -- could also be
12 made to 21A, which is the same sort of circuit.

13 And so all of these embodiments are -- one
14 can easily assume that they're being run off the
15 same -- would be run off the same input timing
16 diagram. That is all I'm trying to say.

17 Q I think we've been going for about an
18 hour. It is a little early, but I could actually
19 use a break, so could we take a quick break?

20 A Sure.

21 Q 10 minutes, or what do folks need?

22 A 10 is fine for me. If we want to discuss

1	that on the record or off the record.	09:55:50
2	VIDEOGRAPHER: We are going off the	09:55:52
3	record. The time is 9:55 a.m.	09:55:54
4	(Recess, 9:55 to 10:06 a.m.)	09:55:55
5	VIDEOGRAPHER: We are going back on the	10:06:45
6	record. The time is 10:06 a.m.	10:06:49
7	Q Let's go now to paragraph 362 of your	10:06:51
8	declaration.	10:07:05
9	A I have found that in my paper copy.	10:07:15
10	Q Great. You are ahead of me.	10:07:18
11	A At least these numbers are searchable,	10:07:22
12	that should make it easier.	10:07:25
13	Q So looking here at paragraph 362, this is	10:07:27
14	where your -- you start providing your opinions	10:07:36
15	with respect to the Shin and Sasaki references,	10:07:39
16	right?	10:07:44
17	A Yes, that is where Ground 2 discussion	10:07:44
18	begins.	10:07:49
19	Q So if we can quickly bring up -- I think	10:07:49
20	it is Exhibit 105 or 1005, I apologize.	10:07:58
21	(Exhibit 1005 discussed.)	10:08:06
22	Q If we could also get it in chat, that	10:08:09

1	would be great for those following along.	10:08:18
2	Is this Exhibit 1005, is this the Shin	10:08:20
3	reference that you referred to in your	10:08:32
4	declaration?	10:08:34
5	A That is the Shin reference and it appears	10:08:36
6	to match the paper copy I have in the binder on	10:08:39
7	the chair to my right.	10:08:42
8	Q Great. And so you will understand if I	10:08:43
9	refer to Exhibit 1005 as Shin, you will understand	10:08:48
10	what I'm talking about?	10:08:51
11	A Yes, I believe I will.	10:08:53
12	Q Now, let's pull up -- drop in the chat	10:08:57
13	Exhibit 1014, which should be Sasaki.	10:09:00
14	(Exhibit 1014 marked.)	10:09:17
15	Q Dr. Sasaki, is this the Sasaki reference	10:09:19
16	you referred to in your declaration?	10:09:23
17	A It appears to be so. And once again this	10:09:24
18	verifies with the paper copy I have in the binding	10:09:26
19	on the chair on my right.	10:09:29
20	Q So I can also refer to Exhibit 1014 today	10:09:31
21	as Sasaki?	10:09:34
22	A That should be fine. And hopefully we	10:09:36

1 won't -- neither of us will get the two confused. 10:09:38

2 Q All right. So if we now turn back to your 10:09:41
3 declaration and go to paragraph 371, are you with 10:09:47
4 me? 10:10:04

5 A I have it in the binder to my left, which 10:10:05
6 is my declaration, I have paragraph 371 in front 10:10:07
7 of me and it is also on the screen here. 10:10:12

8 Q Okay. And there you say that Sasaki's 10:10:14
9 disclosed circuitry includes transistors with 10:10:18
10 gates connected to a control electrode. 10:10:22

11 Do you see that? 10:10:25

12 A Yes, I see that. 10:10:26

13 Q And then you continue, in the conventional 10:10:29
14 way, this allow the circuit to apply either a 10:10:32
15 logical high or logical low signal to an output 10:10:34
16 terminal. 10:10:37

17 So that is generally consistent with what 10:10:38
18 we were just talking about before with respect to 10:10:40
19 Kimura, right, providing a logic low or a logic 10:10:43
20 high signal to the output? 10:10:46

21 A Yes, that is, again, the function of the 10:10:47
22 shift register that gives you these in a -- in a 10:10:51

1	scan driver.	10:10:55
2	Q So then if we look at figure 4 of Sasaki,	10:10:56
3	which if it is easier you have it reproduced at	10:11:04
4	the top of page 155 of your declaration or you can	10:11:08
5	go to the source.	10:11:12
6	A You said figure 4, I believe.	10:11:15
7	Q Yes.	10:11:18
8	A I have it in here. I also just want to	10:11:19
9	pull it up in Sasaki as well in case I need it.	10:11:22
10	Q Sure.	10:11:25
11	A Okay. I have the figure 4 in my binder,	10:11:34
12	of course, it is not annotated, but in my	10:11:36
13	declaration there is the annotation added to it in	10:11:39
14	red.	10:11:42
15	Q Right. Okay. So looking at figure 4, it	10:11:42
16	is transistors T2 and T1 that are the transistors	10:11:47
17	you were referring to with gates connected to a	10:11:54
18	control electrode, right?	10:11:57
19	A Well, reading paragraph 371, I believe the	10:11:58
20	first part is -- basically is more general. You	10:12:19
21	have transistors with gates provide a control	10:12:22
22	electrode, that is basically how a field-effect	10:12:28

1 transistor works. And the second part refers to 10:12:30
2 the circuit functionality at the end being able to 10:12:33
3 output a logic high or a logic low. 10:12:36

4 Q Okay. Well, let's take it one step at a 10:12:40
5 time then. If we look at transistor T2, if 10:12:43
6 transistor T2 is on, that will allow VDD to go to 10:12:47
7 the output terminal, which is labeled out, has an 10:12:53
8 element 44 label as well; is that right? 10:12:58

9 A Well, I will agree with that within the 10:13:00
10 condition that the circuitry has a necessary 10:13:05
11 condition that when you do that transistor T1 is 10:13:07
12 supposed to be off, so you don't have a short from 10:13:12
13 VDD to someplace. So within that context, if T1 10:13:15
14 is off and T2 is on, then VDD will be supplied to 10:13:19
15 the output. I will agree within that, within the 10:13:24
16 context I just provided. 10:13:27

17 Q Okay. So if T1 is off, T2 is on, then VDD 10:13:28
18 will go out to the output terminal, right? 10:13:33

19 A That is the function of the logic of that 10:13:35
20 circuit, yes. 10:13:37

21 Q Okay. And VDD would be high, a high 10:13:38
22 signal, a logic high in that case; is that right? 10:13:42

1 A As described here that would be the 10:13:47
2 general expectation, yes. 10:13:49

3 Q Okay. And then similarly, let's assume 10:13:50
4 that T2 is off and T1 is on, that would allow the 10:13:57
5 signal of C1 to go out to the output terminal, 10:14:02
6 right? 10:14:06

7 A Yes. If T2 is off and T1 is on, then the 10:14:06
8 signal applied to C1 would be supplied to the 10:14:13
9 output. 10:14:16

10 Q Okay. If we look at figure 5 of Sasaki, 10:14:16
11 which again you have got reproduced down on page 10:14:24
12 156 of your report if that is easier, we've got a 10:14:27
13 -- this is another timing diagram, right? 10:14:34

14 A Yes. This appears to be the timing 10:14:37
15 diagram that Sasaki supplies with respect to at 10:14:42
16 least figure 4. 10:14:45

17 Q Okay. And like the timing diagram we were 10:14:46
18 looking at in Kimura on the left, we have got 10:14:48
19 some -- some signals or node voltages shown on the 10:14:51
20 left and certain time periods shown on the bottom; 10:14:56
21 is that right? 10:15:04

22 A Yes. It is similar to Kimura in that he 10:15:05

1	has -- at the top he has some input signals in	10:15:07
2	sort of the middle there, he has some voltage	10:15:10
3	behavior at the nodes as the circuit functions and	10:15:14
4	at the bottom he has the output signal.	10:15:15
5	Q If we look at C1, we see that C1 has	10:15:18
6	periods where it is low and periods where it is	10:15:25
7	high, right?	10:15:28
8	A Yes, that is correct.	10:15:32
9	Q And so depending on the timing and again	10:15:36
10	under the presumption you made or that you stated	10:15:43
11	that the T2 is off, the signal of C1 which could	10:15:46
12	be high or could be low, will pass through	10:15:51
13	transistor T1 to the output terminal, right?	10:15:53
14	A If T1 is on, then yes, the signal C1, the	10:16:00
15	clock signal, will be passed through transistor T1	10:16:04
16	to the output, that's correct.	10:16:09
17	Q And if we look at, for example, going back	10:16:09
18	to figure -- figure 5, the period between time T3	10:16:14
19	and time T4, the signal of C1 would be a low	10:16:20
20	signal, right?	10:16:27
21	A Yes, that is a low signal.	10:16:28
22	Q Okay. So now, let's -- now it probably	10:16:33

1 makes sense to look back at the annotated figure 10:16:45
2 at the top of figure 4 at the top of page 155 of 10:16:50
3 your report since that is where you have the 10:16:54
4 annotations. You have included in red boxing what 10:16:56
5 Sasaki refers to as its anti-reversal circuit, 10:17:03
6 right? 10:17:09

7 A Yes, I believe the red boxing in the quote 10:17:09
8 below does -- the red boxing reflects what the 10:17:12
9 quote below from Sasaki refers to that, to 10:17:15
10 transistor circuitry as being his anti-reversal 10:17:19
11 circuit. 10:17:23

12 Q And that is -- that is those transistors 10:17:23
13 T7 and T8, right? 10:17:26

14 A Yes. And again, that is what Sasaki names 10:17:28
15 them as the anti-reversal circuit. 10:17:35

16 Q Okay. And so Sasaki teaches that its 10:17:37
17 anti-reversal circuit is operated to keep 10:17:42
18 transistor T2 off at that period of time between 10:17:44
19 T3 and T4 that we were just looking at, right? 10:17:49

20 MR. HERMAN: Objection, form. 10:17:53

21 A I believe what you have just asked is 10:17:54
22 consistent with the description I provide in my 10:18:25

1 declaration, so I would say yes.

10:18:27

2 Q Okay. In fact that is -- that is what you
3 say in paragraph 378, right?

10:18:28

10:18:35

4 A Yes, that is what I was consulting during
5 the pause is I believe that that is what -- 378
6 essentially answers your question.

10:18:38

10:18:42

10:18:46

7 Q Okay. And so as you say here, Sasaki says
8 that without its anti-reversal circuitry, it is
9 possible for reversal to occur and that would
10 improperly supply the high signal from VDD to the
11 output, right?

10:18:48

10:18:55

10:19:03

10:19:08

10:19:12

12 A Yes, if two problems occur, one I
13 mentioned there is that if both T1 and T2 are on
14 at the same time, you have -- you would obviously
15 have a signal conflict.

10:19:12

10:19:22

10:19:26

10:19:29

16 The other problem, of course, is one which
17 is fairly obvious that I just mentioned. It is
18 hopefully obvious to a decent undergraduate
19 engineer is that if T2 and T1 are both on, you
20 could have a extremely high current, which could
21 be damaging, literally damaging to the circuitry.

10:19:31

10:19:33

10:19:35

10:19:37

10:19:40

10:19:43

22 Q With respect to the anti-reversal circuit,

10:19:48

1	Sasaki explains that you -- you would have, you	10:19:51
2	put in a signal conflict, a distorted output	10:19:55
3	waveform, right?	10:19:58
4	A Well, when you have -- when you are trying	10:20:00
5	to have a logic circuit, which is drawing its	10:20:02
6	logic level from one path which is typical if two	10:20:05
7	paths are both trying to feed different logic	10:20:08
8	signals to the same node, you are going to	10:20:13
9	certainly get a distorted waveform and that would	10:20:15
10	be the lucky outcome.	10:20:18
11	Q So Sasaki provides its anti-reversal	10:20:19
12	circuit to the node connected to the gate of T2,	10:20:25
13	right?	10:20:31
14	A Yes, T7 and T8 connected -- connect to	10:20:31
15	node 2, which connects to the gate of transistor	10:20:37
16	T2.	10:20:41
17	Q As we discussed a moment ago, transistor	10:20:41
18	T2 is the transistor through which the high signal	10:20:44
19	VDD can be provided to the output, right?	10:20:49
20	A Yes. The way the basic functionality	10:20:51
21	works is turn T2 -- T1 off, turn T2 on and you	10:20:55
22	provide VDD directly to the output.	10:21:00

1 Q Sasaki does not provide its anti-reversal
2 circuit to the node connected to the gate of T1,
3 right?

10:21:05

10:21:10

10:21:14

4 A It does not provide that to T1 as a -- as
5 an output from the anti-reversal circuit, that is
6 correct.

10:21:14

10:21:51

10:21:54

7 Q So let's -- let's look now at paragraph
8 382 of your declaration. And just for context
9 here you have started discussing the Shin
10 reference, right?

10:21:54

10:22:08

10:22:16

10:22:23

11 A Yes, this discusses the Shin reference
12 alone.

10:22:24

10:22:28

13 Q Okay. And you are describing the circuit
14 diagram of figure 11 of Shin as well as the timing
15 diagram of figure 12, right?

10:22:28

10:22:40

10:22:48

16 A I just wanted to make sure I had them in
17 the big binder of exhibits to my right, but figure
18 11 shows circuitry and figure 12 shows a timing
19 diagram, that's correct.

10:22:51

10:23:15

10:23:19

10:23:21

20 Q Okay. And if we look at the top of page
21 159 of your report, there you have annotated
22 versions of figures 11 and 12.

10:23:22

10:23:31

10:23:37

1	Do you see those?	10:23:39
2	A That is correct.	10:23:40
3	Q Okay.	10:23:42
4	A Sorry, the question was did I see it and	10:23:43
5	the answer is, yes, I do see it, I'm sorry.	10:23:45
6	Q And here you are looking at a particular	10:23:48
7	timing of the signal shown in figure 12 and	10:23:52
8	showing the operation of the circuit at that time	10:23:59
9	point with an annotated version of a circuit	10:24:02
10	diagram, right?	10:24:06
11	A I believe that's the case, yes.	10:24:07
12	Q Okay. And so at this period of time here,	10:24:10
13	we see that when transistor M5 is on, VDD goes out	10:24:16
14	to the output terminal, right?	10:24:25
15	A Yes, because these are PMOS when you have	10:24:27
16	a low signal applied to the gate of M5 that turns	10:24:32
17	the transistor on.	10:24:35
18	Q Okay. So in Shin's circuit, it is	10:24:36
19	transistor M5 that allows the high signal VDD to	10:24:43
20	go out to the output, right?	10:24:48
21	A That is correct, yes.	10:24:49
22	Q Okay. And then if we look -- I don't	10:24:51

1	think you have this annotated, but if we were to	10:24:57
2	assume now that M2 were on, that would allow clock	10:25:04
3	2 to go out to the output terminal, right?	10:25:13
4	A In and of itself if transistor M2 is	10:25:17
5	turned on, then the clock 2 signal will also be	10:25:30
6	provided to the output terminal.	10:25:32
7	Q So then --	10:25:35
8	A I should say -- let me rephrase that as I	10:25:36
9	was trying to be careful and I botched it.	10:25:38
10	Alone M2 -- turning M2 on will provide the	10:25:41
11	clock 2 signal to the output terminal, that is	10:25:44
12	what I was trying to say.	10:25:48
13	Q Okay. So it is -- it is transistor M2 in	10:25:49
14	Shin's circuitry that lets clock 2 pass to the	10:25:57
15	output terminal; right?	10:26:01
16	A Yes, that is the control element for that	10:26:02
17	functionality.	10:26:04
18	Q Okay. So now if we continue down to	10:26:06
19	paragraph 390 of your report, or your declaration,	10:26:11
20	I apologize, you have here a composite circuit	10:26:18
21	diagram that has the circuitry of Shin's figure 11	10:26:28
22	in black and then the circuitry from Sasaki that	10:26:35

1	you propose combining with Shin's circuit in red.	10:26:43
2	Do I have that right?	10:26:48
3	A I believe that you do, yes.	10:26:49
4	Q Okay. And in your declaration you explain	10:26:52
5	that this added circuitry from Sasaki which is	10:27:03
6	shown here in red, that ensures that the gate of	10:27:06
7	M2 does not go low when it shouldn't, right?	10:27:12
8	MR. HERMAN: Objection, form.	10:27:19
9	A Yes, the objection here is to make sure	10:27:20
10	the transistor 2 -- transistor M2 stays off.	10:27:24
11	Q Right. Okay. But as we were just	10:27:28
12	discussing, transistor M2 is not the transistor	10:27:32
13	that allows the high signal VDD to pass to the	10:27:37
14	output terminal, right?	10:27:42
15	A Transistor M5 passes the high signal to	10:27:43
16	the output when transistor M5 is turned on, that	10:27:51
17	is correct.	10:27:54
18	Q Okay. But you have applied Sasaki's	10:27:54
19	anti-reversal -- excuse me, anti-reversal	10:27:59
20	circuitry to the other transistor 2, M2, right?	10:28:02
21	A Yes, the purpose is to keep -- make sure	10:28:08
22	transistor M2 stays off when transistor M5 is on.	10:28:12

1 Q Let's move now to paragraph 595 of your
2 declaration. So here if we scroll up just a bit,
3 this is where you -- your opinions regarding the
4 Tobita reference begin, right?

5 A That is correct, Ground 4 Tobita alone
6 discussion, that's correct.

7 Q So let's quickly pull up Exhibit 1006.

8 (Exhibit 1006 discussed.)

9 Q There we are.

10 Is Exhibit 1006 the Tobita that you
11 reference in your declaration?

12 A That appears to be the case. And again, I
13 do have my paper -- clean paper copy of Tobita to
14 my right, in the binder on the chair to my right
15 here.

16 Q Okay. Can we refer to Exhibit 1006 as
17 Tobita?

18 A Again, because there is only one Tobita
19 reference that shouldn't be a problem.

20 Q Great. So let's go down now to paragraph
21 614. Here you are discussing the claim limitation
22 1B, which is the first driver limitation, right?

10:28:21

10:28:38

10:29:03

10:29:08

10:29:11

10:29:15

10:29:16

10:29:33

10:29:35

10:29:36

10:29:40

10:29:41

10:29:44

10:29:49

10:29:52

10:29:52

10:29:56

10:29:56

10:29:59

10:30:00

10:30:29

10:30:34

1 A Yes. And once again if you want to -- if
2 it makes your life easier to call that the first
3 driver claim element or claim limitation, I'm fine
4 with that.

5 Q Appreciate it. So as we previously
6 discussed and actually I think you use the same
7 color scheme, you have identified in figure 20 of
8 Tobita in blue boxing the elements that make up
9 the first driver, right?

10 A Yes, the same colors have been used
11 throughout hopefully for -- to ease the task.

12 Q So that -- included in the blue boxing are
13 a number of transistors. I will just list them,
14 Q3, Q4, Q5, Q18, Q19, Q20, Q21.

15 Did I -- did I get them all?

16 A I didn't follow that list, because it was
17 long, so I will just read what I think what --

18 Q Okay.

19 A -- I have here, just to make this -- if
20 they don't match up tell me, because I can't see
21 the -- you know, the transcript. Q, as in Quebec,
22 19, 21, 20, 18, 3, 4, and 5 are the transistors I

1	have labeled as being part of the first driver.	10:31:57
2	Q Thank you.	10:32:01
3	A Did it match your list by the way?	10:32:04
4	Q It did, yes.	10:32:06
5	A Great, I just wanted --	10:32:07
6	Q I started right to left, I think you may	10:32:08
7	have started left to right, but we hit the same	10:32:11
8	spot.	10:32:14
9	A As long as the lists match. I just want	10:32:14
10	to make sure we don't later someone is looking at	10:32:16
11	that and saying these guys are talking past each	10:32:18
12	other.	10:32:21
13	Q I always appreciate a clean record.	10:32:21
14	So if we -- if we look now at paragraph	10:32:24
15	617 of your declaration, here you are offering an	10:32:33
16	opinion as to how you believe the requirement that	10:32:41
17	the first driver controls the voltage of the	10:32:46
18	second node in accordance with the signal of the	10:32:48
19	second input terminal is met, right?	10:32:51
20	A Yes, that appears to be what I'm	10:32:57
21	discussing there.	10:32:59
22	Q Okay. And you have identified the second	10:33:00

1	input terminal here as CK2; is that right?	10:33:08
2	A Yes, just to make sure, this is	10:33:13
3	unfortunate the way Tobita and other people do it,	10:33:20
4	CK2 is the terminal and above it it refers to a	10:33:23
5	signal applied to it. So CK2 is the terminal that	10:33:26
6	is being referenced, although he does seem to --	10:33:32
7	okay. CK2 is -- is the second input terminal, of	10:33:35
8	course there is more than one instance where it	10:33:39
9	goes into the circuit in different places.	10:33:40
10	Q Right. And so just to clarify that, here	10:33:43
11	we're looking at figure 20, CK2 is -- is the input	10:33:48
12	terminal and then the /CLK would be the signal	10:33:51
13	provided to that terminal. Is that what you	10:33:57
14	are --	10:34:01
15	A That is just a clarification, because	10:34:02
16	everyone who has worked on this has stumbled	10:34:04
17	across this at some point and stumbled over it.	10:34:06
18	So CK2 is the terminal physiologies that were in	10:34:09
19	the anatomy, sorry, and the clock signal slash --	10:34:13
20	the /CLK is the physiology. It is the clock	10:34:17
21	signal that is being applied to that terminal.	10:34:21
22	Q Right. So that is why you say just below	10:34:23

1 the annotated figure here, this occurs when the
2 input signal parenthetically /CLK at the second
3 input terminal CK2 is pulled to a particular
4 voltage, right?

10:34:27

10:34:29

10:34:33

10:34:37

5 A Yes, that is correct, because I said
6 everyone who has worked on this -- this material
7 and some of these references has stumbled across
8 that difference between the terminal and the
9 signal.

10:34:38

10:34:40

10:34:43

10:34:45

10:34:46

10 Q Okay. And so if we look here at -- at the
11 annotation we see that the -- the signal of the
12 second input terminal, so the /CLK goes to the
13 gate of transistor Q19, and then we see the high
14 signal VDD, the high voltage VDD going down
15 through transistor Q19, right?

10:34:48

10:34:54

10:35:01

10:35:07

10:35:15

10:35:19

16 A Yes, that turns transistor Q19 on and so
17 the VDD is essentially supplied transparently
18 through Q19 to the wiring beyond Q19.

10:35:22

10:35:28

10:35:31

19 Q Okay. And that is -- that is what you
20 referred to when you say in paragraph 617, this
21 occurs when the input signal /CLK at the second
22 input terminal CK2 is pulled through a voltage

10:35:34

10:35:37

10:35:43

10:35:47

1	that causes transistor Q19 to turn on. This will	10:35:51
2	pull the node labeled N6 to the high, i.e., VDD	10:35:54
3	voltage level; is that right?	10:35:58
4	A Yes, that is correct. And I believe you	10:35:59
5	are just reading from below the figure there and	10:36:02
6	you read correctly.	10:36:04
7	Q Okay. And so Q19 there is controlling the	10:36:05
8	voltage of node N6, right?	10:36:11
9	A Q19 are the controls that supplies that	10:36:12
10	voltage to N6, however you would like to phrase	10:36:19
11	the terminology, but yes.	10:36:21
12	Q Okay. And then if we go down to the next	10:36:23
13	paragraph here you are discussing the requirement	10:36:28
14	that the first driver is able to control the	10:36:36
15	voltage of the second node in accordance with the	10:36:38
16	signal of the third input terminal, right?	10:36:41
17	A Yes, that is how 618 does begin as you	10:36:43
18	have it on the screen. And I do -- again, I have	10:36:50
19	that in my paper copy as well.	10:36:52
20	Q And here you have identified -- let me get	10:36:55
21	this right, CK1 as the third input terminal and	10:36:59
22	here CLK would be the signal of the third input	10:37:04

1	terminal, right?	10:37:10
2	A Well, as I say right below the figure	10:37:11
3	there, that the third input terminal is CK1, which	10:37:15
4	again, has more than one pin on this figure, but	10:37:19
5	it is all the same input terminal. And the signal	10:37:27
6	that is applied to it is, in this case, is the	10:37:29
7	signal CLK, the clock signal CLK.	10:37:32
8	Q Okay.	10:37:35
9	A By the way, if we could scroll down if	10:37:35
10	whoever has control of that, I think at this	10:37:38
11	point, thank you, because we get -- thank you,	10:37:40
12	that is what I was just discussing there below the	10:37:41
13	figure.	10:37:44
14	Q Okay. And of the transistors that you	10:37:44
15	have identified as part of the first driver,	10:37:48
16	transistor Q21 is the only one that has its gate	10:37:54
17	connected to the third input terminal, right?	10:38:01
18	A I was just examining it carefully and that	10:38:05
19	does appear to be the case, yes.	10:38:23
20	Q So if we -- if we look just a little below	10:38:25
21	the figure that is up on the screen in paragraph	10:38:38
22	618 there you say -- or down a little bit, below	10:38:41

1 the figure. Thank you, yeah.

10:38:48

2 There you say, this occurs when the input
3 signal CLK at the third input terminal CK1 is
4 pulled to a voltage that causes transistor Q2 to
5 turn on.

10:38:52

10:38:56

10:39:01

10:39:05

6 Do you see that?

10:39:07

7 A Yes, and that does appear to be a typo.

10:39:07

8 Q Okay. Well, you have anticipated my next
9 question. Based on the annotation should that Q2
10 be Q21?

10:39:21

10:39:23

10:39:27

11 A As far as I can tell, yes. Those two
12 instances there of Q2 should be Q21. That was a
13 typo that I did not notice and, as far as I can
14 tell, that is a typo. It should be Q21.

10:39:29

10:39:58

10:40:01

10:40:03

15 Q Okay. So continuing now with -- we will
16 try to fix the typo as we go, this causes the low
17 voltage level VSS to be passed through transistor
18 Q21 to the node labeled N6.

10:40:08

10:40:14

10:40:16

10:40:20

19 Do you see that?

10:40:25

20 A Yes, I see that. And again, with the
21 assumption, again, that this is a typo as I
22 believe it is, then that makes sense now.

10:40:25

10:40:28

10:40:31

1 Q Okay. And that is consistent with the 10:40:33
2 annotation that you have immediately above that 10:40:35
3 passage, right? 10:40:37

4 A That is correct, yes. 10:40:38

5 Q Okay. And so again here transistor Q21 is 10:40:39
6 controlling the voltage of the node N6, right? 10:40:45

7 A Yes. When Q21 is turned on and again 10:40:48
8 assuming the timing does not -- only has one of 10:40:55
9 the -- one of these things we just -- the previous 10:40:59
10 discussion is not operational, it is turned off, 10:41:00
11 then Q21 being turned on will pass the voltage VSS 10:41:04
12 to node 6 and node 6 -- and 6 will take on that 10:41:07
13 voltage. 10:41:11

14 Q Okay. And then continuing then you say 10:41:12
15 that that voltage will be passed to the gate of 10:41:18
16 transistor Q18, which causes transistor Q18 to be 10:41:21
17 turned off, right? 10:41:26

18 A Yes, that is correct. 10:41:27

19 Q So when Q18 turns off, then VSS won't go 10:41:29
20 up through transistor Q18, right? 10:41:41

21 A Well, actually if you can see there it is 10:41:45
22 just kind of very top there the lower part of Q18 10:41:48

1	is not connected to VSS, it is connected to S1.	10:41:53
2	So when Q18 is on, S1 will pass-through Q18 to	10:41:57
3	node 6. And when transistor Q18 is off, you will	10:42:01
4	not be able to pass the signal S1, whatever is at	10:42:08
5	S1 up to node 6.	10:42:12
6	Q Do you read this to say that the signal at	10:42:17
7	S1 is not VSS?	10:42:20
8	A I'm looking at the figure right now, and I	10:42:22
9	think it is reasonable to assume that it is. The	10:42:27
10	annotation may be a little -- as I don't see a	10:42:29
11	signal S1, I believe that is the case. It is just	10:43:09
12	the way -- the way Tobita has drawn this it can be	10:43:12
13	inferred that VSS is only applied to write to the	10:43:18
14	transistor Q8. But I think it is reasonable to	10:43:21
15	assume it should be in the middle and it should be	10:43:25
16	pointed to both of them.	10:43:26
17	Q Okay. Well, maybe we can do this specific	10:43:26
18	signal agnostic. If -- if Q18 is off, the signal	10:43:31
19	at S1 will not be provided through transistor Q18,	10:43:38
20	right?	10:43:44
21	A That is correct. When transistor Q18 is	10:43:44
22	off, it will block the node from whatever is at	10:43:48

1	S1.	10:43:52
2	Q But no longer providing a signal through	10:43:54
3	transistor Q18 will not of itself change the	10:43:59
4	voltage of the node on the other side of Q18,	10:44:05
5	right?	10:44:11
6	MR. HERMAN: Objection, form.	10:44:11
7	A Sorry, that was extremely convoluted, so I	10:44:12
8	kind of lost your train of thought there,	10:44:16
9	counselor.	10:44:17
10	Q Sure, let's break it down.	10:44:18
11	A Sure.	10:44:20
12	Q If we look at the figure here, you would	10:44:20
13	agree with me that there is a node N1, right?	10:44:23
14	A The label is off the page right now, but	10:44:30
15	from my paper copy I can see that--	10:44:38
16	Q Can we scroll up to have the figure?	10:44:40
17	A There we go, sorry.	10:44:42
18	Q Right there, perfect?	10:44:43
19	A That is perfect, thank you.	10:44:44
20	Q Okay. So I will repeat the question. You	10:44:47
21	will agree with me there is a node N1?	10:44:50
22	A Yes, there is a node N1 and we can see	10:44:53

1	what it is now.	10:44:55
2	Q And we were talking about one side of Q18	10:45:00
3	where we see the terminal S1, right?	10:45:02
4	A Yes, there is a terminal S1 connected to	10:45:04
5	the bottom of transistor Q18.	10:45:10
6	Q Right. And then the top of transistor Q18	10:45:12
7	is connected to node N1, right?	10:45:16
8	A That is correct.	10:45:18
9	Q Okay. So if transistor Q18 turns off,	10:45:19
10	then the signal of S1 will not be provided through	10:45:28
11	Q18, right?	10:45:33
12	A When Q18 is on, it will be; when Q18 is	10:45:34
13	off, it won't be. That is what a transistor in a	10:45:39
14	digital form does.	10:45:42
15	Q Absolutely. So when Q18 turns off and the	10:45:42
16	signal of S1 is no longer provided through Q18, no	10:45:47
17	longer providing that signal will not itself	10:45:52
18	change the voltage on node N1, right?	10:45:56
19	MR. HERMAN: Objection, form.	10:45:59
20	A Sorry, I was studying something. Could	10:46:00
21	you repeat the question, please, sorry.	10:46:34
22	Q Sure. If the signal of S1 is no longer	10:46:38

1	provided through Q18 to node N1, that alone will	10:46:44
2	not change the voltage on node N1, right?	10:46:51
3	A When Q18 is off, node 1's voltage will not	10:46:56
4	be affected at all by the signal at the bottom of	10:47:02
5	transistor 18. Again, that is what a digital	10:47:06
6	transistor form does, it will block that in the	10:47:09
7	off condition.	10:47:12
8	Q Let's go down quickly to -- let's see,	10:47:21
9	there we go, sorry, my feed was not working.	10:48:08
10	So I think I understand your answer, but	10:48:28
11	help me understand. The voltage on node N1 won't	10:48:32
12	change as a result of turning off transistor Q18,	10:48:35
13	right?	10:48:39
14	MR. HERMAN: Objection, form.	10:48:39
15	A Well, it will not change in response to	10:48:42
16	the signal from S1. It may be changed for other	10:48:45
17	reasons, of course, but the signal S1 will not	10:48:47
18	have any effect on the voltage on node 1 when	10:48:50
19	transistor Q18 is off.	10:48:53
20	Q And so let's assume that just prior to	10:48:55
21	turning transistor Q18 off there is no other	10:49:01
22	signal voltage applied to N1. And then let's say	10:49:06

1	the only thing that changes in the operation of	10:49:11
2	the circuit is the Q18 -- is the Q18 turns off;	10:49:13
3	okay? Are you following me?	10:49:20
4	A I'm following. You are adding other	10:49:21
5	circuit operations in here, of course.	10:49:23
6	Q Sure, but if we assume that nothing else	10:49:25
7	is impacting node N1, so node N1 is at a	10:49:27
8	particular potential, right?	10:49:31
9	A Okay.	10:49:32
10	Q And we turnoff Q18?	10:49:34
11	A Okay.	10:49:36
12	Q N1 may now be floating, right, if no	10:49:37
13	signal is being provided to the node, right?	10:49:45
14	A Well, if the node is not connected to a	10:49:47
15	rail to a fixed potential, then it would be	10:49:50
16	floating. That is what floating means.	10:49:53
17	Q Okay. And so but that won't change the	10:49:54
18	voltage on N1?	10:49:59
19	MR. HERMAN: Objection, form.	10:50:03
20	A Well, I will break my answer down into two	10:50:03
21	things. The first thing, again, is if you have an	10:50:08
22	ideal circuit and you have node 1 is floating, it	10:50:12

1 will retain its voltage. That may not happen for
2 other reasons. You could have leakage, you could
3 have some sort of, you know, signal integrity
4 issue. But in terms of Q18, if you turn Q18 off,
5 then the S -- whatever is at S1 at the bottom of
6 Q18 is disconnected from node 1 and will have no
7 effect there.

8 Q And so the operation there of Q18 and the
9 first driver will have no effect on the voltage of
10 node N1, right?

11 MR. HERMAN: Objection, form.

12 A Well, again, if you turn it off and within
13 the context of not having leakage, if it is an
14 ideal situation, then S1 will be isolated from N1
15 and will have no effect upon the voltage of node
16 1.

17 Q Let's move now to paragraph 622 of your
18 declaration. And I want to start about halfway
19 down the paragraph. Here it says, additionally
20 while I recognize that certain of transistors Q3
21 to Q5 and Q18 to Q21 do not directly provide
22 output to node N1 -- let's -- let's pause there.

10:50:16
10:50:19
10:50:24
10:50:26
10:50:31
10:50:36
10:50:40
10:50:40
10:50:45
10:50:52
10:50:54
10:50:55
10:50:58
10:51:00
10:51:05
10:51:08
10:51:08
10:51:53
10:52:13
10:52:18
10:52:21
10:52:26

1	What distinction do you make between	10:52:31
2	directly providing output and indirectly providing	10:52:37
3	output?	10:52:42
4	A What I've tried to explain there is it is	10:52:48
5	also it is consistent with the last part of Claim	10:52:51
6	1 of the '593 patent, which refers to directly	10:52:54
7	controlled. That the claim says, so I come back	10:52:57
8	to it, the claim says in accordance with. And so	10:53:04
9	what I'm just noting here is that these	10:53:06
10	transistors do not directly connect to node N1,	10:53:10
11	but they can be controlled in a way which turns on	10:53:15
12	other transistors which provide more than one	10:53:20
13	transistor path to provide a signal to the node	10:53:23
14	N1.	10:53:26
15	Q Okay. Help me understand exactly what you	10:53:29
16	mean by more than one transistor path to provide a	10:53:34
17	signal to N1?	10:53:39
18	A Well, I think I can illustrate that with	10:53:42
19	the figure I have in paragraph 617, which we	10:53:52
20	discussed a few minutes ago, where as I said the	10:53:55
21	signal on CK2 turns on transistor Q19. That --	10:54:00
22	that turns Q19 on and Q19, therefore, provides the	10:54:07

1 VDD high signal down to transistor Q18. And by
2 turning transistor Q18 on, now whatever signal is
3 on S1 goes up -- is able to go up through to node
4 1. And so that is what I meant by you're
5 controlling that by more than one transistor.

6 Q Okay. So if we -- if we look down at
7 paragraph 618 it is a similar situation, but here
8 no signal is provided to node N1, right?

9 MR. HERMAN: Objection, form.

10 A Well, again, it is the same sort of thing
11 that the signal is applied there to -- the CLK
12 signal is provided to the terminal in the orange
13 annotation going to Q21. Q21 turns on and that
14 provides a low signal to N6 and that signal N6 is
15 then able to turnoff Q18. And turning off Q18
16 controls the voltage on node N1 by preventing S1
17 from getting to it. That is what I meant there by
18 controlled.

19 Q But you just told me that that doesn't
20 actually change the voltage of N1, right?

21 MR. HERMAN: Objection, form.

22 A It doesn't change it, but it controls it

10:54:11

10:54:15

10:54:19

10:54:23

10:54:27

10:54:30

10:54:38

10:54:47

10:54:52

10:54:55

10:54:57

10:55:02

10:55:05

10:55:11

10:55:15

10:55:20

10:55:24

10:55:27

10:55:27

10:55:30

10:55:35

10:55:36

1 in the sense that it prevents something from
2 getting in. Prevention is like turning off a
3 water faucet is a form of control.

4 Q So you said more than one transistor --
5 sorry, I want to get it right. More than one
6 transistor path to provide a signal to the node
7 N1. Is there any limit on the number of
8 transistors that can be on the path?

9 MR. HERMAN: Objection, form.

10 A The claim merely says in accordance with,
11 so if you have cause and effect, I don't see any
12 reason that accordance limits the number of
13 transistors that could be there. Here we have
14 two, but that is more than one.

15 Q So if we look at, for example, there is a
16 node between Q1 and Q2, do you see that? It is
17 not labeled, but --

18 A Well, essentially that is the output node.

19 Q Right. So would you say that Q18 controls
20 that -- the voltage of that node in accordance
21 with certain signals?

22 MR. HERMAN: Objection, form.

1 A If you turn Q18 on or off, that would --
2 if you turn -- if Q18 is on, the node N1 with
3 voltage will change. And as a further effect of
4 that it is controlling the gate voltage on Q1. So
5 changing the signal to the bottom of Q18 could
6 change the gate voltage on Q1 and cause Q1 to turn
7 on or off.

8 Q In your opinion, that would be controlling
9 the voltage of that node in accordance with
10 certain input signals?

11 MR. HERMAN: Objection, form.

12 A It seems to meet the criteria of in
13 accordance with.

14 Q If we turn back now to paragraph 622 of
15 your declaration, if we continue where we were
16 reading, I will read it again, so we have context.

17 Additionally, while I recognize that
18 certain of transistors Q3 to Q5 and Q18 to Q21 do
19 not directly provide output to node N1, as
20 mentioned earlier, it is my understanding that
21 patent owner has taken the position in the
22 associated ITC action that the claimed first

1	driver can indirectly control node voltages.	10:59:20
2	Do you see that?	10:59:25
3	A Yes, it is my understanding from having	10:59:26
4	been there that that is the position that the	10:59:29
5	patentholder was taking in the ITC action with	10:59:32
6	respect to its infringement contentions.	10:59:35
7	Q And why did you reference that -- that	10:59:37
8	position here in this paragraph?	10:59:40
9	A Well, I referenced it simply because it	10:59:42
10	was -- the ITC action was ongoing at the time and	10:59:51
11	that was obviously going to be disputed at the	10:59:53
12	hearing.	10:59:57
13	Q Do you agree with patent owner's position	10:59:58
14	in the -- in the ITC action?	11:00:04
15	MR. HERMAN: Objection, form.	11:00:06
16	A I don't think I'm saying here whether I	11:00:23
17	agree or not. All I was noting is that if I apply	11:00:24
18	the patent owner's position at the ITC, it	11:00:28
19	actually agrees with my discussion here. That in	11:00:32
20	terms of their infringement contentions, they take	11:00:36
21	the -- they took the position in the infringement	11:00:40
22	contentions that this would be in accordance with	11:00:42

1 -- it doesn't have to be directly controlled 11:00:48
2 through a particular transistor. They took the 11:00:50
3 opposite position in their invalidity contentions. 11:00:52

4 And so, what I'm pointing out here is that 11:00:55
5 what I'm showing here and discussing in this 11:00:59
6 paragraph is consistent with what the patent 11:01:02
7 owner's position is for their infringement 11:01:05
8 contentions. 11:01:07

9 Q But we were -- just a moment ago when we 11:01:11
10 were talking about the operation of Q18, you told 11:01:13
11 me that in more than one transistor path, and you 11:01:18
12 said it would meet the criteria of in accordance 11:01:21
13 with, right? 11:01:27

14 A That is my interpretation, yes. That it 11:01:27
15 would be -- in order to show in accordance with, 11:01:30
16 it does not have to be a transistor that directly 11:01:35
17 has access to the node in question. 11:01:38

18 Q Okay. So in your opinion, the first 11:01:40
19 driver can indirectly control node voltages, 11:01:44
20 right? 11:01:47

21 A Well, in my opinion, I would -- I wouldn't 11:01:47
22 necessarily say it is indirect or because that -- 11:01:54

1 I don't know exactly what you mean by that, but 11:01:56
2 all, as I point out here, that in accordance with 11:01:58
3 in my view includes you turn a transistor on, it 11:02:02
4 passes a voltage through to the gate of another 11:02:06
5 transistor. 11:02:08

6 And by turning that transistor on, that 11:02:09
7 actually controls the voltage of the node directly 11:02:12
8 through the second transistor. But since the 11:02:15
9 first transistor signal applied to the first 11:02:17
10 transistor starts the process, that meets the in 11:02:20
11 accordance with that the claim element recites. 11:02:24

12 Q Okay. Well, help me understand, because 11:02:27
13 you just said you wouldn't necessarily say it is 11:02:29
14 indirect, but in paragraph 622 you say, I 11:02:32
15 recognize that certain of transistors Q3 to Q5 and 11:02:36
16 Q18 to Q21 do not directly provide output to node 11:02:39
17 N1, right? 11:02:43

18 A Yes. And I realize reading it I did use 11:02:44
19 the word indirectly, so I thought you had come up 11:02:47
20 with that word, I was being careful. I see I used 11:02:50
21 it. 11:02:52

22 What I'm just referring to again there is 11:02:53

1 the end of Claim 1. I think it is the last claim 11:02:55
2 element uses the word directly, not in accordance 11:02:58
3 with. And so I took the difference to mean that 11:03:00
4 directly means that it is -- this transistor has 11:03:03
5 to be controlling the node on its own, whereas, in 11:03:06
6 accordance with is not restricted to having, as we 11:03:10
7 just described, the VDD being passed. 11:03:15

8 The first transistor is turned on, pulls 11:03:20
9 VDD high and the other side of the transistor 11:03:22
10 which goes to the gate of a second transistor. 11:03:24
11 And by controlling the gate of that transistor, 11:03:26
12 controls the voltage to the node. That is -- that 11:03:29
13 is the view I've taken here and I'm just pointing 11:03:32
14 out that the patent owner did agree with that in a 11:03:35
15 particular situation. 11:03:38

16 Q Okay. So just to be clear, as you are 11:03:39
17 applying it here, you agree with patent owner's 11:03:43
18 position in the associated ITC action that the 11:03:46
19 claimed first driver can indirectly control node 11:03:48
20 voltages? 11:03:51

21 MR. HERMAN: Objection, form. 11:03:53

22 A Well, I would say that I think the patent 11:03:54

1 owner and I are in agreement on that. I believe 11:04:00
2 it was specifically for their infringement 11:04:02
3 contentions, so I believe that we -- patent owner 11:04:04
4 and I agree on -- as far as the patent owner's 11:04:07
5 particular use of that in the ITC that they're on 11:04:10
6 the same page as me as this indirect control can 11:04:15
7 meet the in accordance of the claim element. 11:04:19

8 Q And that is -- that is the application 11:04:21
9 that you or the analysis that you provided here in 11:04:30
10 your declaration, right? 11:04:33

11 MR. HERMAN: Objection, form. 11:04:34

12 A Yes, I did not feel restricted to directly 11:04:41
13 controlled in this analysis. 11:04:43

14 Q Why don't we take a short break? 11:04:44

15 A 5 minutes, 10 minutes, what do you need, 11:04:53
16 counselor? 11:04:57

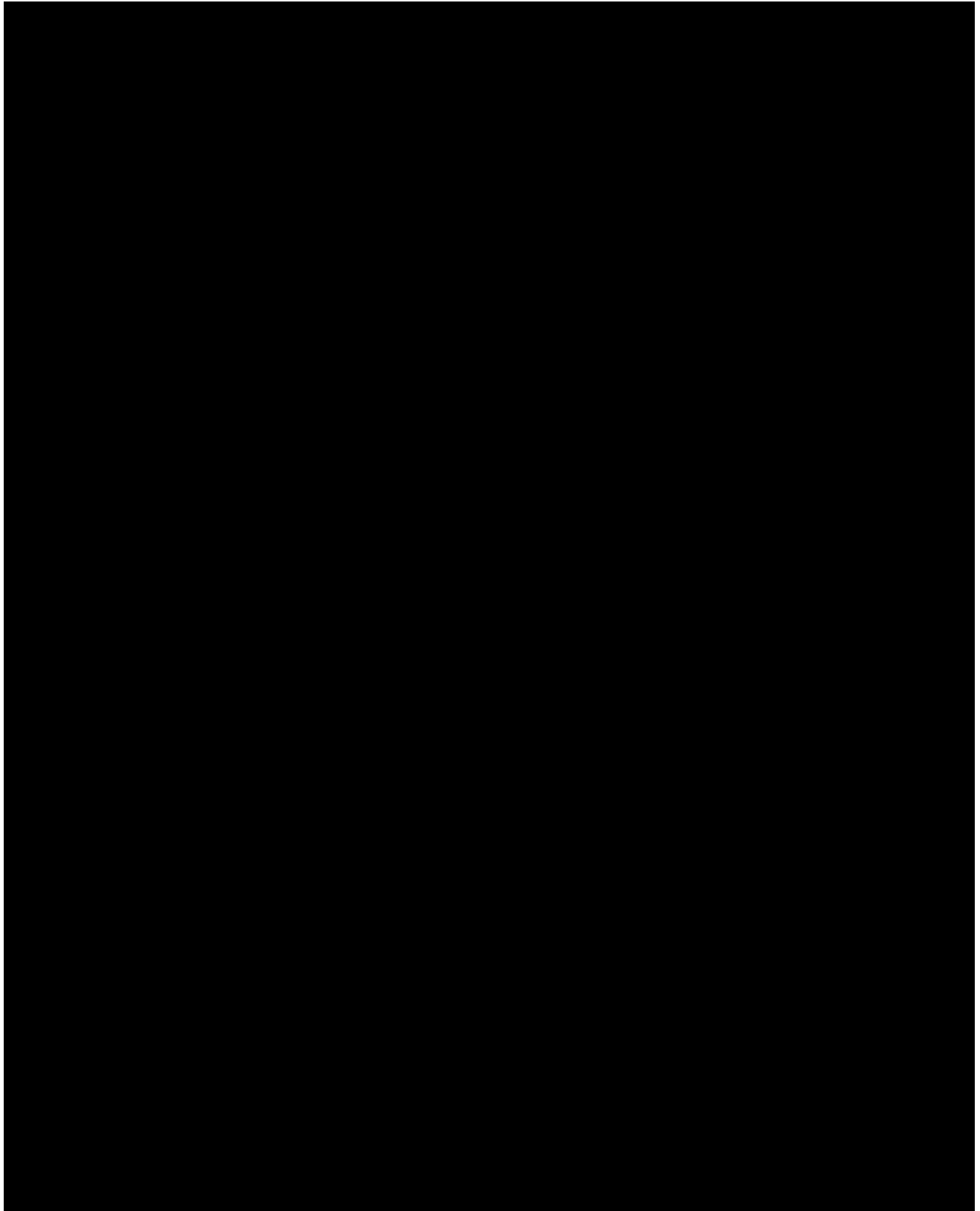
17 Q Let's go -- we can go off the record. 11:04:58

18 VIDEOGRAPHER: We are going off the 11:05:00
19 record. The time is 11:05 a.m. 11:05:03

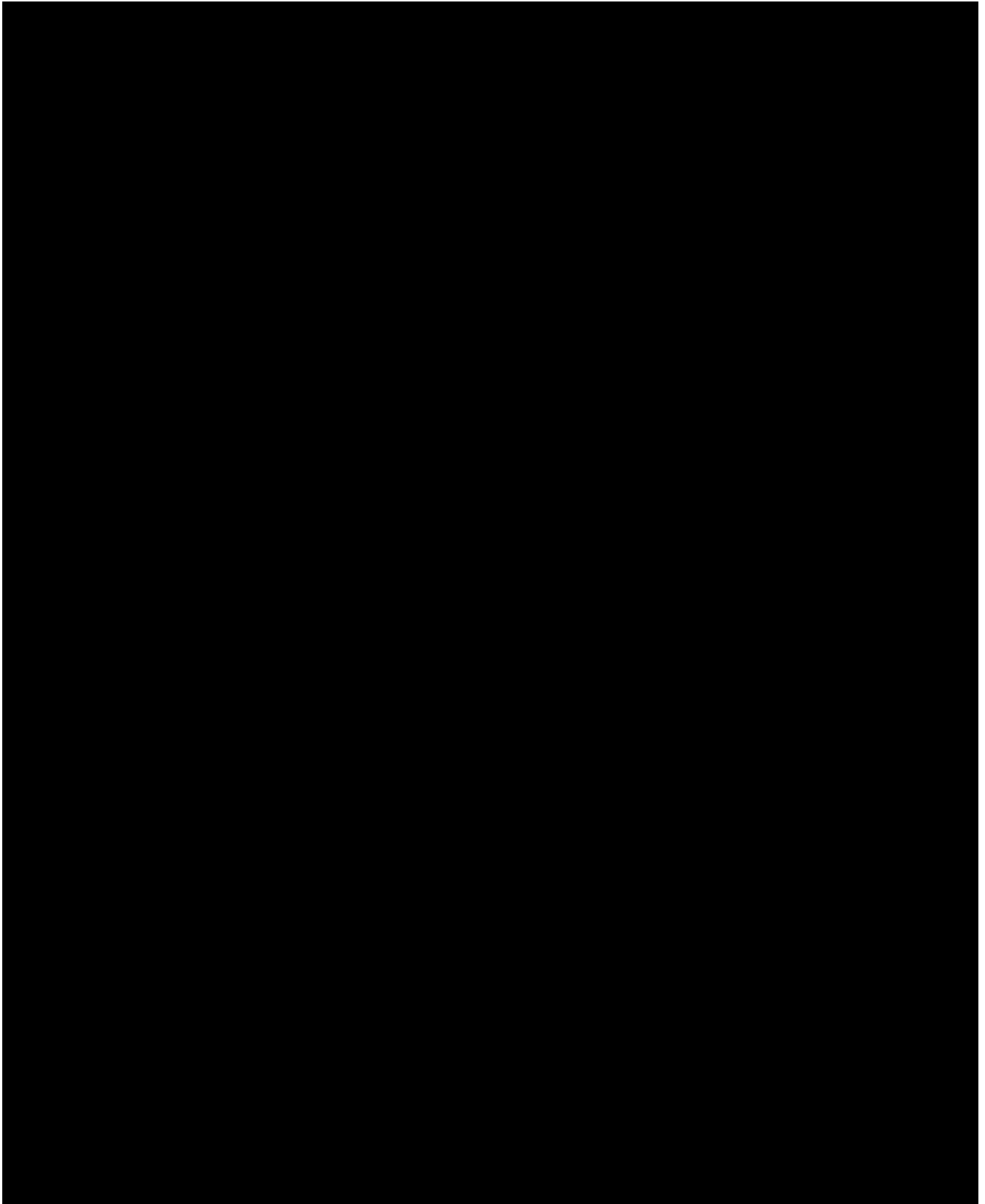
20 (Recess, 11:05 to 11:17 a.m.) 11:16:35

21 VIDEOGRAPHER: We are going back on the 11:16:36
22 record. The time is 11:17 a.m. 11:17:02

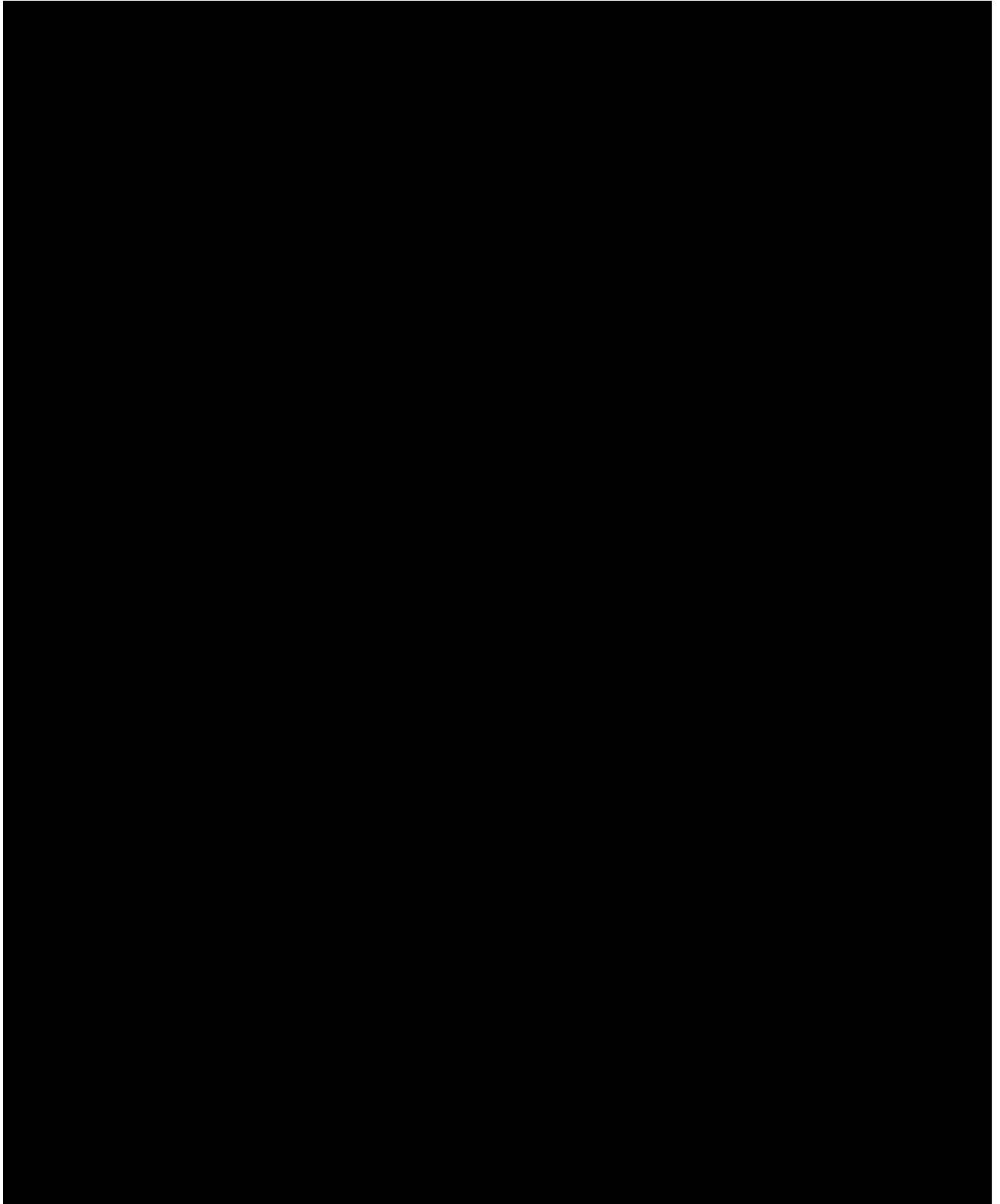
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



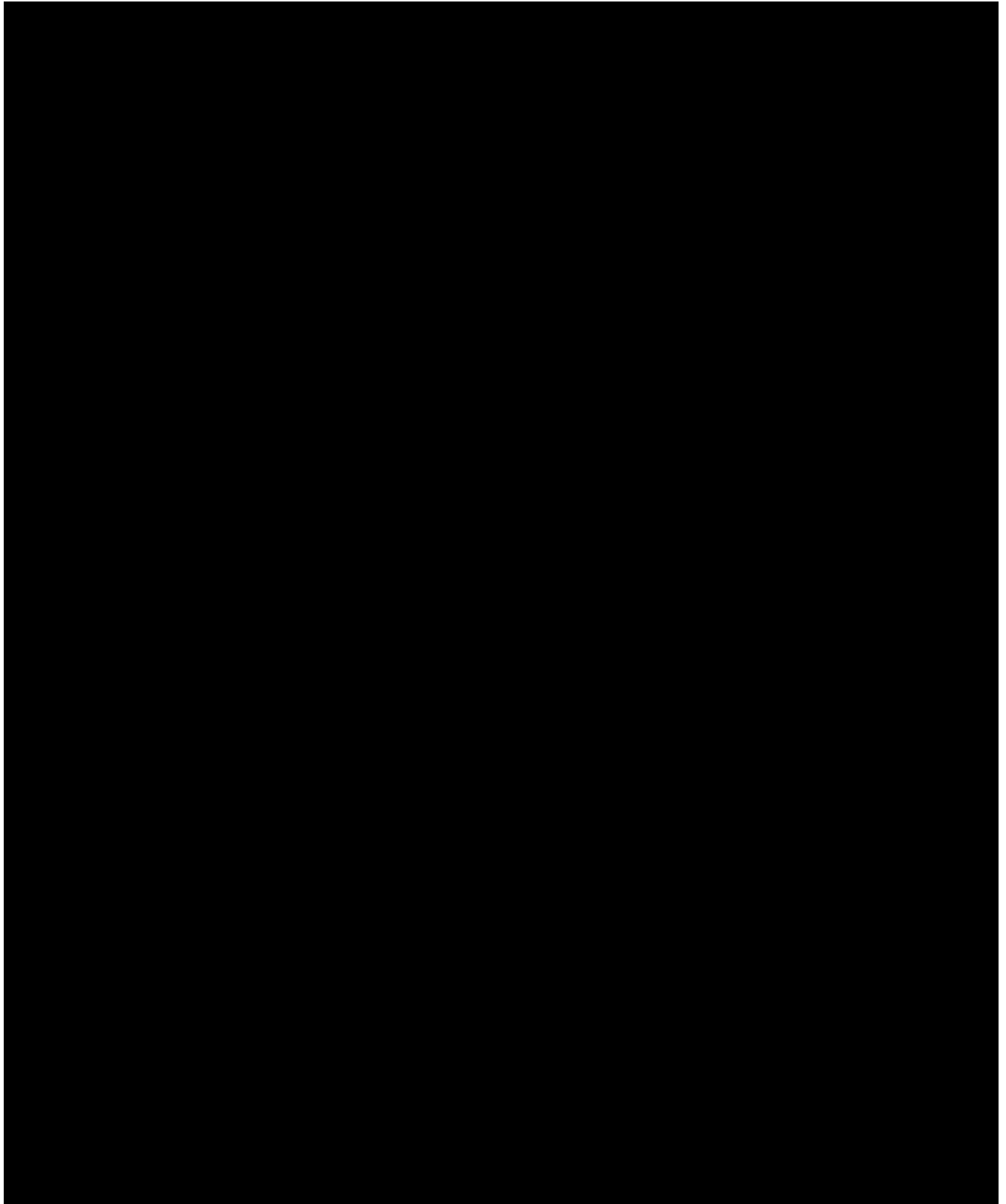
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



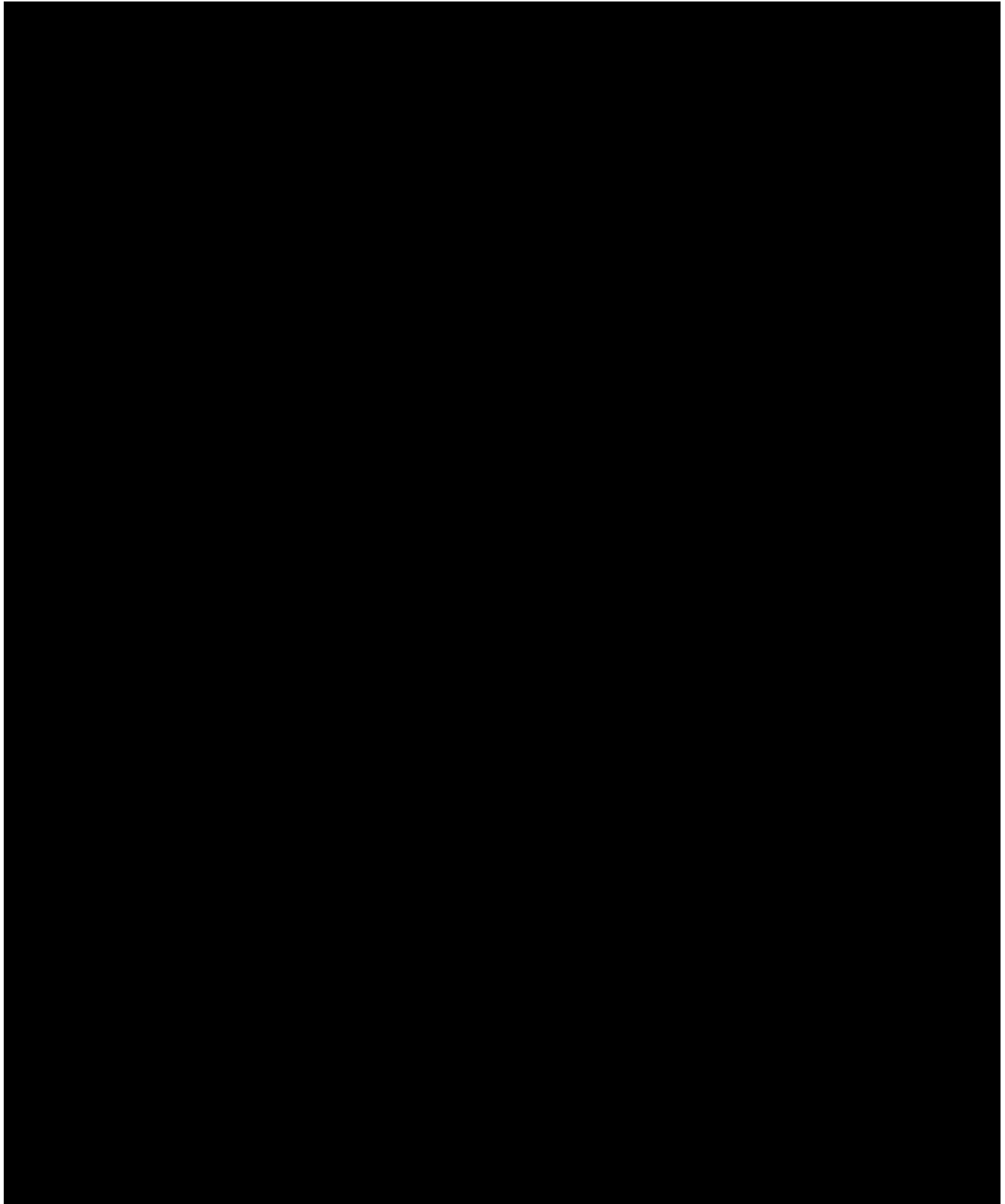
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



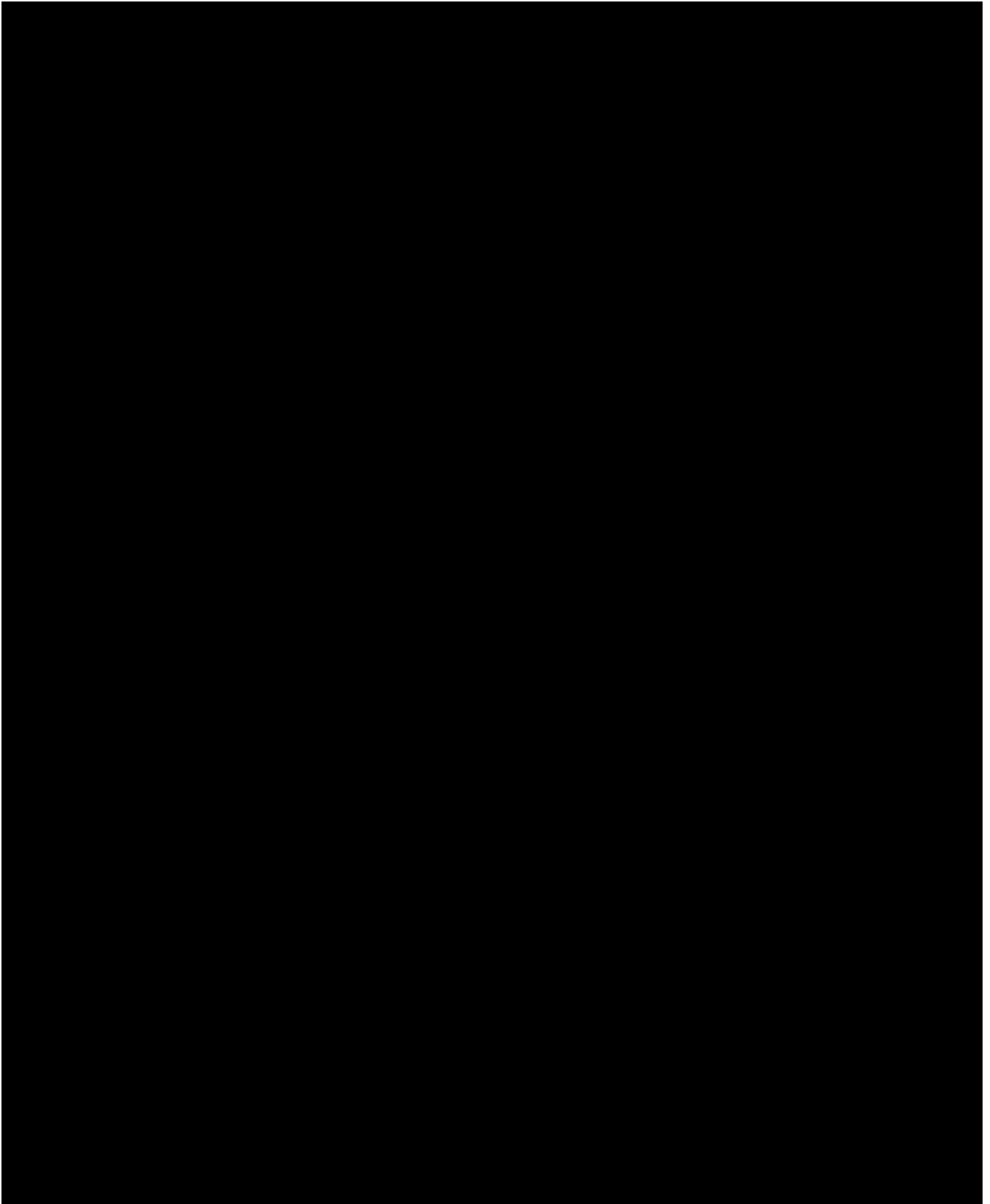
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



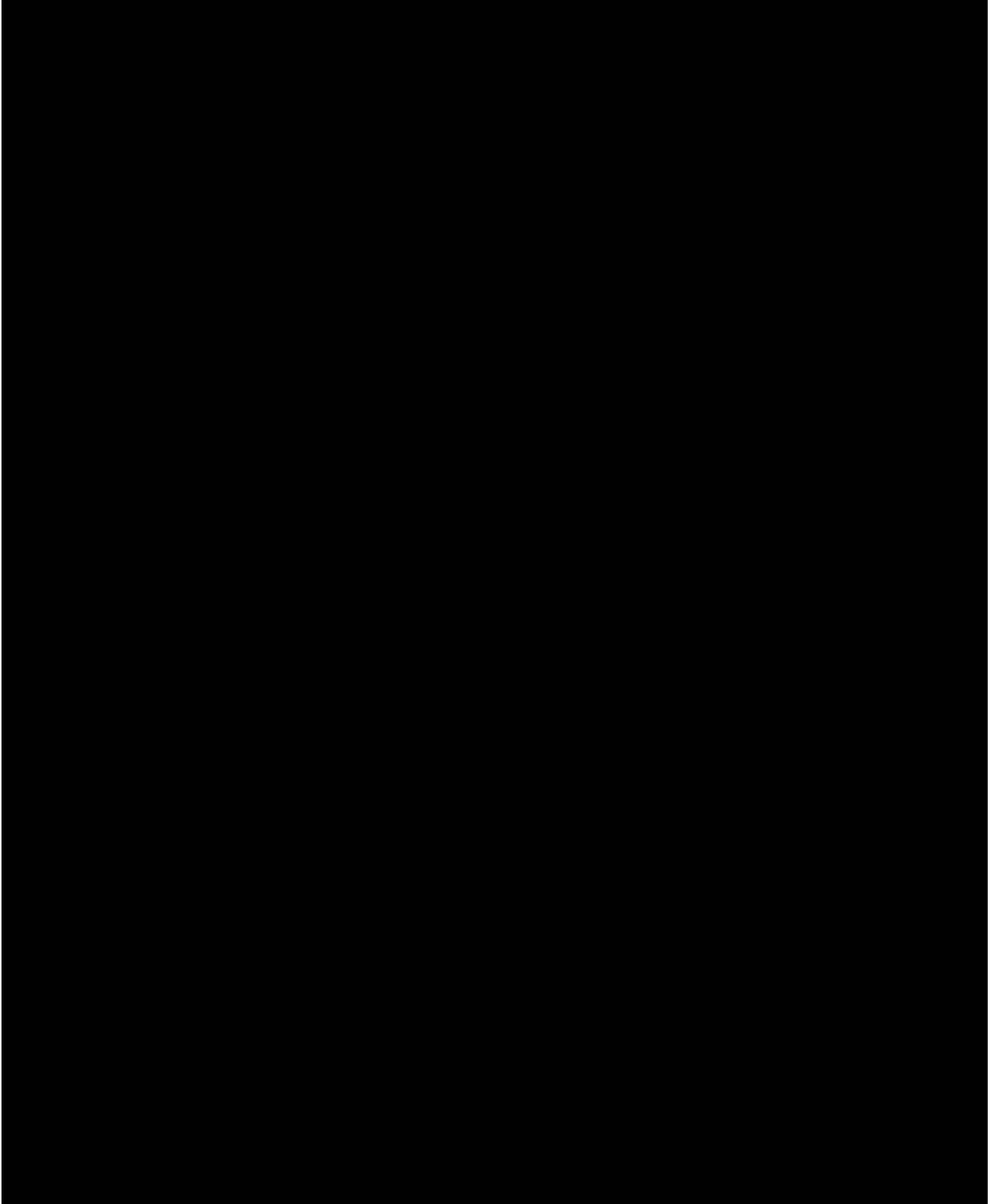
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



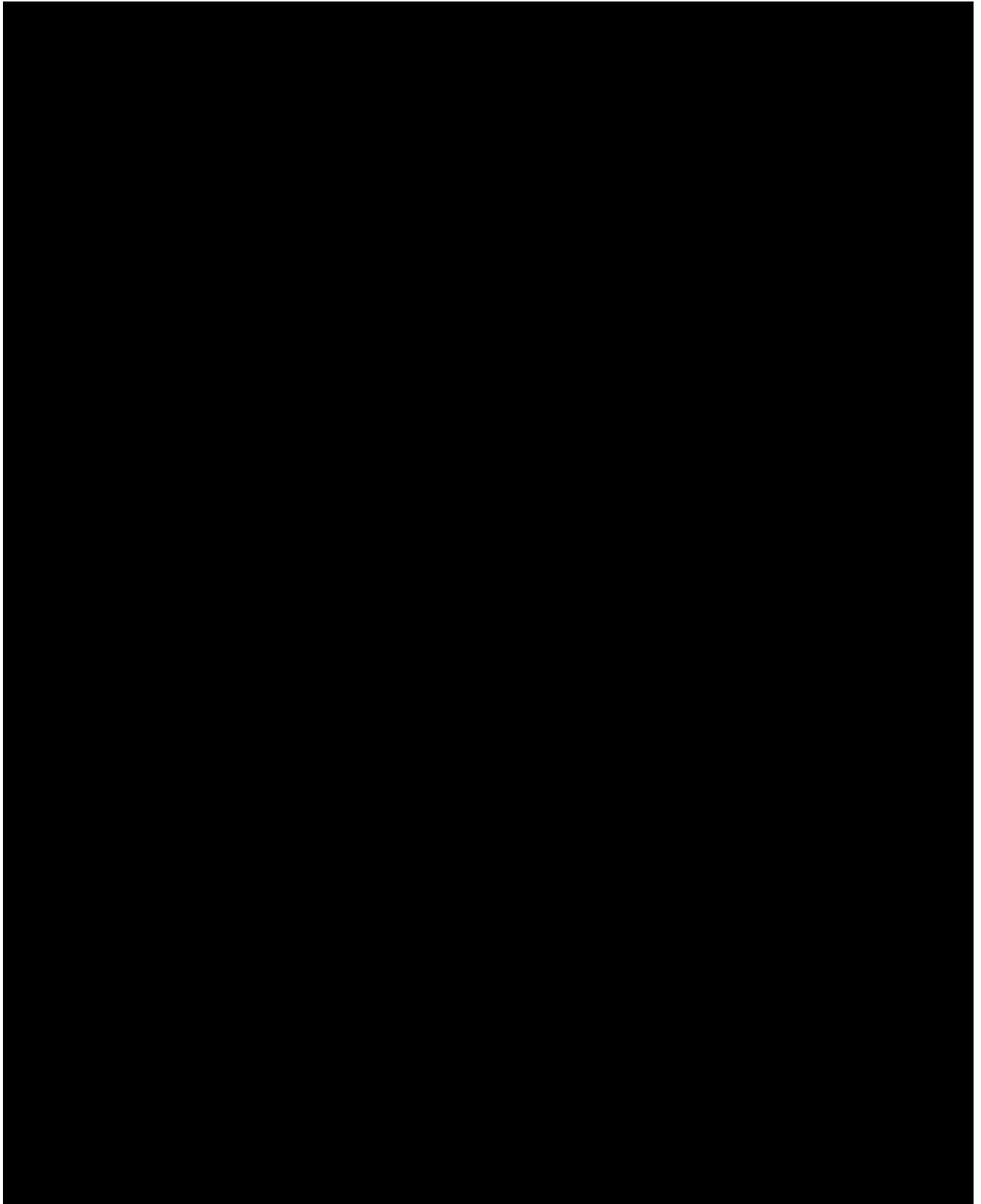
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



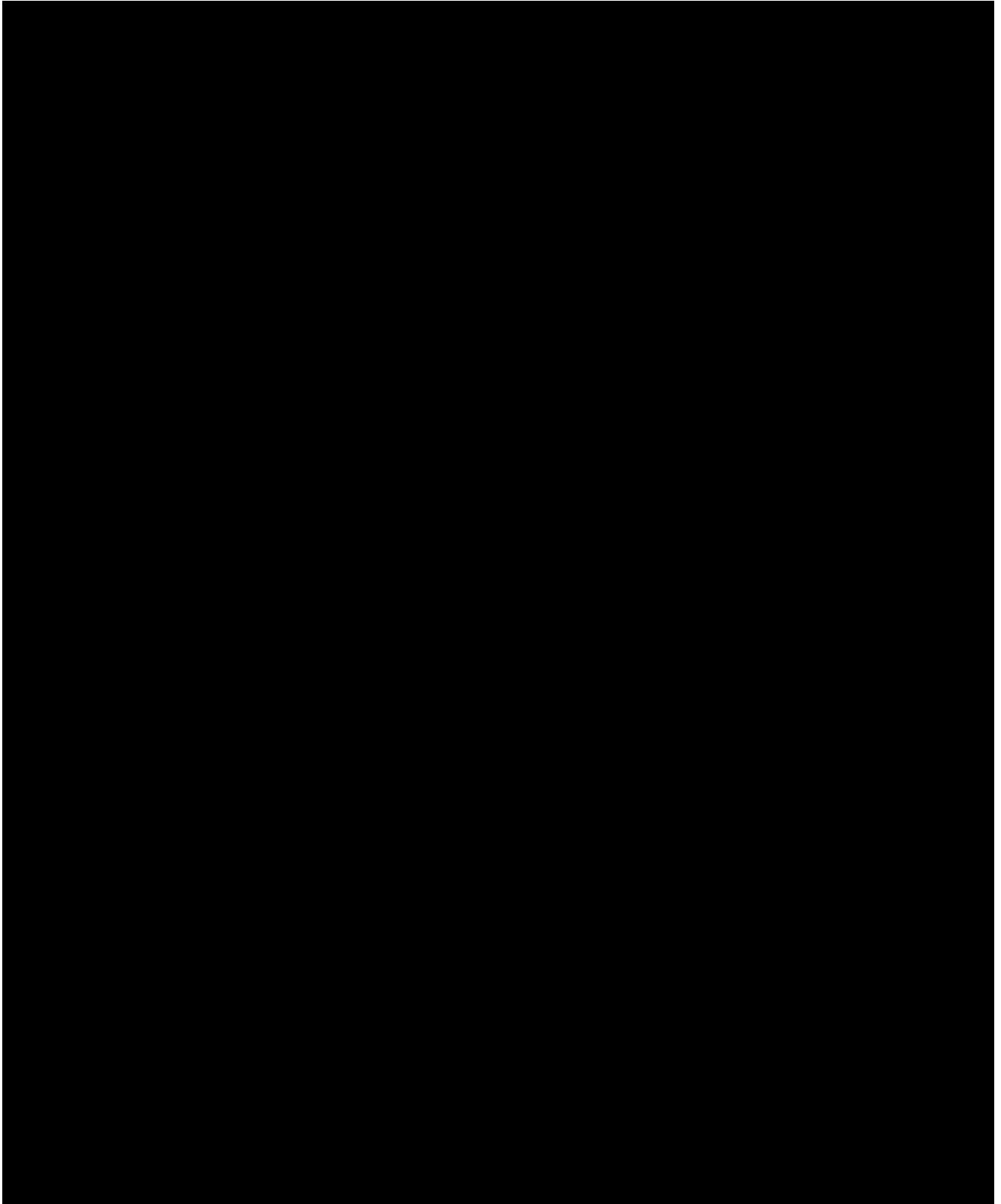
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



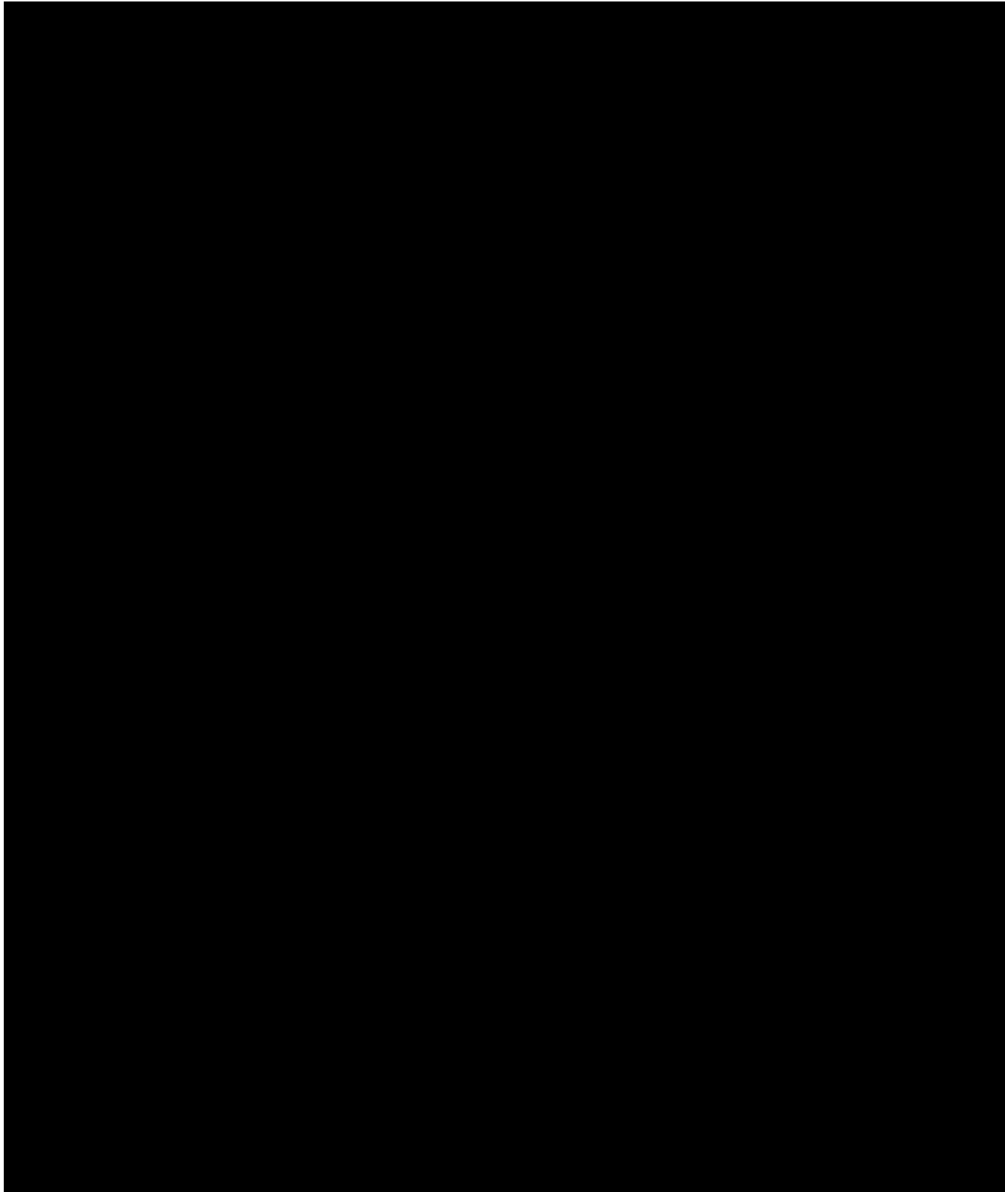
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



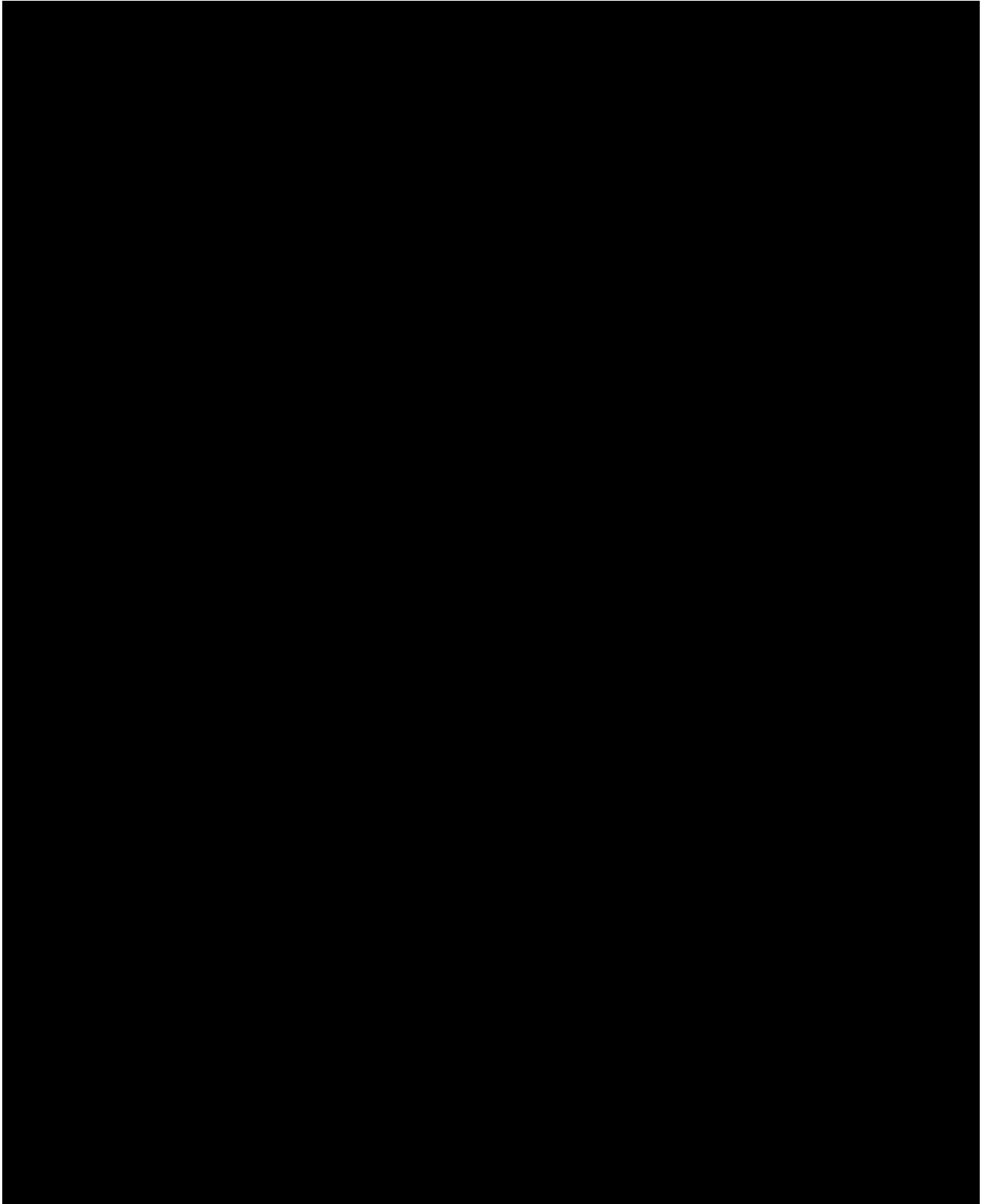
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



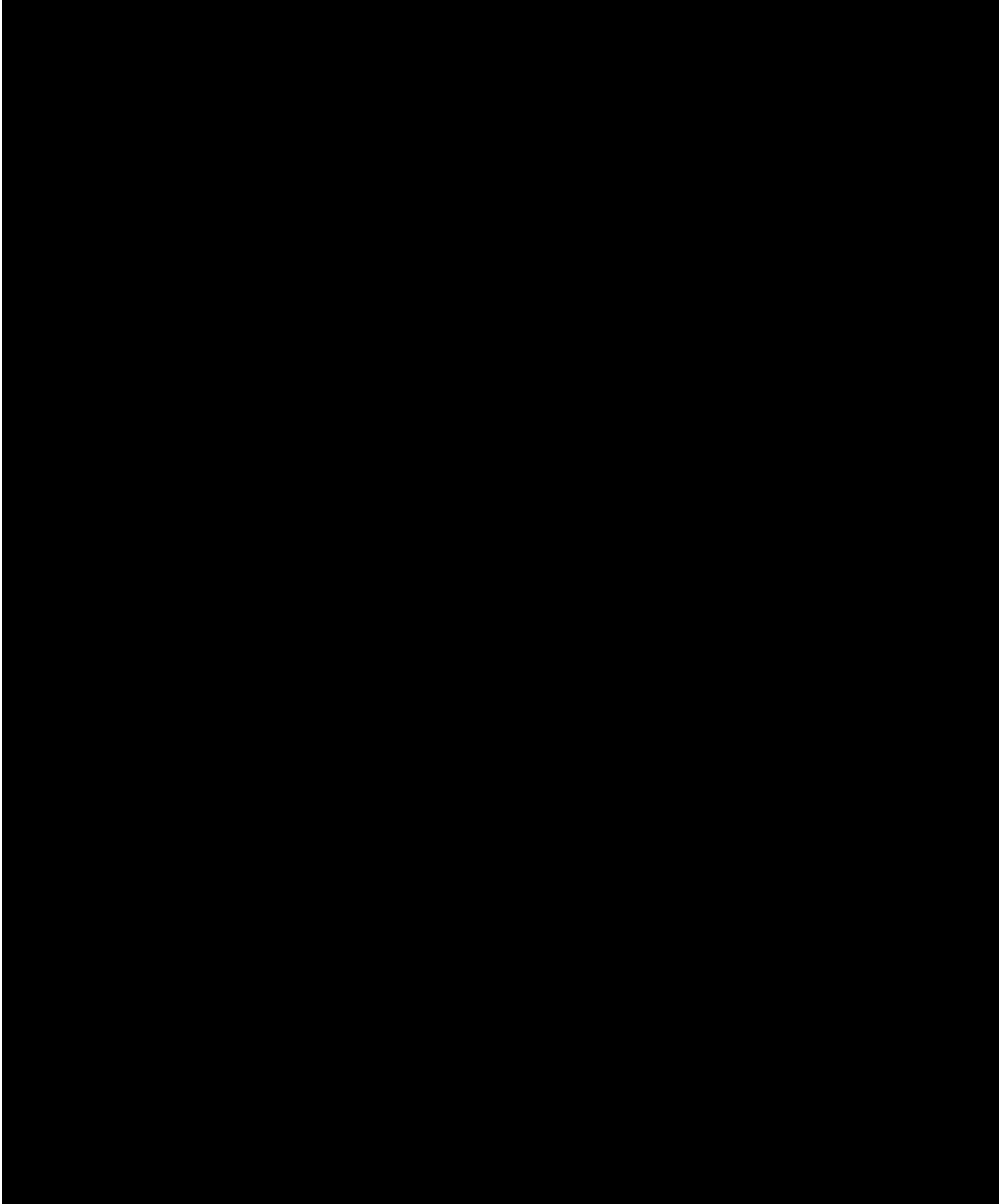
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



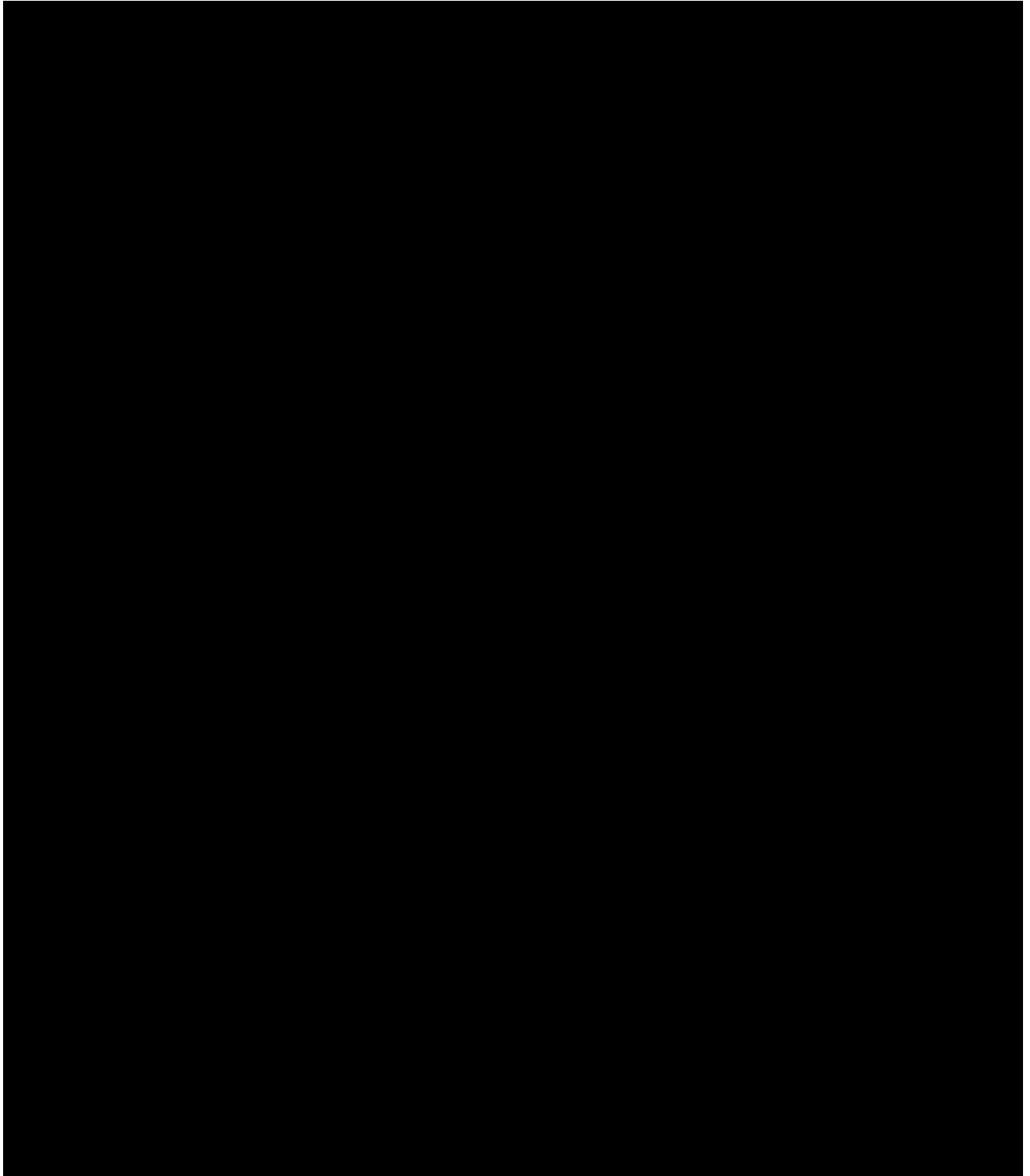
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22



VIDEOGRAPHER: We are going off the

11:30:56

1 record. The time is 11:30 a.m.

11:30:59

2 (Recess, 11:30 to 11:47 a.m.)

11:31:01

3 VIDEOGRAPHER: We are going back on the
4 record. The time is 11:47 a.m.

11:47:35

11:47:41

5 MR. ANDROS: So I just want to sort of
6 clarify for the record the exhibit that I
7 previously introduced, Exhibit 2024. Dr. Foty
8 seems to have introduced some confusion as to
9 where that comes from. That is publicly-available
10 information. It is from an Injured Gadgets
11 product, with a Serial Number IP12-AS-FX5.

11:47:48

11:47:49

11:47:54

11:47:58

11:48:01

11:48:04

11:48:07

12 Given the confusion and reference to
13 potential ITC issues, and Dr. Foty's answers,
14 regarding that exhibit, we think that that
15 testimony should be struck from the record. And
16 with that, I have no further questions for the
17 witness.

11:48:14

11:48:16

11:48:21

11:48:24

11:48:32

11:48:32

18 EXAMINATION

11:48:32

19 BY MR. HERMAN:

11:48:32

20 Q This is counsel for petitioner. Before we
21 conclude today, Dr. Foty, I just have one question
22 for you.

11:48:43

11:48:46

11:48:50

1	A Sure.	11:48:51
2	Q Counsel for patent owner asked you	11:48:52
3	questions about paragraph 622 of your declaration	11:48:54
4	and you read certain portions of paragraph 622; is	11:48:58
5	that right?	11:49:02
6	A I believe I read some portions of it into	11:49:02
7	the record, yes.	11:49:08
8	Q Okay. And in the final sentence of that	11:49:09
9	paragraph 622, you say, in any event as I	11:49:11
10	explained above, there are multiple transistors in	11:49:15
11	Tobita's first driver that do, in fact, directly	11:49:19
12	provide output to node N1 including transistors Q3	11:49:22
13	through Q5 and Q18, correct?	11:49:27
14	A Yes, that is what I wrote. And I'm just	11:49:31
15	trying to verify given there was an earlier typo	11:49:35
16	that that statement is topologically correct. Q3	11:49:39
17	works, Q4 works, Q5 works, and Q18 works, so those	11:49:46
18	appear to be the -- there is four transistors all	11:49:57
19	connect directly to node 1. And I don't think	11:50:02
20	there are any others, but if there are, I just	11:50:05
21	didn't list it there.	11:50:07
22	Q Now, the universe of transistors that you	11:50:09

1 identified as being part of the first driver, I
2 believe you discussed this with counsel, and the
3 universe of transistors includes Q3, Q4, Q5, Q18,
4 Q19, Q20 and Q21, correct?

5 A Yes, I believe we listed those as being
6 the seven transistors that are to be included in
7 Tobita driver 1, sorry, first driver is Tobita's
8 language, or sorry the patent calls that a first
9 driver. So we identified that as being the first
10 driver Tobita.

11 Q And it is the presence of all of those
12 transistors, in your opinion, that causes Tobita
13 to teach the required first driver, correct?

14 A I believe that is the case, yes.

15 MR. HERMAN: I don't have any further
16 questions.

17 MR. ANDROS: Just maybe one or two more
18 from me.

19 FURTHER EXAMINATION

20 BY MR. ANDROS:

21 Q So you were just discussing with counsel
22 transistors Q3, Q4, Q5, and Q18 in Tobita's figure

11:50:12

11:50:16

11:50:20

11:50:27

11:50:36

11:50:39

11:50:41

11:50:44

11:50:46

11:50:48

11:50:50

11:50:52

11:50:54

11:51:07

11:51:09

11:51:10

11:51:12

11:51:15

11:51:15

11:51:21

11:51:21

11:51:24

1	20, right, Dr. Foty?	11:51:33
2	A Yes, I believe we just had that	11:51:35
3	discussion.	11:51:37
4	Q Okay. But none of transistors Q3, Q4, Q5	11:51:37
5	or Q18 have their gate connected to what you	11:51:49
6	identified as the third input terminal, which is	11:51:54
7	CK1, correct?	11:51:59
8	A Did you list Q18 with that list, just so I	11:52:02
9	have the list correct? Is it 3, 4, 5 and 18 you	11:52:08
10	just listed, counselor, I just want to be very	11:52:10
11	careful?	11:52:12
12	Q That is correct, 3, 4, 5, and 18, which	11:52:13
13	should be the same that counsel asked you about a	11:52:15
14	moment ago?	11:52:18
15	A And the question was they don't have their	11:52:19
16	gates connected to --	11:52:21
17	Q The third input terminal, what you	11:52:24
18	identified as the third input terminal, CK1?	11:52:26
19	A As far as I can tell, none of those have	11:52:37
20	their gates connected to the third input terminal.	11:52:39
21	MR. ANDROS: No other questions from me.	11:52:43
22	MR. HERMAN: Same here. And I think with	11:52:46

1	that, Dr. Foty, I think we may be done for the	11:52:49
2	day. Thank you for your time.	11:52:52
3	THE WITNESS: Thank you very much.	11:52:55
4	MR. ANDROS: Thank you, Dr. Foty.	11:52:56
5	VIDEOGRAPHER: Counselor, do you want a	11:52:59
6	copy of the video?	11:53:00
7	MR. HERMAN: This is counsel for	11:53:02
8	petitioner. I do not need a copy of either the	11:53:04
9	video or the transcript.	11:53:07
10	MR. ANDROS: Whatever our standing order	11:53:10
11	is fine here.	11:53:11
12	VIDEOGRAPHER: Understood. And this marks	11:53:13
13	the end of the deposition of Dr. Daniel Foty. The	11:53:15
14	time on the monitor is 11:53 a.m.	11:53:18
15	(Deposition adjourned at 11:53 a.m.)	
16		
17		
18		
19		
20		
21		
22		

CERTIFICATE OF SHORTHAND REPORTER

I, Susan S. Klinger, Certified Shorthand Reporter
within and for the State of Texas do hereby certify:

That DANIEL FOTY, Ph.D., the witness whose
deposition is hereinbefore set forth, was duly sworn
by me before the commencement of such deposition and
that such deposition was taken before me and is a true
record of the testimony given by such witness.

I further certify that the adverse party, was
was represented by counsel at the deposition.

I further certify that the deposition of
DANIEL FOTY, Ph.D., was conducted virtually via
Zoom on Thursday, December 5, 2024, commencing at
9:03 a.m. to 11:53 a.m.

I further certify that I am not related to
any of the parties to this action by blood or
marriage, I am not employed by or an attorney to any
of the parties to this action, and that I am in no way
interested, financially or otherwise, in the outcome
of this matter.

1 IN WITNESS WHEREOF, I have hereunto set my
2 hand this 16th day of December, 2024.

3
4 
5

6 Susan S. Klinger, RMR-CRR, CSR

7 Texas CSR 6531, Exp: 10/23/25

8 California CSR 14487, Exp: 11/30/25
9
10
11
12
13
14
15
16
17
18
19
20
21
22

A			
able	85:7, 86:20,	addresses	75:20, 80:9,
26:7, 44:20,	86:21	33:21, 35:5,	100:14
50:2, 65:14,	accurate	35:6, 35:12,	agree
69:4, 76:3,	11:13, 20:14	37:1	21:13, 29:10,
76:15, 84:11,	accused	addressing	31:1, 39:12,
95:11	90:5, 94:6	34:5, 36:2,	50:9, 50:15,
about	accusing	36:16, 45:8	70:13, 70:21,
12:9, 12:11,	90:6	adds	79:13, 79:17,
15:10, 26:16,	across	42:9	82:14, 82:17,
26:21, 30:7,	10:19, 40:5,	adjourned	83:4, 96:14
30:10, 34:5,	63:17, 64:7	101:15	agreed
34:22, 37:13,	action	adverse	91:8
37:16, 38:12,	78:22, 79:5,	102:10	agreement
39:21, 42:4,	79:10, 79:14,	affected	83:1
43:2, 45:17,	82:18, 102:17,	72:4	agrees
47:10, 48:18,	102:19	after	79:19
71:2, 74:18,	actually	16:16, 25:15,	ahead
80:10, 85:6,	11:7, 16:8,	33:7, 42:17	9:7, 34:19,
88:17, 88:20,	30:8, 31:16,	again	46:10, 94:14
89:21, 90:7,	37:7, 42:19,	8:22, 10:1,	al
90:17, 91:21,	45:18, 61:6,	17:7, 31:20,	5:5
92:10, 92:14,	68:21, 76:20,	33:9, 35:16,	all
92:15, 92:22,	79:19, 81:7,	36:1, 36:22,	5:13, 8:22,
93:9, 93:11,	85:12, 87:9,	39:4, 39:22,	11:1, 11:12,
93:12, 93:16,	88:7, 88:18,	41:6, 41:11,	12:1, 16:6,
94:10, 95:1,	90:16, 91:12,	41:19, 41:22,	16:14, 18:22,
95:2, 95:3,	91:15, 91:17,	43:1, 43:14,	19:3, 24:1,
98:3, 100:13	94:5, 96:9	43:22, 44:9,	36:13, 37:21,
above	add	44:18, 45:3,	38:1, 38:15,
25:16, 29:3,	94:3	47:17, 48:21,	38:17, 38:19,
31:3, 43:16,	added	51:11, 52:9,	39:20, 40:1,
63:4, 68:2,	49:13, 59:5	53:14, 60:12,	40:5, 42:13,
98:10	adding	60:18, 61:1,	43:4, 43:15,
absolutely	73:4	65:18, 66:4,	45:13, 45:16,
71:15	addition	67:20, 67:21,	48:2, 61:15,
access	39:9	68:5, 68:7,	66:5, 72:4,
80:17	additional	72:5, 73:21,	79:17, 81:2,
accordance	40:21, 41:2	74:12, 76:10,	86:5, 91:1,
62:18, 65:15,	additionally	78:16, 81:22,	98:18, 99:11
75:8, 77:10,	74:19, 78:17	88:6, 94:9,	allow
77:12, 77:20,	additions	95:16, 96:11	10:14, 48:14,
78:9, 78:13,	40:15, 40:17,	against	50:6, 51:4, 58:2
79:22, 80:12,	41:4	27:9, 96:19	allows
80:15, 81:2,	address	agnostic	25:7, 57:19,
81:11, 82:2,	32:18, 33:2,	69:18	59:13
82:6, 83:7,	33:10, 39:5	ago	alone
	addressed	24:3, 28:9,	56:12, 58:10,
	44:21, 93:7	44:13, 55:17,	60:5, 72:1

along 27:9, 36:20, 47:1 already 41:7 also 3:18, 6:5, 9:18, 10:4, 13:4, 24:22, 40:21, 42:22, 45:11, 46:22, 47:20, 48:7, 49:8, 58:5, 75:5, 84:15, 86:10, 87:1, 87:4, 89:8, 91:10 although 63:6 always 62:13, 90:19 amount 15:14 analogy 89:18, 92:5 analysis 15:20, 16:3, 21:7, 23:3, 23:5, 30:5, 30:6, 30:14, 83:9, 83:13 analyzed 95:21 analyzing 21:5 anatomy 63:19 andros 3:11, 4:5, 4:7, 5:17, 6:10, 13:17, 92:16, 92:21, 93:8, 94:18, 96:20, 97:5, 99:17, 99:20, 100:21, 101:4, 101:10 annotated 24:5, 25:5,	49:12, 53:1, 56:21, 57:9, 58:1, 64:1 annotation 49:13, 64:11, 67:9, 68:2, 69:10, 76:13 annotations 53:4 another 25:1, 51:13, 81:4 answer 7:7, 42:17, 57:5, 72:10, 73:20, 87:21, 88:3, 89:10, 91:19 answered 41:7 answers 54:6, 88:15, 97:13 anti-reversal 53:5, 53:10, 53:15, 53:17, 54:8, 54:22, 55:11, 56:1, 56:5, 59:19 anticipated 67:8 any 8:1, 8:16, 10:10, 11:12, 11:22, 12:13, 17:9, 27:7, 29:16, 32:1, 72:18, 77:7, 77:11, 87:3, 87:5, 87:16, 88:14, 89:6, 89:9, 89:10, 89:16, 89:18, 92:2, 92:10, 93:17, 94:11, 94:16, 95:17, 96:4, 96:12, 98:9, 98:20,	99:15, 102:17, 102:18 anyone 7:20, 10:18, 12:16, 15:17, 16:18 anything 9:13, 86:9, 89:3, 94:10 anyway 38:21 anywhere 44:4, 44:14 apologies 8:9 apologize 14:17, 30:9, 41:6, 46:20, 58:20 appeal 1:3, 5:7 appear 28:3, 38:18, 66:19, 67:7, 98:18 appeared 14:1, 87:10 appears 13:22, 17:2, 20:22, 24:13, 24:19, 25:21, 26:19, 34:6, 41:1, 47:5, 47:17, 51:14, 60:12, 62:20 application 83:8, 94:18 applied 51:8, 57:16, 59:18, 63:5, 63:21, 66:6, 69:13, 72:22, 76:11, 81:9 applies 37:11 apply 48:14, 79:17, 89:13	applying 32:12, 82:17 appreciate 8:15, 10:13, 61:5, 62:13 appreciated 16:17 appropriate 21:19 architecture 39:13, 39:15, 40:19, 43:1 argue 87:14, 92:8 around 9:3 art 34:10, 87:3, 89:16, 94:1, 94:16, 94:21, 95:1 aside 11:17 asked 8:10, 53:21, 92:12, 92:15, 98:2, 100:13 asking 7:2, 88:17, 88:20, 89:8, 89:20, 92:10, 92:16, 92:21, 93:9, 93:16, 94:10 aspects 6:21 asserting 96:18 associated 21:18, 44:10, 78:22, 82:18 assume 33:4, 36:3, 38:19, 39:7, 45:14, 51:3, 58:2, 69:9, 69:15, 72:20, 73:6, 86:17
--	---	---	---

assumed 33:6 assuming 68:8 assumption 33:15, 35:8, 35:16, 36:10, 37:15, 67:21 attempt 89:5 attempting 88:14, 92:4, 92:6, 93:19 attempts 11:1 attending 5:14 attorney 102:18 attorneys 3:3, 3:10 audio 13:13 aware 93:13 B b 21:22, 22:11 back 8:7, 9:6, 13:11, 14:17, 15:19, 17:10, 19:17, 25:19, 27:19, 29:5, 41:21, 42:22, 46:5, 48:2, 52:17, 53:1, 75:7, 78:14, 83:21, 97:3 background 15:1, 85:2 based 67:9 basic 40:4, 55:20 basically 18:5, 22:4,	35:2, 38:3, 39:20, 49:20, 49:22 basics 7:2 bears 95:7 because 19:4, 20:15, 29:4, 30:1, 31:13, 32:14, 32:22, 38:19, 39:22, 43:3, 57:15, 60:18, 61:16, 61:20, 63:15, 64:5, 66:11, 79:9, 80:22, 81:12, 85:11, 88:5, 90:4, 90:13, 90:15, 91:19, 93:19, 94:5, 95:14, 95:21, 96:7 been 6:8, 6:16, 6:19, 6:21, 45:17, 61:10, 79:4, 84:9 before 1:3, 2:10, 5:7, 6:17, 8:9, 13:11, 41:19, 48:18, 85:8, 90:1, 97:20, 102:7, 102:8 begin 23:2, 60:4, 65:17 beginning 36:12, 37:1, 43:22 begins 5:2, 16:4, 46:18 behalf 5:21 behavior 19:19, 31:2,	31:3, 31:4, 52:3 being 18:2, 20:6, 36:5, 43:9, 44:21, 44:22, 45:14, 50:2, 53:10, 62:1, 63:6, 63:21, 68:11, 73:13, 81:20, 82:7, 99:1, 99:5, 99:9 believe 15:2, 21:9, 23:19, 24:2, 27:7, 27:10, 30:9, 35:1, 41:19, 47:11, 49:6, 49:19, 53:7, 53:21, 54:5, 57:11, 59:3, 62:16, 65:4, 67:22, 69:11, 83:1, 83:3, 85:8, 87:10, 95:14, 96:8, 96:15, 98:6, 99:2, 99:5, 99:14, 100:2 below 19:6, 25:6, 31:2, 53:8, 53:9, 63:22, 65:5, 66:2, 66:12, 66:20, 66:22 besides 18:14 best 36:11, 88:5, 88:12 better 13:10 between 6:18, 15:9, 18:4, 39:10, 40:10, 52:18, 53:18, 64:8,	75:1, 77:16, 92:5 beyond 64:18 big 11:15, 26:10, 56:17 binary 18:2, 18:4, 18:7, 18:8 binder 8:21, 10:14, 26:4, 26:9, 41:15, 47:6, 48:5, 49:11, 56:17, 60:14 binding 47:18 birds 38:18 bit 14:7, 18:17, 23:8, 24:21, 60:2, 66:22, 85:5 black 58:22 blank 9:1, 9:5 block 69:22, 72:6 blood 102:17 blue 23:16, 23:17, 61:8, 61:12 board 1:3, 5:7 boe 1:5, 5:4, 6:18, 85:9, 87:9, 87:16, 90:4, 92:10, 94:5, 94:9, 94:11, 95:16, 96:1, 96:15 bogging 9:15
--	---	---	--

bookmarks 9:3 bootstrapping 34:8, 36:16, 37:6, 37:8, 40:19, 42:6, 90:21, 91:14, 91:17 bootstraps 29:5, 36:17 botched 58:9 both 6:19, 39:17, 44:21, 54:13, 54:19, 55:7, 69:16 bothering 11:15 bottom 28:16, 32:5, 51:20, 52:4, 71:5, 72:4, 74:5, 78:5 bound 87:19, 88:2 box 8:6 boxing 23:16, 23:17, 53:4, 53:7, 53:8, 61:8, 61:12 break 26:10, 45:19, 70:10, 73:20, 83:14 breakdown 25:9, 26:17, 27:2, 33:11, 34:12 bring 9:17, 46:19 broadest 91:6 bunch 42:2 burling 3:13, 5:18	C c1 51:5, 51:8, 52:5, 52:11, 52:14, 52:19, 85:21, 90:22, 91:14, 91:17 c2 85:21 california 2:12, 103:8 call 19:3, 61:2 calls 99:8 came 36:22, 95:19, 96:16 camera 26:11 can't 11:13, 41:6, 41:21, 61:20, 96:4 capacitor 90:22 capacitors 85:21, 86:1 careful 58:9, 81:20, 100:11 carefully 66:18 case 1:15, 5:7, 17:2, 20:15, 20:22, 24:13, 24:19, 25:21, 26:19, 29:4, 29:13, 41:1, 49:9, 50:22, 57:11, 60:12, 66:6, 66:19, 69:11, 99:14 castro 3:19, 5:12 cat 85:1	cats 7:22, 11:17, 11:21 cause 34:10, 34:11, 34:12, 77:11, 78:6 causes 13:13, 65:1, 67:4, 67:16, 68:16, 99:12 caution 87:5 certain 51:20, 74:20, 77:21, 78:10, 78:18, 81:15, 98:4 certainly 20:7, 21:11, 22:16, 23:2, 35:21, 55:9 certificate 102:1 certified 2:11, 102:3 certify 102:4, 102:10, 102:12, 102:16 cetera 36:14 chair 47:7, 47:19, 60:14 chance 11:9, 26:9 change 31:8, 34:15, 37:4, 37:5, 42:20, 43:19, 70:3, 71:18, 72:2, 72:12, 72:15, 73:17, 76:20, 76:22, 78:3, 78:6 changed 72:16 changes 44:22, 73:1	changing 78:5 characterization 95:15, 96:15 characterize 20:5 chart 21:14 chat 9:18, 13:4, 13:19, 14:2, 16:9, 46:22, 47:12, 84:1 check 15:5, 15:12 china 1:6 chosen 18:1 circuitry 18:13, 19:7, 19:10, 19:13, 21:14, 21:17, 21:20, 22:8, 30:17, 31:5, 32:7, 43:5, 48:9, 50:10, 53:10, 54:8, 54:21, 56:18, 58:14, 58:21, 58:22, 59:5, 59:20 circuits 18:15, 18:16, 37:13, 37:14, 37:17, 38:1, 38:20, 39:17, 42:10, 43:16, 92:22 citation 25:14, 25:15 cite 27:15 cited 9:1, 12:20, 30:4, 41:19 ck1 65:21, 66:3,
---	--	--	---

67:3, 100:7, 100:18 ck2 63:1, 63:4, 63:5, 63:7, 63:11, 63:18, 64:3, 64:22, 75:21 claim 23:3, 23:5, 60:21, 61:3, 75:5, 75:7, 75:8, 77:10, 81:11, 82:1, 83:7, 89:12 claimed 78:22, 82:19 claims 21:8, 93:12, 94:19 clarification 63:15 clarify 7:5, 10:11, 63:10, 97:6 clean 8:19, 8:22, 9:11, 9:19, 60:13, 62:13 clear 6:1, 82:16, 88:13, 91:22 clearly 39:13, 39:15, 42:22 click 84:10 clk 63:12, 63:20, 64:2, 64:12, 64:21, 65:22, 66:7, 67:3, 76:11 clock 52:15, 58:2, 58:5, 58:11, 58:14, 63:19, 63:20, 66:7	coffee 9:14 cognizant 89:4 colleague 5:19 color 61:7 colors 61:10 combining 59:1 come 9:6, 75:7, 81:19, 87:16, 92:2 comes 11:6, 26:18, 84:19, 97:9 commencement 102:7 commencing 102:14 communicate 11:2 communicating 10:19 communication 8:1 communications 10:17 company 5:5 compared 27:9 completely 94:21 complicated 91:19, 91:20 composite 58:20 comprehensible 22:7, 32:7 comprise 23:14 computer 8:2, 8:17 conclude 97:21	condition 50:10, 50:11, 72:7 conditional 38:4 conducted 102:13 confidential 85:9, 87:5, 87:11, 87:16, 88:14, 89:6, 89:9, 89:18, 92:19, 96:2, 96:9, 96:12 conflict 41:22, 54:15, 55:2 confused 48:1 confusion 17:9, 30:13, 97:8, 97:12 connect 55:14, 75:10, 98:19 connected 24:12, 24:17, 25:10, 27:3, 38:8, 48:10, 49:17, 55:12, 55:14, 56:2, 66:17, 69:1, 71:4, 71:7, 73:14, 100:5, 100:16, 100:20 connecting 37:7 connection 87:6 connects 55:15 consecutively 10:3 consider 90:14 considered 95:17 consistent 10:9, 48:17,	53:22, 68:1, 75:5, 80:6 consulting 54:4 contentions 79:6, 79:20, 79:22, 80:3, 80:8, 83:3, 91:8, 94:7 context 50:13, 50:16, 56:8, 74:13, 78:16, 93:4, 93:6, 93:8, 94:21 continue 48:13, 58:18, 78:15, 85:8, 86:16 continuing 67:15, 68:14 control 48:10, 49:18, 49:21, 58:16, 65:14, 66:10, 77:3, 79:1, 80:19, 82:19, 83:6, 85:7, 86:19, 86:21, 90:9, 90:10 controlled 75:7, 75:11, 76:18, 80:1, 83:13, 90:20, 91:16, 91:18 controlling 39:18, 65:7, 68:6, 76:5, 78:4, 78:8, 82:5, 82:11 controls 62:17, 65:9, 76:16, 76:22, 77:19, 81:7, 82:12, 91:4 conventional 48:13 convoluted 70:7
--	---	--	--

copies 8:22, 9:19 copy 8:19, 9:12, 13:7, 13:20, 14:2, 14:3, 16:2, 16:11, 18:20, 26:13, 41:18, 46:9, 47:6, 47:18, 60:13, 65:19, 70:15, 84:3, 101:6, 101:8 correct 6:19, 12:21, 12:22, 14:13, 16:5, 20:2, 20:21, 21:4, 21:8, 21:10, 23:15, 24:7, 27:10, 27:18, 28:19, 29:21, 30:21, 33:18, 52:8, 52:16, 56:6, 56:19, 57:2, 57:21, 59:17, 60:5, 60:6, 64:5, 65:4, 68:4, 68:18, 69:21, 71:8, 90:19, 91:13, 98:13, 98:16, 99:4, 99:13, 100:7, 100:9, 100:12 correctly 28:4, 35:11, 65:6 cough 9:14 could 8:11, 10:4, 11:5, 13:3, 17:21, 22:2, 27:8, 30:12, 34:11, 34:12, 36:8, 42:7, 44:7, 45:11,	45:18, 45:19, 46:22, 52:11, 52:12, 54:20, 66:9, 71:20, 74:2, 77:13, 78:5 counsel 5:15, 12:5, 12:17, 15:20, 86:6, 87:18, 92:3, 93:19, 97:20, 98:2, 99:2, 99:21, 100:13, 101:7, 102:11 counselor 6:12, 11:19, 70:9, 83:16, 89:22, 100:10, 101:5 couple 9:7, 22:19, 96:21 course 15:6, 18:12, 44:2, 49:12, 54:16, 63:8, 72:17, 73:5, 96:10 court 6:4 cover 13:22 covington 3:13, 5:17 creates 88:21 criteria 78:12, 80:12 csr 1:23, 103:6, 103:7, 103:8 cuff 36:12 current 54:20 D damaging 54:21	dangerously 26:6 daniel 1:20, 2:9, 4:4, 5:3, 6:7, 6:15, 13:3, 101:13, 102:5, 102:13 date 5:10, 14:16, 14:19 day 14:18, 101:2, 103:2 dc 3:15 deadline 14:19 deal 42:5, 45:1, 95:10 december 1:21, 2:3, 5:10, 15:2, 15:9, 102:14, 103:2 decent 54:18 declaration 4:11, 8:19, 9:4, 10:6, 12:3, 12:20, 13:1, 13:2, 13:21, 14:1, 14:6, 14:11, 14:15, 14:17, 14:22, 15:4, 15:15, 15:18, 16:1, 17:1, 21:12, 29:21, 29:22, 31:13, 31:20, 46:8, 47:4, 47:16, 48:3, 48:6, 49:4, 49:13, 54:1, 56:8, 58:19, 59:4, 60:2, 60:11, 62:15, 74:18, 78:15,	83:10, 98:3 define 19:4 delivered 11:8 depending 52:9 depends 19:4 depos 5:13, 6:5 deposed 6:16, 6:20, 6:21 deposition 1:19, 2:9, 5:3, 5:13, 6:1, 7:3, 7:11, 8:3, 8:10, 8:17, 8:18, 9:13, 10:3, 10:16, 10:22, 11:2, 12:2, 12:14, 12:17, 86:11, 101:13, 101:15, 102:6, 102:7, 102:8, 102:11, 102:12 derek 3:11, 5:17 derivative 21:17 describe 17:14, 38:11 described 51:1, 82:7, 86:21 describes 34:4, 42:2, 42:3 describing 32:2, 56:13 description 4:10, 17:19, 53:22 designed 39:18 desk 26:10
--	---	---	--

deterioration 25:9, 26:17, 27:2, 33:12, 34:13 diagram 4:16, 18:18, 18:22, 19:20, 21:18, 27:20, 29:20, 31:6, 31:9, 31:18, 33:17, 33:19, 35:22, 36:4, 37:11, 43:3, 44:10, 45:10, 45:16, 51:13, 51:15, 51:17, 56:14, 56:15, 56:19, 57:10, 58:21, 84:22, 85:1, 89:14, 89:15, 93:2, 93:4, 93:14, 93:15, 94:13, 96:16 dielectric 25:8, 27:2, 33:11, 34:11 difference 64:8, 82:3 differences 40:3 different 18:6, 18:7, 19:1, 37:18, 38:5, 38:9, 38:11, 40:12, 55:7, 63:9, 94:22 differently 39:8 difficulty 10:21 digital 18:15, 71:14, 72:5 direct 86:8, 87:2, 90:10, 92:5	directly 55:22, 74:21, 75:2, 75:6, 75:10, 78:19, 80:1, 80:16, 81:7, 81:16, 82:2, 82:4, 83:12, 98:11, 98:19 disagree 95:15 disclosed 48:9 disconnect 8:5 disconnected 8:14, 74:6 discoverable 15:6 discriminate 18:3 discuss 38:17, 45:22, 95:11, 96:4 discussed 33:2, 33:11, 43:9, 46:21, 55:17, 60:8, 61:6, 75:20, 99:2 discusses 32:22, 38:4, 42:11, 45:1, 56:11 discussing 21:2, 24:15, 24:20, 27:11, 28:8, 32:19, 43:8, 56:9, 59:12, 60:21, 62:21, 65:13, 66:12, 80:5, 89:13, 96:4, 99:21 discussion 15:21, 16:7, 40:18, 44:3, 46:17, 60:6,	68:10, 79:19, 90:15, 95:20, 100:3 discussions 12:4, 12:6, 12:7, 42:9 display 1:7, 1:12, 5:5 dispute 85:2 disputed 79:11 distinction 75:1 distorted 55:2, 55:9 document 27:9, 27:22, 96:12 documents 8:17, 9:11, 9:12, 9:21 doing 15:1, 88:12, 92:9, 93:3, 93:6 done 9:9, 26:11, 101:1 door 11:6 down 9:15, 14:7, 18:17, 19:17, 22:19, 28:16, 51:11, 58:18, 60:20, 64:14, 65:12, 66:9, 66:22, 70:10, 72:8, 73:20, 74:19, 76:1, 76:6 download 14:2, 84:14, 84:17 dr 6:11, 13:3, 13:20, 14:8, 16:10, 16:21,	47:15, 84:2, 84:7, 86:8, 86:13, 87:15, 88:13, 89:3, 89:8, 91:22, 92:21, 93:5, 93:7, 93:11, 95:11, 97:7, 97:13, 97:21, 100:1, 101:1, 101:4, 101:13 drafts 15:19 draw 92:5 drawing 55:5 drawn 69:12 driver 23:9, 23:14, 23:20, 24:16, 30:10, 30:11, 49:1, 60:22, 61:3, 61:9, 62:1, 62:17, 65:14, 66:15, 74:9, 79:1, 80:19, 82:19, 98:11, 99:1, 99:7, 99:9, 99:10, 99:13 drivers 39:19 drop 9:18, 16:9, 26:10, 47:12, 84:1 dropped 13:4 dropping 13:18 drops 9:14 due 14:16 duly 6:8, 102:6
--	--	---	---

during 7:3, 10:16, 11:2, 29:11, 30:20, 54:4 E each 16:15, 62:11 earlier 34:5, 43:2, 78:20, 87:13, 90:7, 91:8, 98:15 early 11:10, 45:18 ease 61:11 easier 8:21, 26:14, 46:12, 49:3, 51:12, 61:2, 84:16 easiest 9:20 easily 45:14 easy 10:15 edge 9:5 effect 25:13, 72:18, 74:7, 74:9, 74:15, 77:11, 78:3 effectively 32:11 either 40:6, 44:8, 48:14, 91:18, 101:8 electrode 48:10, 49:18, 49:22 element 23:6, 50:8, 58:16, 61:3, 81:11, 82:2,	83:7 elements 23:13, 61:8 elicit 88:14, 93:19 eliciting 92:19 else 7:20, 9:13, 10:18, 15:17, 73:6 email 12:8 embodiment 21:12, 34:6, 37:12 embodiments 37:2, 37:22, 38:5, 38:10, 39:21, 40:1, 42:3, 43:4, 44:1, 45:13 employed 102:18 end 50:2, 82:1, 101:13 engage 10:17 engineer 54:19 ensures 59:6 entire 86:7 entirety 26:20 esquire 3:4, 3:11, 3:12 essentially 18:16, 31:13, 34:3, 54:6, 64:17, 77:18 et 5:5, 36:14 even 38:6, 90:1, 95:17, 96:1	event 98:9 everyone 63:16, 64:6 everything 40:16, 43:2 evidence 87:22 exact 20:7, 20:13, 20:16 exactly 35:21, 75:15, 81:1 examination 4:5, 4:6, 4:7, 6:9, 97:18, 99:19 examining 66:18 example 19:15, 19:21, 52:17, 77:15 excessive 34:11 exchanges 12:8 excuse 59:19 exhibit 4:11, 4:12, 4:13, 4:14, 4:15, 4:16, 10:4, 10:8, 10:11, 10:15, 13:2, 13:6, 13:16, 16:9, 16:12, 16:14, 16:20, 16:22, 17:4, 17:10, 26:2, 46:20, 46:21, 47:2, 47:9, 47:13, 47:14, 47:20, 60:7, 60:8, 60:10, 60:16, 84:1, 84:4, 84:5, 97:6,	97:7, 97:14 exhibits 9:1, 9:16, 10:2, 12:4, 12:20, 56:17 exp 103:7, 103:8 expect 11:7 expectation 51:2 expecting 11:7 explain 17:21, 32:1, 39:16, 59:4, 75:4 explained 32:2, 98:10 explains 55:1 explicit 31:5, 33:19, 44:3 explicitly 35:2, 38:17, 42:14, 42:18, 43:14, 43:21, 44:18, 45:6, 95:22 expressly 44:14 extent 31:1, 86:9 extract 92:6 extracted 26:4 extremely 54:20, 70:7 F fact 16:16, 22:6, 29:15, 36:4, 43:17, 54:2, 88:22, 91:16, 98:11
---	---	---	---

fail 94:15	42:12, 42:19, 43:9, 43:11,	30:11, 38:7, 38:15, 39:19,	28:22, 30:22, 31:11, 32:4,
fair 7:9	43:19, 49:2, 49:6, 49:11,	49:20, 60:22, 61:2, 61:9,	33:8, 34:17, 34:21, 35:19,
fairly 45:7, 54:17	49:15, 51:10, 51:16, 52:18,	62:1, 62:17, 65:14, 66:15,	38:14, 38:22, 40:2, 42:15,
familiar 86:3	53:1, 53:2, 56:14, 56:15,	73:21, 74:9, 78:22, 80:18,	43:13, 43:20, 44:6, 44:17,
far 37:22, 40:16, 41:4, 67:11, 67:13, 83:4, 100:19	56:17, 56:18, 57:7, 58:21, 61:7, 63:11, 64:1, 65:5, 66:2, 66:4, 66:13, 66:21, 67:1, 69:8, 70:12, 70:16, 75:19, 84:19, 85:8, 85:13, 93:21, 94:1, 95:6, 99:22	81:9, 82:8, 82:19, 98:11, 99:1, 99:7, 99:8, 99:9, 99:13	45:5, 53:20, 59:8, 70:6, 71:14, 71:19, 72:6, 72:14, 73:19, 74:11, 76:9, 76:21, 77:3, 77:9, 77:22, 78:11, 79:15, 82:21, 83:11, 87:1
faucet 77:3	figures 28:1, 35:6, 37:18, 56:22	fit 89:7	forth 8:14, 15:20, 102:6
feather 38:18	file 84:20	fix 67:16	forum 96:10
feed 55:7, 72:9	filed 14:18	fixed 73:15	foty 1:20, 2:9, 4:4, 4:11, 5:3, 6:7, 6:11, 6:15, 13:3, 13:20, 14:9, 16:10, 16:21, 84:2, 84:7, 86:13, 87:15, 88:13, 89:3, 89:8, 91:22, 92:21, 93:7, 95:11, 97:7, 97:21, 100:1, 101:1, 101:4, 101:13, 102:5, 102:13
feel 9:18, 83:12, 88:1, 95:1, 95:2, 95:3	filing 14:19	fletcher 7:19	foty's 86:8, 93:5, 93:11, 97:13
few 11:20, 12:4, 12:6, 12:8, 75:20	final 98:8	flipping 9:3	found 28:3, 46:9
field-effect 49:22	financially 102:20	floating 36:17, 37:6, 73:12, 73:16, 73:22	four 23:19, 24:3, 24:14, 24:17, 98:18
figure 16:16, 17:15, 18:19, 21:2, 21:15, 21:18, 21:22, 22:9, 22:11, 24:5, 25:5, 25:15, 25:16, 25:17, 27:20, 28:2, 28:6, 28:17, 29:2, 29:3, 29:7, 29:18, 30:3, 30:18, 30:19, 31:4, 31:10, 32:3, 32:12, 33:17, 34:15, 40:10, 40:11, 40:13, 41:8, 41:9,	find 9:5, 10:7, 10:15, 41:11	flow 43:15	
	fine 9:22, 11:4, 17:7, 23:11, 45:22, 47:22, 61:3, 101:11	fly 91:21	
	finished 14:14	focused 21:12	
	first 6:8, 19:22, 23:9, 23:14, 23:20, 24:15, 25:6, 30:10,	folders 8:16	
		folks 45:21	
		follow 36:19, 61:16	
		following 47:1, 73:3, 73:4	
		follows 6:8	
		forgot 8:5, 8:7	
		form 22:1, 28:14,	

free 9:19, 87:21, 88:1, 88:2, 95:1, 95:2, 95:3 friendly 11:19 frisch 3:12, 5:19 front 17:12, 48:6, 85:3 full 6:13, 11:13, 25:6, 35:22 full-timing 33:16 function 18:15, 35:4, 40:8, 48:21, 50:19 functionalities 22:3 functionality 17:20, 40:4, 50:2, 55:20, 58:17 functions 52:3 further 78:3, 97:16, 99:15, 99:19, 102:10, 102:12, 102:16 fuzzy 94:4	90:20, 91:4, 100:5 gates 48:10, 49:17, 49:21, 100:16, 100:20 general 6:22, 37:11, 39:1, 43:22, 44:11, 49:20, 51:2 generally 18:10, 18:12, 48:17 generic 17:19 generically 18:1 getting 76:17, 77:2 give 8:4, 11:13, 22:14, 41:15 given 97:12, 98:15, 102:9 gives 18:14, 42:21, 48:22 go 8:5, 9:16, 11:10, 15:5, 15:12, 17:11, 22:12, 22:19, 23:12, 26:3, 34:19, 37:3, 41:21, 46:7, 48:3, 49:5, 50:6, 50:18, 51:5, 57:20, 58:3, 59:7, 60:20, 65:12, 67:16, 68:19, 70:17, 72:8, 72:9, 76:3, 83:17, 94:14, 96:21 goes 19:17, 24:9,	43:15, 57:13, 63:9, 64:12, 76:3, 82:10 going 34:9, 39:2, 45:17, 46:2, 46:5, 52:17, 55:8, 64:14, 76:13, 79:11, 83:18, 83:21, 84:1, 85:2, 88:7, 92:7, 93:18, 96:22, 97:3 good 6:11, 6:12 gout 20:18 great 9:16, 10:16, 13:5, 17:13, 46:10, 47:1, 47:8, 60:20, 62:5 ground 16:7, 46:17, 60:5 grounds 86:10 group 43:22 guess 15:11 guy 11:15 guys 62:11	happen 10:5, 74:1, 96:10 happening 29:8, 31:17 happens 84:12 happy 10:10 hard 9:11, 9:19 hear 35:11 hearing 79:12 held 2:10 help 10:1, 13:8, 15:17, 72:11, 75:15, 81:12 hence 25:13 here 5:2, 5:21, 8:21, 11:21, 17:14, 19:16, 20:11, 21:5, 23:2, 23:8, 23:16, 28:7, 28:20, 29:2, 36:12, 37:18, 37:22, 38:6, 46:13, 48:7, 49:8, 51:1, 54:7, 56:9, 57:6, 57:12, 58:20, 59:6, 59:9, 60:2, 60:15, 60:21, 61:19, 62:15, 63:1, 63:10, 64:1, 64:10, 65:13, 65:20, 65:22, 68:5, 70:12, 73:5, 74:19, 75:9, 76:7, 77:13,
G		H	
gadgets 97:10 gate 24:12, 24:17, 55:12, 55:15, 56:2, 57:16, 59:6, 64:13, 66:16, 68:15, 78:4, 78:6, 81:4, 82:10, 82:11, 86:18,		half 12:10, 12:12, 32:12 halfway 26:21, 74:18 hand 103:2 hang 26:5	

79:8, 79:16, 79:19, 80:4, 80:5, 81:2, 82:13, 82:17, 83:9, 84:2, 84:8, 84:9, 84:21, 86:12, 88:4, 88:5, 88:10, 88:12, 89:2, 89:9, 89:13, 90:2, 90:13, 91:9, 93:18, 96:9, 100:22, 101:11 hereby 102:4 hereinbefore 102:6 hereunto 103:1 herman 3:4, 4:6, 5:20, 12:9, 12:12, 22:1, 28:14, 28:22, 30:22, 31:11, 32:4, 33:8, 34:17, 34:21, 35:19, 38:14, 38:22, 40:2, 42:15, 43:13, 43:20, 44:6, 44:17, 45:5, 53:20, 59:8, 70:6, 71:19, 72:14, 73:19, 74:11, 76:9, 76:21, 77:9, 77:22, 78:11, 79:15, 82:21, 83:11, 86:6, 87:1, 87:18, 88:16, 89:15, 92:3, 92:12, 92:17, 93:3, 93:13, 94:15, 94:20, 97:19, 99:15, 100:22, 101:7	herrington 3:5, 5:21 hi 11:20 high 17:16, 18:3, 18:9, 18:10, 19:17, 20:8, 20:19, 20:20, 29:12, 29:13, 34:9, 40:7, 40:20, 48:15, 48:20, 50:3, 50:21, 50:22, 52:7, 52:12, 54:10, 54:20, 55:18, 57:19, 59:13, 59:15, 64:13, 64:14, 65:2, 76:1, 82:9 higher 29:14, 36:18 highest 29:16 highlighted 23:15 highlights 7:1 hit 7:1, 62:7 holding 7:11 hope 17:9 hopefully 9:15, 41:22, 47:22, 54:18, 61:11 hour 12:9, 12:12, 45:18 hours 15:6, 15:7, 15:10 however 65:10, 87:21, 88:3 hypothetical 92:1, 92:4,	92:8 I id 25:14 idea 18:14, 85:7 ideal 73:22, 74:14 identified 23:18, 24:5, 24:6, 24:8, 24:15, 61:7, 62:22, 65:20, 66:15, 99:1, 99:9, 100:6, 100:18 identify 23:13 illustrate 75:18 immediately 68:2 impacting 73:7 improperly 54:10 in-person 7:13 in1 19:8, 86:14 in2 19:9 in4 19:9 inc 1:9 included 16:19, 23:20, 53:4, 61:12, 99:6 includes 24:22, 37:3, 40:21, 44:1, 48:9, 81:3, 99:3 including 6:17, 36:13, 37:9, 40:18,	98:12 independent 21:8 indicate 36:5, 37:10 indirect 80:22, 81:14, 83:6, 90:8 indirectly 75:2, 79:1, 80:19, 81:19, 82:19 individual 26:7 inferred 69:13 information 87:6, 88:14, 89:6, 89:9, 92:19, 97:10 infringement 79:6, 79:20, 79:21, 80:7, 83:2, 86:9, 88:17, 88:21, 90:9, 91:7, 92:5, 92:8, 92:13, 92:14, 93:6, 93:9, 94:7, 95:7, 95:20, 96:19 injured 97:10 input 19:8, 22:9, 24:6, 24:8, 32:8, 38:21, 40:4, 40:21, 45:10, 45:15, 52:1, 62:19, 63:1, 63:7, 63:11, 64:2, 64:3, 64:12, 64:21, 64:22, 65:16, 65:21, 65:22, 66:3, 66:5, 66:17, 67:2, 67:3,
---	--	--	---

78:10, 100:6, 100:17, 100:18, 100:20 inputs 19:4, 30:1, 30:2, 31:12, 31:15, 32:14, 32:17, 32:20, 33:13, 34:15, 35:14, 35:18, 36:7, 37:11, 39:18, 40:12, 44:12, 85:14 inserts 10:14 inside 19:7 instance 63:8 instances 67:12 instruct 89:4 integrity 74:3 intended 35:4, 35:9, 38:2 interchangeable 40:1 interested 102:20 interesting 90:15 internal 20:3, 31:6, 32:15, 32:16, 33:20 internally 35:5 interpret 94:12 interpretation 80:14, 89:12, 91:6, 94:19 interpreting 90:18, 93:12 interrupt 8:12, 11:21	interrupted 8:11, 11:5 interruption 8:6 introduce 88:1 introduced 97:7, 97:8 introducing 10:2 invalidity 80:3, 90:11, 91:10 inviting 88:18, 88:22 invoices 15:5, 15:12 involving 38:1 ip-as-fx5 97:11 ipr 1:15, 5:8, 6:2, 6:3, 10:8 isolated 74:14 issue 18:21, 39:6, 45:9, 74:4, 87:4, 88:20, 88:21, 92:5, 93:4, 93:22, 94:1, 94:2 issues 86:10, 92:14, 93:6, 93:15, 93:20, 93:22, 95:7, 95:13, 96:5, 97:13 itc 78:22, 79:5, 79:10, 79:14, 79:18, 82:18, 83:5, 86:10, 87:7, 87:20, 88:6, 88:9, 88:21, 89:19, 90:5, 90:8,	90:18, 91:2, 91:11, 92:6, 92:7, 92:13, 92:14, 92:20, 93:5, 93:7, 93:14, 93:15, 93:17, 93:20, 94:8, 95:6, 95:8, 95:13, 95:20, 96:5, 97:13 itself 58:4, 70:3, 71:17 J jared 3:12, 5:19 jesse 3:19, 5:12 job 1:24 K keep 9:14, 24:20, 26:7, 53:17, 59:21 kimora's 39:21 kimura 4:12, 16:3, 16:7, 16:10, 16:16, 16:20, 16:22, 17:3, 17:5, 17:8, 19:13, 19:14, 21:13, 24:9, 25:12, 25:17, 25:20, 26:3, 27:11, 27:21, 29:6, 32:17, 32:22, 33:9, 33:16, 34:14, 35:17, 35:20, 36:9, 38:4, 41:8, 43:8, 43:17, 44:4,	45:1, 45:3, 48:19, 51:18, 51:22, 95:3 kind 68:22, 70:8 klinger 1:23, 2:10, 6:5, 102:3, 103:6 know 10:2, 10:5, 11:3, 13:12, 13:13, 15:19, 20:5, 22:20, 32:21, 36:21, 36:22, 38:7, 38:12, 41:10, 43:9, 61:21, 74:3, 81:1, 84:6, 90:4, 95:19, 96:1, 96:16, 96:18 knowledgeable 92:22 L label 50:8, 70:14 labeled 19:6, 19:14, 19:22, 20:19, 23:20, 24:9, 28:17, 50:7, 62:1, 65:2, 67:18, 77:17, 85:14, 85:18 landline 8:13 language 23:8, 26:15, 99:8 large 37:9 last 14:5, 14:17, 75:5, 82:1 later 11:9, 16:18,
---	---	--	--

62:10, 84:18 leads 33:3 leakage 74:2, 74:13 least 38:2, 46:11, 51:16, 93:4 left 19:2, 24:4, 48:5, 51:18, 51:20, 62:6, 62:7 let's 13:1, 15:22, 16:8, 17:11, 22:19, 25:22, 26:11, 27:19, 46:7, 47:12, 50:4, 51:3, 52:22, 56:7, 60:1, 60:7, 60:20, 70:10, 72:8, 72:20, 72:22, 74:17, 74:22, 83:17, 84:12 level 18:9, 20:12, 20:16, 55:6, 65:3, 67:17 levels 19:6, 20:4, 20:16 life 26:14, 61:2 likes 11:19, 87:21, 88:3 limit 77:7 limitation 23:3, 23:9, 30:5, 30:6, 30:14, 60:21, 60:22, 61:3, 85:6 limitations 93:10	limits 77:12 line 17:17, 86:7 lineage 42:21 list 37:2, 42:3, 43:16, 61:13, 61:16, 62:3, 98:21, 100:8, 100:9 listed 19:1, 28:7, 37:18, 99:5, 100:10 lists 37:9, 38:15, 42:8, 62:9 literally 54:21 little 10:6, 14:7, 18:17, 23:8, 24:21, 41:16, 45:18, 66:20, 66:22, 69:10, 85:1, 85:5, 94:4 living 26:6 located 7:16, 7:18 logic 17:16, 17:22, 18:2, 18:9, 18:10, 18:15, 20:1, 20:3, 20:7, 20:9, 20:13, 20:16, 20:20, 40:7, 48:19, 50:3, 50:19, 50:22, 55:5, 55:6, 55:7 logical 48:15 long 11:15, 42:3, 61:17, 62:9	longer 70:2, 71:16, 71:17, 71:22 look 13:8, 19:15, 19:21, 20:18, 21:1, 24:11, 25:22, 28:16, 31:10, 31:19, 40:10, 44:20, 49:2, 50:5, 51:10, 52:5, 52:17, 53:1, 56:7, 56:20, 57:22, 62:14, 64:10, 66:20, 70:12, 76:6, 77:15, 85:13 looked 38:2, 95:17 looking 16:10, 22:13, 23:1, 27:20, 28:6, 31:17, 31:21, 31:22, 33:1, 34:2, 38:6, 46:13, 49:15, 51:18, 53:19, 57:6, 62:10, 63:11, 69:8 loop 90:13 looseleaf 26:7 lost 30:13, 70:8 low 17:16, 17:22, 18:3, 18:9, 19:17, 20:1, 20:2, 20:7, 20:8, 20:12, 20:13, 28:21, 40:7, 48:15, 48:19, 50:3, 52:6, 52:12, 52:19, 52:21,	57:16, 59:7, 67:16, 76:14 lower 27:17, 33:18, 68:22 lowered 25:8, 27:1, 27:13, 30:4, 30:15, 30:20 lowering 26:16 lucky 55:10 M m2 58:2, 58:4, 58:10, 58:13, 59:7, 59:10, 59:12, 59:20, 59:22 m5 57:13, 57:16, 57:19, 59:15, 59:16, 59:22 made 22:5, 29:6, 44:8, 44:22, 45:2, 45:12, 52:10 main 42:8 make 8:20, 10:1, 10:6, 33:15, 37:15, 46:12, 56:16, 59:9, 59:21, 61:8, 61:19, 62:10, 63:2, 75:1, 85:11 makes 26:14, 35:3, 37:4, 37:5, 42:5, 44:7, 45:11, 53:1, 61:2, 67:22, 96:8
--	---	---	---

making 17:15, 33:2, 34:7, 36:10 manner 22:10, 32:8 many 6:20 march 14:11, 14:17, 15:9 marked 13:6, 13:16, 16:12, 47:14, 84:3, 84:5 marks 25:13, 101:12 marriage 102:18 match 47:6, 61:20, 62:3, 62:9 material 64:6 materials 12:3, 87:16 matter 5:4, 6:22, 17:3, 20:4, 20:17, 95:13, 95:17, 96:5, 102:21 matters 17:8 maybe 13:9, 69:17, 99:17 mean 17:21, 18:1, 34:1, 38:6, 39:16, 40:6, 75:16, 81:1, 82:3 means 73:16, 82:4, 91:4 meant 34:4, 76:4, 76:17	media 5:2 meet 78:12, 80:12, 83:7 meeting 12:5, 12:12 meetings 12:13 meets 81:10 memory 94:3 mentioned 9:20, 12:19, 24:3, 54:13, 54:17, 78:20, 87:13 merely 77:10 merit 2:10 met 12:9, 62:19 mianyang 1:5, 5:4 microelectronics 1:8 microphone 13:9 middle 10:22, 52:2, 69:15 might 9:6, 10:1, 10:6, 15:13 minutes 16:15, 45:21, 75:20, 83:15, 96:21 mobile 8:13 modification 30:1, 33:3, 33:7, 34:7, 35:3, 35:12, 39:4, 39:10, 39:13, 41:9, 41:13, 42:5, 42:8, 42:12, 43:8, 43:10, 43:18, 44:4, 44:7, 44:9, 44:15, 45:2, 45:11 modifications 22:5, 29:7, 38:5, 38:11 modified 35:11 modifies 31:16, 32:18 modifying 33:1, 33:9, 39:5 moment 8:5, 22:14, 24:3, 26:5, 28:9, 41:15, 44:13, 55:17, 80:9, 84:17, 100:14 monitor 5:11, 101:14 months 95:18 more 37:12, 44:10, 49:20, 63:8, 66:4, 75:12, 75:16, 76:5, 77:4, 77:5, 77:14, 80:11, 99:17 morning 6:11, 6:12, 7:17 move 24:21, 60:1, 74:17, 96:3, 96:5, 96:13 much 11:9, 15:3, 91:21, 101:3 multiple 39:18, 98:10	must 38:20 N n1 70:13, 70:21, 70:22, 71:7, 71:18, 72:1, 72:2, 72:11, 72:22, 73:7, 73:12, 73:18, 74:10, 74:14, 74:22, 75:10, 75:14, 75:17, 76:8, 76:16, 76:20, 77:7, 78:2, 78:19, 81:17, 85:16, 98:12 n2 85:16 n3 85:16 n6 65:2, 65:8, 65:10, 67:18, 68:6, 76:14 name 6:13 names 53:14 navigate 9:21 nd 3:6 necessarily 20:6, 80:22, 81:13, 96:14 necessary 50:10 need 9:2, 15:6, 16:19, 45:21, 49:9, 83:15, 84:18, 95:10, 101:8 neighborhood 15:8
--	--	---

neither 48:1 never 33:16, 45:3 new 3:7, 25:6 next 19:13, 36:15, 65:12, 67:8 node 19:20, 20:8, 20:11, 25:8, 25:10, 26:17, 27:1, 27:3, 27:12, 27:17, 28:13, 29:1, 29:2, 29:5, 29:11, 30:15, 30:20, 33:20, 33:22, 34:6, 34:8, 36:2, 36:17, 37:6, 37:7, 40:20, 42:6, 51:19, 55:8, 55:12, 55:15, 56:2, 62:18, 65:2, 65:8, 65:15, 67:18, 68:6, 68:12, 69:3, 69:5, 69:22, 70:4, 70:13, 70:21, 70:22, 71:7, 71:18, 72:1, 72:2, 72:3, 72:11, 72:18, 73:7, 73:13, 73:14, 73:22, 74:6, 74:10, 74:15, 74:22, 75:10, 75:13, 76:3, 76:8, 76:16, 77:6, 77:16, 77:18, 77:20, 78:2, 78:9, 78:19, 79:1, 80:17, 80:19,	81:7, 81:16, 82:5, 82:12, 82:19, 98:12, 98:19 nodes 19:7, 19:10, 19:14, 28:8, 32:16, 52:3 none 100:4, 100:19 note 9:5, 87:11, 88:8, 88:10 noted 9:12, 91:10 notes 9:2 nothing 8:12, 73:6, 87:3 notice 67:13 noting 75:9, 79:17, 88:11 number 5:2, 6:16, 6:17, 10:5, 23:18, 37:9, 37:18, 37:21, 41:2, 61:13, 77:7, 77:12, 85:14, 85:18, 97:11 numbering 10:3 numbers 5:8, 10:9, 10:11, 10:15, 16:14, 28:2, 46:11 nw 3:14 O object 86:6, 86:10 objection 22:1, 28:14,	28:22, 30:22, 31:11, 32:4, 33:8, 34:17, 34:21, 35:19, 38:14, 38:22, 40:2, 42:15, 42:17, 43:13, 43:20, 44:6, 44:17, 45:5, 53:20, 59:8, 59:9, 70:6, 71:19, 72:14, 73:19, 74:11, 76:9, 76:21, 77:9, 77:22, 78:11, 79:15, 82:21, 83:11, 87:1, 87:2 obligations 89:5 obtained 87:6 obvious 45:7, 54:17, 54:18 obviously 19:5, 27:8, 54:14, 79:11 occur 54:9, 54:12 occurs 64:1, 64:21, 67:2 ocr 28:4 odd 11:9 offering 62:15 office 1:1, 5:6, 87:8 oh 22:22 okay 7:5, 8:8, 9:21, 10:19, 10:20, 12:11, 15:3, 17:10, 18:8,	18:22, 19:8, 19:21, 20:10, 21:1, 21:20, 25:4, 25:22, 26:15, 26:20, 28:6, 29:9, 43:7, 44:3, 44:13, 48:8, 49:11, 49:15, 50:4, 50:17, 50:21, 51:3, 51:10, 51:17, 52:22, 53:16, 54:2, 54:7, 56:13, 56:20, 57:3, 57:12, 57:18, 57:22, 58:13, 58:18, 59:4, 59:11, 59:18, 60:16, 61:18, 62:22, 63:7, 64:10, 64:19, 65:7, 65:12, 66:8, 66:14, 67:8, 67:15, 68:1, 68:5, 68:14, 69:17, 70:20, 71:9, 73:3, 73:9, 73:11, 73:17, 75:15, 76:6, 80:18, 81:12, 82:16, 85:3, 85:5, 85:11, 98:8, 100:4 once 10:21, 47:17, 61:1 one 7:4, 13:7, 17:3, 17:8, 21:16, 24:16, 28:6, 28:7, 28:17, 33:21, 36:2, 39:5, 45:13, 50:4, 54:12, 54:16,
---	--	--	---

55:6, 60:18, 63:8, 66:4, 66:16, 68:8, 68:9, 71:2, 75:12, 75:16, 76:5, 77:4, 77:5, 77:14, 80:11, 84:2, 84:9, 96:17, 97:21, 99:17 ones 32:15, 38:2 ongoing 79:10 only 9:22, 10:20, 11:5, 17:3, 17:8, 20:4, 20:16, 24:16, 28:17, 32:11, 39:10, 39:13, 43:17, 60:18, 66:16, 68:8, 69:13, 73:1 open 8:2, 13:7, 16:2, 17:12, 84:8, 84:10, 84:13, 84:20 opened 84:9 operate 17:15, 27:16, 35:9 operated 33:4, 33:7, 53:17 operates 92:11 operation 29:16, 29:18, 57:8, 73:1, 74:8, 80:10, 90:21, 91:16, 93:1, 93:9, 94:11, 94:12, 95:12 operational 68:10	operations 73:5 opinion 21:20, 62:16, 78:8, 80:18, 80:21, 99:12 opinions 46:14, 60:3, 93:11, 95:4 opposite 80:3 optoelectronics 1:5, 1:6, 5:4 orange 76:12 order 31:9, 80:15, 87:7, 87:20, 88:1, 88:9, 88:19, 89:1, 89:5, 89:20, 90:3, 92:19, 93:18, 101:10 orders 88:2 organized 26:8 orrick 3:5, 5:21 other 6:21, 8:2, 9:11, 10:18, 11:5, 11:20, 12:11, 12:13, 12:16, 16:15, 17:8, 18:13, 32:14, 33:12, 35:4, 35:10, 40:15, 54:16, 59:20, 62:12, 63:3, 70:4, 72:16, 72:21, 73:4, 74:2, 75:12, 82:9, 100:21 others 98:20 otherwise 33:3, 35:13,	36:3, 39:5, 39:6, 102:20 out 16:16, 26:18, 28:3, 50:7, 50:18, 51:5, 57:13, 57:20, 58:3, 80:4, 81:2, 82:14, 91:1 outage 10:22 outcome 55:10, 102:20 output 17:17, 18:13, 20:4, 20:13, 20:17, 20:20, 29:2, 29:5, 36:17, 37:6, 39:19, 40:4, 40:6, 40:7, 48:15, 48:20, 50:3, 50:7, 50:15, 50:18, 51:5, 51:9, 52:4, 52:13, 52:16, 54:11, 55:2, 55:19, 55:22, 56:5, 57:14, 57:20, 58:3, 58:6, 58:11, 58:15, 59:14, 59:16, 74:22, 75:2, 75:3, 77:18, 78:19, 81:16, 98:12 outputs 33:14, 35:14 outside 86:7, 87:2 over 63:17 overvoltage 34:5, 35:13, 36:2 own 82:5	owner 1:13, 3:10, 5:18, 78:21, 82:14, 83:1, 83:3, 98:2 owner's 79:13, 79:18, 80:7, 82:17, 83:4 P package 11:8 pad 9:1 page 4:3, 4:10, 9:6, 13:22, 14:6, 14:8, 16:1, 19:13, 22:13, 22:18, 26:4, 26:12, 32:6, 49:4, 51:11, 53:2, 56:20, 70:14, 83:6 pages 26:12 paper 13:7, 14:3, 16:2, 16:11, 18:20, 26:13, 41:18, 46:9, 47:6, 47:18, 60:13, 65:19, 70:15, 84:3 paragraph 15:22, 17:11, 18:18, 21:1, 21:3, 22:6, 22:18, 22:20, 23:12, 23:13, 24:21, 25:4, 26:3, 26:18, 26:22, 31:19, 34:2, 36:15, 37:1, 37:19, 38:16, 41:12, 42:11, 46:7,
--	---	--	--

46:13, 48:3, 48:6, 49:19, 54:3, 56:7, 58:19, 60:1, 60:20, 62:14, 64:20, 65:13, 66:21, 74:17, 74:19, 75:19, 76:7, 78:14, 79:8, 80:6, 81:14, 98:3, 98:4, 98:9 paragraphs 22:19, 25:17, 25:19, 26:5 parenthetically 64:2 part 49:20, 50:1, 62:1, 66:15, 68:22, 75:5, 89:10, 99:1 particular 25:17, 32:17, 33:21, 57:6, 64:3, 73:8, 80:2, 82:15, 83:5, 87:8 parties 5:13, 102:17, 102:19 party 102:10 pass 52:12, 58:14, 59:13, 68:11, 69:4 pass-through 69:2 passage 36:9, 68:3 passages 36:9 passed 52:15, 67:17, 68:15, 82:7, 86:13, 86:14 passes 59:15, 81:4	past 16:15, 62:11 patent 1:1, 1:3, 1:13, 1:16, 3:10, 5:6, 5:7, 5:18, 75:6, 78:21, 79:13, 79:18, 80:6, 82:14, 82:17, 82:22, 83:3, 83:4, 87:8, 94:7, 95:21, 98:2, 99:8 patentholder 79:5 path 55:6, 75:13, 75:16, 77:6, 77:8, 80:11 paths 55:7 patrick 3:4, 5:20, 6:15, 34:19, 42:16, 94:14 pause 54:5, 74:22 pdf 84:13 people 63:3 perfect 70:18, 70:19 period 19:22, 20:1, 20:19, 20:20, 26:22, 27:12, 28:17, 28:18, 28:20, 29:11, 29:15, 30:20, 52:18, 53:18, 57:12, 89:21, 94:2 periods 51:20, 52:6 petitioner 1:10, 3:3, 97:20, 101:8	petitioners 5:22 petitions 88:17 ph 1:20, 2:9, 4:4, 5:3, 6:7, 102:5, 102:13 phone 8:11, 8:13 phrase 65:10 physically 7:16, 7:18, 11:6 physiologies 63:18 physiology 63:20 picking 13:10 pin 66:4 place 41:8 places 63:9 planet 5:12, 6:5 platform 10:18 please 5:15, 6:13, 7:4, 11:3, 22:14, 41:15, 41:17, 71:21 plenty 9:9 pmos 57:15 point 29:16, 36:8, 41:8, 57:9, 63:17, 66:11, 81:2, 95:22 pointed 69:16 pointing 80:4, 82:13,	91:1 points 42:22 portions 98:4, 98:6 posa 44:19 posita 22:8 position 78:21, 79:4, 79:8, 79:13, 79:18, 79:21, 80:3, 80:7, 82:18, 88:5, 88:16, 91:9 positions 90:11 possible 33:11, 54:9 potential 25:7, 26:16, 26:22, 27:12, 27:17, 28:13, 28:21, 30:4, 30:15, 30:20, 33:18, 73:8, 73:15, 97:13 power 10:22 preemptively 23:1 prepare 12:1, 12:13 preparing 12:17, 90:14 presence 99:11 present 3:18, 94:22 presumption 52:10 prevent 25:8, 26:17, 29:7, 31:16, 34:8, 37:5 prevented 27:5
---	--	--	---

preventing 76:16 prevention 77:2 prevents 37:8, 40:19, 77:1 previous 22:13, 22:18, 68:9 previously 61:5, 97:7 primarily 21:7 primary 21:11 prior 42:9, 72:20, 87:3, 89:16, 94:1, 94:16, 94:21, 94:22 pro 9:10 probably 11:9, 15:1, 15:7, 36:11, 52:22, 96:2 probing 89:11 problem 11:18, 13:12, 13:14, 32:18, 33:2, 33:10, 35:5, 35:6, 36:2, 36:16, 42:7, 45:1, 54:16, 60:19 problems 11:22, 27:8, 54:12 proceeding 6:2, 7:14, 87:4, 87:7, 87:8, 87:20, 89:17, 89:19, 90:2, 92:17, 93:14, 93:16, 93:21, 94:17,	95:6, 95:8 proceedings 6:17 proceeds 38:16 process 81:10 produce 33:14, 35:14, 39:19 product 94:5, 96:1, 96:15, 97:11 progression 43:4 propose 59:1 proposition 27:16 protected 87:22 protective 87:7, 87:20, 88:1, 88:2, 88:9, 88:19, 88:22, 89:5, 90:3, 92:18, 93:18 provide 21:13, 21:16, 33:19, 35:22, 36:4, 45:10, 49:21, 53:22, 55:22, 56:1, 56:4, 58:10, 74:21, 75:12, 75:13, 75:16, 77:6, 78:19, 81:16, 89:9, 98:12 provided 43:10, 50:16, 55:19, 58:6, 63:13, 69:19, 71:10, 71:16, 72:1, 73:13, 76:8, 76:12, 83:9, 86:16	provides 33:16, 40:9, 55:11, 75:22, 76:14 providing 23:3, 46:14, 48:19, 70:2, 71:17, 75:2, 89:10 ptab 5:5 publicly-availab- le 96:17, 97:9 pull 16:8, 26:2, 47:12, 49:9, 60:7, 65:2 pulled 64:3, 64:22, 67:4 pulling 13:19 pulls 82:8 purple 24:6 purpose 59:21, 86:11 purposes 89:1 put 20:12, 55:2 putting 90:2 Q q1 77:16, 78:4, 78:6 q2 67:4, 67:9, 67:12, 77:16 q3 61:14, 74:20, 78:18, 81:15, 98:12, 98:16, 99:3, 99:22,	100:4 q4 61:14, 98:17, 99:3, 99:22, 100:4 q5 61:14, 74:21, 78:18, 81:15, 98:13, 98:17, 99:3, 99:22, 100:4 q8 69:14 quebec 61:21 question 7:7, 7:8, 10:10, 29:10, 30:12, 41:20, 43:7, 54:6, 57:4, 67:9, 70:20, 71:21, 80:17, 87:21, 97:21, 100:15 questioning 86:7 questions 7:3, 7:4, 89:20, 92:10, 93:16, 95:1, 95:2, 95:3, 97:16, 98:3, 99:16, 100:21 quick 45:19 quicker 10:6 quickly 16:8, 26:1, 46:19, 60:7, 72:8 quite 95:22 quota 34:4 quotation 25:13 quote 53:7, 53:9
--	--	--	---

quoted 41:11 quoting 25:12 R rail 73:15 raised 93:22 raises 29:5 read 22:12, 22:15, 26:20, 27:9, 61:17, 65:6, 69:6, 78:16, 98:4, 98:6 readily 22:7, 32:6 reading 26:21, 27:8, 44:19, 49:19, 65:5, 78:16, 81:18 realize 81:18 realized 8:10 really 20:4, 20:16, 90:20 realtime 2:11 reason 11:13, 39:7, 77:12 reasonable 33:15, 35:8, 36:3, 37:15, 69:9, 69:14 reasonably 94:4 reasons 72:17, 74:2 recess 46:4, 83:20, 97:2	recites 81:11 recognize 13:20, 74:20, 78:17, 81:15, 85:12, 86:2, 87:12 recognizing 23:7 record 6:14, 11:3, 46:1, 46:3, 46:6, 62:13, 83:17, 83:19, 83:22, 89:2, 95:5, 95:9, 96:9, 96:21, 97:1, 97:4, 97:6, 97:15, 98:7, 102:9 red 49:14, 53:4, 53:7, 53:8, 59:1, 59:6 refer 17:4, 19:6, 23:8, 38:20, 47:9, 47:20, 60:16 reference 4:12, 4:13, 4:14, 4:15, 16:4, 17:3, 17:8, 18:6, 22:11, 25:16, 30:15, 42:13, 42:19, 43:11, 47:3, 47:5, 47:15, 56:10, 56:11, 60:4, 60:11, 60:19, 79:7, 95:12, 97:12 referenced 37:19, 63:6, 79:9 references 43:18, 46:15, 64:7, 87:3, 89:17 referencing 25:19, 26:16 referred 17:1, 47:3, 47:16, 64:20 referring 14:3, 17:5, 32:10, 49:17, 81:22 refers 25:15, 29:2, 36:13, 37:4, 38:12, 50:1, 53:5, 53:9, 63:4, 75:6 reflect 30:3, 33:18 reflects 20:9, 53:8, 93:15 regard 45:2 regarding 60:3, 97:14 register 48:22 registered 2:10 related 102:16 relates 93:20 relating 6:2, 95:7 relevance 94:15 reliance 32:3 relied 29:22, 30:2, 38:13 rely 21:7, 29:21 remember 41:6, 90:4, 91:20	remote 1:19, 2:9, 5:11, 13:15, 13:18 remotely 5:14, 7:11 repeat 30:12, 70:20, 71:21 repeats 19:18 rephrase 58:8 report 51:12, 53:3, 56:21, 58:19 reported 1:23 reporter 2:11, 6:4, 102:1, 102:3 reports 87:11 represent 5:16 representation 87:19 represented 102:11 representing 5:12, 5:18, 6:5 reproduced 49:3, 51:11 request 9:22 required 99:13 requirement 62:16, 65:13 reread 41:21 residence 7:18 respect 30:17, 42:20, 43:18, 43:19, 46:15, 48:18, 51:15, 54:22,
---	--	--

79:6, 91:1, 93:10 respond 32:16 response 39:1, 72:15 restricted 82:6, 83:12 restricting 90:10 result 72:12 results 31:15, 32:15 retain 74:1 reveal 87:5, 89:6 reversal 54:9 review 21:10, 35:20 reviewed 12:3, 12:19 ringing 8:11 rmr-crr 1:23, 103:6 rough 15:11 run 31:14, 32:20, 39:3, 43:5, 45:14, 45:15	76:16 safe 26:7 said 15:10, 20:15, 22:14, 29:22, 31:12, 35:9, 36:21, 43:2, 49:6, 64:5, 75:20, 77:4, 80:12, 81:13, 90:7, 90:18, 91:8, 95:9 same 7:13, 14:4, 21:21, 22:3, 22:4, 22:10, 31:14, 32:8, 32:9, 32:20, 33:5, 33:7, 33:13, 33:14, 35:2, 35:4, 35:7, 35:10, 35:14, 35:15, 35:18, 36:6, 36:7, 37:13, 37:17, 38:3, 38:18, 38:20, 39:3, 39:14, 39:16, 40:5, 43:5, 43:6, 44:8, 44:20, 45:7, 45:12, 45:15, 54:14, 55:8, 61:6, 61:10, 62:7, 66:5, 76:10, 83:6, 100:13, 100:22 samsung 1:12, 5:5, 87:14, 88:6, 90:6, 90:8, 90:17, 91:3, 91:7, 91:8, 91:12, 96:18 sanctioned 88:11	sasaki 4:15, 46:15, 47:13, 47:15, 47:21, 49:2, 49:9, 51:10, 51:15, 53:5, 53:9, 53:14, 53:16, 54:7, 55:1, 55:11, 56:1, 58:22, 59:5 sasaki's 48:8, 59:18 satisfy 86:20, 86:21 save 9:4 saved 8:16 say 11:20, 12:6, 20:11, 22:6, 22:17, 24:22, 32:5, 32:6, 32:15, 34:14, 35:1, 36:19, 37:16, 39:15, 41:22, 43:14, 44:14, 44:18, 45:6, 45:16, 48:8, 54:1, 54:3, 54:7, 58:8, 58:12, 63:22, 64:20, 66:2, 66:22, 67:2, 68:14, 69:6, 72:22, 77:19, 80:22, 81:13, 81:14, 82:22, 89:22, 98:9 saying 62:11, 79:16 says 26:21, 27:14, 33:9, 35:21, 36:14, 36:15, 41:8, 41:13,	42:4, 43:21, 45:4, 54:7, 74:19, 75:7, 75:8, 77:10, 89:3 scan 39:20, 49:1 scenario 86:21 scheme 61:7 scope 86:8, 87:2 screen 9:17, 13:4, 13:19, 16:9, 16:22, 18:19, 48:7, 65:18, 66:21, 84:15, 90:2 screwed 41:16 scroll 14:7, 18:17, 60:2, 66:9, 70:16 scrolling 31:22 sd 6:18 search 28:3 searchable 46:11 second 50:1, 62:18, 62:19, 62:22, 63:7, 64:2, 64:12, 64:21, 65:15, 81:8, 82:10 section 16:6 see 14:1, 17:18, 19:16, 19:18, 20:1, 22:13, 25:2, 25:11,
S			
s 3:1 sl 69:1, 69:2, 69:4, 69:5, 69:7, 69:11, 69:19, 70:1, 71:3, 71:4, 71:10, 71:16, 71:22, 72:16, 72:17, 74:5, 74:14, 76:3,			

25:12, 26:11, 28:10, 28:11, 31:21, 35:20, 44:20, 48:11, 48:12, 52:5, 57:1, 57:4, 57:5, 57:13, 61:20, 64:11, 64:13, 67:6, 67:19, 67:20, 68:21, 69:10, 70:15, 70:22, 71:3, 72:8, 77:11, 77:16, 79:2, 81:20, 84:8, 84:12, 84:18, 84:20, 85:3, 85:16, 85:17, 85:20, 85:21, 86:1, 86:5, 94:15 seem 63:6 seemed 21:19 seems 33:14, 35:7, 36:3, 37:14, 42:19, 45:7, 78:12, 97:8 sees 89:6 semiconductor 1:6 sense 53:1, 67:22, 77:1 sentence 25:6, 98:8 sequestered 16:6 serial 97:11 set 102:6, 103:1 seven 99:6 several 6:21, 95:18	shall 32:15 shift 48:22 shin 4:13, 46:15, 47:2, 47:5, 47:9, 56:9, 56:11, 56:14, 95:4 shin's 57:18, 58:14, 58:21, 59:1 short 50:12, 83:14 shorthand 102:1, 102:3 shorthanding 23:7 should 10:9, 10:15, 11:4, 13:2, 14:3, 14:6, 16:1, 16:10, 17:7, 23:10, 40:4, 46:12, 47:13, 47:22, 58:8, 67:9, 67:12, 67:14, 69:15, 84:3, 84:11, 97:15, 100:13 shouldn't 11:18, 11:21, 17:9, 59:7, 60:19 show 30:19, 31:5, 31:9, 31:17, 80:15 showing 31:6, 33:20, 57:8, 80:5, 84:21 shown 21:22, 28:21, 29:1, 29:12, 29:13, 29:15,	40:13, 51:19, 51:20, 57:7, 59:6, 93:1, 94:13 shows 11:10, 19:14, 31:2, 43:22, 56:18 side 70:4, 71:2, 82:9 signal 17:22, 19:4, 39:20, 40:22, 48:15, 48:20, 50:22, 51:5, 51:8, 52:4, 52:11, 52:14, 52:15, 52:19, 52:20, 52:21, 54:10, 54:15, 55:2, 55:18, 57:7, 57:16, 57:19, 58:5, 58:11, 59:13, 59:15, 62:18, 63:5, 63:12, 63:19, 63:21, 64:2, 64:9, 64:11, 64:14, 64:21, 65:16, 65:22, 66:5, 66:7, 67:3, 69:4, 69:6, 69:11, 69:18, 70:2, 71:10, 71:16, 71:17, 71:22, 72:4, 72:16, 72:17, 72:22, 73:13, 74:3, 75:13, 75:17, 75:21, 76:1, 76:2, 76:8, 76:11, 76:12, 76:14, 77:6, 78:5, 81:9, 86:13, 86:14, 86:18	signals 17:16, 19:1, 19:3, 19:5, 19:8, 22:9, 32:8, 51:19, 52:1, 55:8, 77:21, 78:10 signature 14:8 signature-plkal 103:4 signed 14:11 similar 51:22, 76:7 similarly 51:3 simply 79:9, 84:21, 96:7 since 10:2, 22:3, 36:1, 36:3, 37:12, 39:2, 43:1, 45:7, 53:3, 81:8, 84:9, 86:11 single 6:2 situation 44:21, 45:8, 74:14, 76:7, 82:15 slash 63:19 slight 37:5 slip 9:5 smooth 10:1 some 7:1, 10:21, 15:1, 17:7, 20:9, 25:16, 28:2, 40:3, 40:15, 41:4, 42:4, 51:19,
--	--	---	---

52:1, 52:2, 63:17, 64:7, 74:3, 94:21, 95:21, 97:8, 98:6 somebody 13:13 someone 11:1, 11:6, 44:19, 62:10 someplace 50:13 something 15:7, 15:8, 15:12, 37:7, 41:11, 71:20, 77:1, 95:10 sometimes 9:4, 18:13, 28:5 sorry 22:22, 23:1, 26:12, 30:11, 30:12, 31:21, 34:3, 34:19, 34:22, 42:16, 57:4, 57:5, 63:19, 70:7, 70:17, 71:20, 71:21, 72:9, 77:5, 85:1, 86:1, 86:2, 99:7, 99:8 sort 10:21, 19:16, 19:18, 20:9, 35:15, 38:3, 43:5, 44:8, 45:12, 52:2, 74:3, 76:10, 90:12, 97:5 source 49:5 speak 12:16 specific 21:14, 27:12, 69:17	specifically 21:16, 27:14, 38:13, 42:4, 83:2 spend 15:3, 16:15 spot 62:8 square 19:16 stage 37:17 staged 37:14, 38:1, 38:20, 39:2, 39:8, 39:17, 39:22, 40:8 stand 13:15 standard 18:5 standing 101:10 star 1:6 start 14:21, 46:14, 74:18 started 15:1, 56:9, 62:6, 62:7 starts 25:7, 81:10 state 5:16, 6:13, 102:4 stated 52:10 statement 98:16 states 1:1, 2:12, 5:6, 18:4, 18:7, 18:8, 31:18 stay 16:18 stays 59:10, 59:22	step 50:4 stepped 34:20 steps 9:7 sticky 9:2, 9:5 still 42:17, 43:3 stop 11:10 street 3:6, 3:14 struck 97:15 structure 24:22 structures 36:13 studying 71:20 stumbled 63:16, 63:17, 64:7 submit 92:7 subtractions 41:5 supplied 21:21, 22:9, 32:8, 50:14, 51:8, 64:17 supplies 51:15, 65:9 supply 17:16, 54:10 support 36:9, 36:11 supposed 50:12, 96:10 sure 10:8, 21:11, 30:14, 41:13, 45:20, 49:10, 56:16, 59:9, 59:21, 62:10, 63:2, 70:10,	70:11, 71:22, 73:6, 85:9, 85:11, 94:4, 95:22, 98:1 surprised 91:20 susan 1:23, 2:10, 6:5, 102:3, 103:6 sutcliffe 3:5, 5:21 sworn 6:6, 6:8, 102:6 T t1 49:16, 50:11, 50:13, 50:17, 51:4, 51:7, 52:13, 52:14, 52:15, 54:13, 54:19, 55:21, 56:2, 56:4, 85:18, 86:15, 91:3, 91:4 t2 49:16, 50:5, 50:6, 50:14, 50:17, 51:4, 51:7, 52:11, 53:18, 54:13, 54:19, 55:12, 55:16, 55:18, 55:21 t3 52:18, 53:19 t4 52:19, 53:19 t5 86:19, 90:20, 91:5, 91:16 t7 53:13, 55:14 t8 53:13, 55:14, 85:19, 86:17, 90:16, 90:19,
---	--	---	--

91:4, 91:13 take 20:8, 26:9, 41:17, 45:19, 50:4, 68:12, 79:20, 83:14, 91:9 taken 78:21, 82:13, 96:12, 102:8 taking 32:11, 36:1, 79:5, 88:6, 90:8, 90:9, 91:3 talk 85:5 talking 16:15, 30:7, 30:9, 37:13, 37:16, 38:12, 47:10, 48:18, 62:11, 71:2, 80:10, 85:6, 93:11 task 61:11 teach 99:13 teaches 53:16 teachings 36:6 tech 5:4 technical 10:21, 18:21 technician 13:15, 13:18 technology 1:5, 1:7, 1:9 telephone 8:6 tell 10:4, 35:17, 38:1, 40:16, 41:5, 61:20, 67:11, 67:14, 87:15, 100:19	tends 36:5 tenth 3:14 terminal 24:6, 24:8, 38:7, 48:16, 50:7, 50:18, 51:5, 52:13, 57:14, 58:3, 58:6, 58:11, 58:15, 59:14, 62:19, 63:1, 63:4, 63:5, 63:7, 63:12, 63:13, 63:18, 63:21, 64:3, 64:8, 64:12, 64:22, 65:16, 65:21, 66:1, 66:3, 66:5, 66:17, 67:3, 71:3, 71:4, 76:12, 100:6, 100:17, 100:18, 100:20 terminology 18:5, 65:11 terms 42:22, 44:11, 44:22, 74:4, 79:20, 90:10 testified 6:8, 92:13, 93:13, 95:5 testimony 11:14, 86:8, 88:9, 91:2, 92:7, 93:5, 93:20, 95:8, 97:15, 102:9 texas 2:12, 102:4, 103:7 th 103:2 thank 23:12, 62:2,	66:11, 67:1, 70:19, 101:2, 101:3, 101:4 that- 70:15 themselves 5:16 therefore 27:1, 34:7, 75:22 thing 13:7, 38:3, 73:1, 73:21, 76:10 things 38:16, 42:4, 68:9, 73:21 think 10:8, 23:10, 26:5, 41:12, 45:17, 46:19, 58:1, 61:6, 61:17, 62:6, 66:10, 69:9, 69:14, 72:10, 75:18, 79:16, 82:1, 82:22, 85:12, 96:7, 96:8, 97:14, 98:19, 100:22, 101:1 third 24:5, 24:8, 65:16, 65:21, 65:22, 66:3, 66:17, 67:3, 100:6, 100:17, 100:18, 100:20 thought 30:7, 41:10, 70:8, 81:19 threw 90:13 through 9:16, 26:21, 43:4, 43:15, 52:12, 52:15, 55:18, 64:15,	64:18, 64:22, 67:17, 68:20, 69:19, 70:2, 71:10, 71:16, 72:1, 76:3, 80:2, 81:4, 81:8, 85:19, 86:14, 86:15, 86:16, 90:21, 91:14, 98:13 throughout 6:20, 37:14, 61:11 thursday 102:14 tianma 1:7 time 5:11, 15:3, 19:22, 20:19, 28:17, 28:18, 28:20, 29:11, 30:20, 41:17, 46:3, 46:6, 50:5, 51:20, 52:18, 52:19, 53:18, 54:14, 57:8, 57:12, 79:10, 83:19, 83:22, 97:1, 97:4, 101:2, 101:14 times 6:16, 6:20, 6:21, 9:9, 11:20 timing 18:18, 19:20, 21:14, 21:18, 21:21, 22:10, 27:19, 29:20, 31:8, 32:9, 36:4, 37:11, 43:2, 44:9, 45:9, 45:15, 51:13, 51:14, 51:17, 52:9, 56:14, 56:18, 57:7, 68:8, 93:1
---	---	--	--

timings 31:9, 38:21 tobita 4:14, 60:4, 60:5, 60:10, 60:13, 60:17, 60:18, 61:8, 63:3, 69:12, 95:2, 99:7, 99:10, 99:12 tobita's 98:11, 99:7, 99:22 today 6:4, 7:2, 7:12, 7:21, 8:3, 8:20, 9:13, 9:16, 9:21, 11:8, 11:14, 12:2, 12:17, 17:4, 47:20, 86:12, 97:21 today's 5:10 told 35:17, 44:13, 76:19, 80:10 took 79:21, 80:2, 82:3, 91:9 tools 8:1 top 19:5, 24:4, 27:22, 32:11, 37:18, 49:4, 52:1, 53:2, 56:20, 68:22, 71:6 topologically 39:12, 98:16 trademark 1:1, 5:6 train 70:8 transcript 41:21, 61:21, 101:9	transistor 23:21, 23:22, 24:12, 24:16, 24:20, 25:1, 25:7, 27:3, 27:4, 27:5, 27:16, 29:4, 29:19, 33:12, 34:12, 38:8, 39:9, 50:1, 50:5, 50:6, 50:11, 52:13, 52:15, 53:10, 53:18, 55:15, 55:17, 55:18, 57:13, 57:17, 57:19, 58:4, 58:13, 59:10, 59:12, 59:15, 59:16, 59:20, 59:22, 64:13, 64:15, 64:16, 65:1, 66:16, 67:4, 67:17, 68:5, 68:16, 68:20, 69:3, 69:14, 69:19, 69:21, 70:3, 71:5, 71:6, 71:9, 71:13, 72:5, 72:6, 72:12, 72:19, 72:21, 75:13, 75:16, 75:21, 76:1, 76:2, 76:5, 77:4, 77:6, 80:2, 80:11, 80:16, 81:3, 81:5, 81:6, 81:8, 81:9, 81:10, 82:4, 82:8, 82:9, 82:10, 82:11, 86:15, 86:16, 86:18, 91:18 transistors 17:14, 23:18,	23:19, 24:14, 25:9, 41:2, 48:9, 49:16, 49:21, 53:12, 61:13, 61:22, 66:14, 74:20, 75:10, 75:12, 77:8, 77:13, 78:18, 81:15, 85:18, 98:10, 98:12, 98:18, 98:22, 99:3, 99:6, 99:12, 99:22, 100:4 transparently 64:17 treated 7:13 trial 1:3, 5:7 tried 75:4 trivial 15:14 trouble 9:4, 13:10 true 102:8 try 9:17, 13:8, 13:11, 36:22, 67:16 trying 11:21, 33:13, 35:13, 36:19, 45:16, 55:4, 55:7, 58:9, 58:12, 87:14, 89:13, 89:22, 94:11, 98:15 turn 13:1, 13:8, 13:11, 14:5, 15:22, 17:10, 27:19, 48:2, 55:21, 65:1, 67:5, 74:4, 74:12, 78:1,	78:2, 78:6, 78:14, 81:3, 91:13 turned 58:5, 59:16, 68:7, 68:10, 68:11, 68:17, 82:8 turning 58:10, 72:12, 72:21, 76:2, 76:15, 77:2, 81:6, 91:3, 91:4 turnoff 73:10, 76:15 turns 57:16, 64:16, 68:19, 71:9, 71:15, 73:2, 75:11, 75:21, 75:22, 76:13 two 18:4, 18:6, 18:8, 48:1, 54:12, 55:6, 67:11, 73:20, 77:14, 86:1, 99:17 type 37:13 types 37:17 typical 55:6 typo 67:7, 67:13, 67:14, 67:16, 67:21, 98:15 U under 52:10, 86:19 undergraduate 54:18 understand 7:4, 7:8, 7:12, 7:15, 11:12, 17:5, 47:8,
--	--	---	---

47:9, 72:10, 72:11, 75:15, 81:12, 94:12 understanding 19:12, 28:15, 78:20, 79:3, 86:19, 89:11 understood 7:6, 7:8, 7:10, 14:5, 22:8, 101:12 unfortunate 63:3 unfortunately 28:2 united 1:1, 5:6 universe 98:22, 99:3 unlike 17:7 unpatentability 16:5 use 9:2, 9:19, 10:8, 21:19, 31:14, 32:19, 33:13, 35:7, 45:19, 61:6, 81:18, 83:5 uses 82:2 using 8:3, 18:5, 35:18, 39:7, 43:2, 91:7, 92:15 usual 15:19 usually 8:9 utilities 8:2	value 20:7, 20:8, 20:9 varied 38:10 variety 37:2 various 38:4, 40:12, 40:17, 42:9 vdd 50:6, 50:13, 50:14, 50:17, 50:21, 54:10, 55:19, 55:22, 57:13, 57:19, 59:13, 64:14, 64:17, 65:2, 76:1, 82:7, 82:9 verbalize 13:11 verbally 31:18, 33:21, 34:1 verifies 47:18 verify 98:15 verifying 16:13 vermont 7:19 version 25:5, 57:9 versions 56:22 vgh 86:4 vgl 86:4 via 102:13 video 5:11, 5:13, 101:6, 101:9 videographer 3:19, 5:2, 5:12, 6:4, 46:2,	46:5, 83:18, 83:21, 96:22, 97:3, 101:5, 101:12 videotaped 1:19, 2:9, 5:3 view 81:3, 82:13, 89:19, 90:8, 91:3, 92:18 viewer 84:13 violate 88:19 violating 88:8, 89:20, 90:3, 92:18 violation 88:22, 93:17 virtually 102:13 visionox 1:8 voice-identify 5:15 voip 8:5 voltage 18:3, 19:6, 19:20, 20:3, 20:11, 28:8, 28:12, 29:6, 29:11, 34:9, 34:11, 36:18, 40:20, 42:6, 52:2, 62:17, 64:4, 64:14, 64:22, 65:3, 65:8, 65:10, 65:15, 67:4, 67:17, 68:6, 68:11, 68:13, 68:15, 70:4, 71:18, 72:2, 72:3, 72:11, 72:18, 72:22, 73:18, 74:1, 74:9, 74:15,	76:16, 76:20, 77:20, 78:3, 78:4, 78:6, 78:9, 81:4, 81:7, 82:12 voltages 18:6, 18:13, 19:5, 19:7, 19:9, 28:7, 31:2, 31:6, 31:15, 32:16, 33:20, 51:19, 79:1, 80:19, 82:20 voluntary 20:10 vss 67:17, 68:11, 68:19, 69:1, 69:7, 69:13
V			W
v 19:10 valid 43:3			want 8:4, 11:20, 16:18, 24:20, 45:22, 49:8, 61:1, 62:9, 74:18, 77:5, 85:5, 87:11, 88:7, 88:13, 97:5, 100:10, 101:5 wanted 56:16, 62:5, 85:11, 88:10 wanting 39:3 wants 84:14 washington 3:15 water 9:14, 77:3 waveform 19:16, 55:3, 55:9 way 11:5, 22:2,

22:3, 31:14, 32:20, 33:5, 33:7, 35:4, 35:7, 35:10, 36:6, 39:3, 43:6, 48:14, 55:20, 62:3, 63:3, 66:9, 69:12, 75:11, 90:16, 91:11, 102:19 we're 7:11, 8:3, 9:3, 10:19, 23:7, 31:16, 38:6, 63:11 we've 19:8, 45:17, 51:12, 84:15, 85:21 well-known 34:10 went 15:19, 86:17, 86:18 west 3:6 whatever 9:20, 69:4, 69:22, 74:5, 76:2, 101:10 whatsoever 89:18 whereas 82:5 whereof 103:1 whether 79:16 whoever 66:10 whole 42:2 wiring 24:7, 24:9, 24:11, 24:17, 38:8, 38:9, 64:18	within 19:10, 23:17, 34:1, 50:9, 50:13, 50:15, 74:12, 102:4 without 54:8, 95:12, 96:4 witness 4:3, 6:6, 34:19, 87:5, 87:19, 88:18, 92:13, 97:17, 101:3, 102:5, 102:9, 103:1 word 81:19, 81:20, 82:2 work 23:10 worked 63:16, 64:6 working 14:14, 14:21, 15:4, 72:9 works 19:13, 50:1, 55:21, 90:16, 91:11, 98:17 wouldn't 26:6, 80:21, 81:13 write 15:15, 15:17, 69:13 writing 8:20 wrong 26:12, 90:17 wrote 98:14 wuhan 1:6 Y yeah 11:18, 28:4, 67:1	years 6:20 yesterday 12:5, 12:10, 12:12 york 3:7 Z zoom 8:3, 10:18, 102:14 . .5000 3:8 .5137 3:16 0 00620 1:15, 5:9, 6:3 00941 5:8 03 2:4, 102:15 04 5:11 05 83:19, 83:20 06 46:4, 46:6 0987 5:8 0988 5:8 1 1's 72:3 10 45:21, 45:22, 46:4, 46:6, 83:15, 103:7 100 15:7, 15:10 10019 3:7	1003 4:11, 13:2, 13:6, 13:16, 17:11 1004 4:12, 16:9, 16:12, 16:20, 16:22, 17:4, 26:2 1005 4:13, 46:20, 46:21, 47:2, 47:9 1006 4:14, 60:7, 60:8, 60:10, 60:16 1014 4:15, 47:13, 47:14, 47:20 102 27:4 105 46:20 1075 5:8 11 19:10, 19:14, 36:15, 36:19, 36:21, 56:14, 56:18, 56:22, 58:21, 83:19, 83:20, 83:22, 97:1, 97:2, 97:4, 101:14, 101:15, 102:15, 103:8 112 24:7, 24:10, 24:11, 24:17 115 38:9 12 16:6, 19:10, 19:14, 19:15, 19:20, 20:1, 56:15, 56:18, 56:22, 57:7,
--	---	---	--

Transcript of Daniel Foty, Ph.D.
Conducted on December 5, 2024

130

97:11 120 15:13 13 4:11, 19:10, 19:14, 25:8, 27:1, 27:3, 27:13, 27:17, 28:9, 28:13, 28:20, 29:1, 29:11, 30:15, 30:20, 34:8, 37:6, 40:20, 42:6 133 15:22 14487 103:8 155 49:4, 53:2 156 51:12 159 56:21 16 4:12, 103:2 160 17:11, 18:18, 21:2, 22:6, 22:18, 31:19 166 22:20 17 83:20, 83:22 171 23:13 175 24:22, 25:4 18 61:14, 61:22, 68:16, 68:19, 68:20, 68:22, 69:2, 69:3, 69:18, 69:19, 69:21, 70:3, 70:4, 71:2, 71:5, 71:6, 71:9, 71:11,	71:12, 71:15, 71:16, 72:1, 72:3, 72:5, 72:12, 72:19, 72:21, 73:2, 73:10, 74:4, 74:6, 74:8, 74:21, 76:1, 76:2, 76:15, 77:19, 78:1, 78:2, 78:5, 78:18, 80:10, 81:16, 98:13, 98:17, 99:3, 99:22, 100:5, 100:8, 100:9, 100:12 19 61:14, 61:22, 64:13, 64:15, 64:16, 64:18, 65:1, 65:7, 65:9, 75:21, 75:22, 99:4 1a 30:5, 30:7 1b 23:3, 23:9, 30:7, 30:10, 30:11, 30:15, 60:22 2 20 16:15, 61:7, 61:14, 61:22, 63:11, 99:4, 100:1 20001 3:15 202.662 3:16 2023 5:8, 15:9 2024 1:15, 1:21, 2:3, 4:16, 5:10, 6:3, 14:12,	15:9, 84:4, 84:5, 97:7, 102:14, 103:2 203 27:4 204 24:1, 24:12, 24:16, 24:21, 25:1, 25:7, 27:16, 38:8, 39:9 205 23:21, 27:5 206 23:22, 27:5 207 23:22 21 18:19, 21:18, 21:22, 22:11, 27:20, 28:6, 28:17, 29:3, 29:10, 29:18, 29:20, 30:2, 30:19, 32:3, 32:12, 33:1, 34:6, 34:15, 35:22, 36:1, 36:13, 37:3, 37:10, 37:12, 39:4, 39:6, 39:11, 40:10, 40:11, 40:13, 40:15, 40:17, 41:9, 41:14, 42:13, 42:22, 43:6, 43:12, 44:1, 44:5, 44:8, 44:10, 44:11, 44:15, 44:20, 45:8, 45:12, 61:14, 61:22, 66:16, 67:10, 67:12, 67:14, 67:18, 68:5, 68:7, 68:11, 74:21, 76:13, 78:18,	81:16, 99:4 212.506 3:8 213 40:22 23 103:7 25 103:7, 103:8 27 17:15, 21:2, 21:15, 21:17, 21:21, 22:9, 25:5, 29:7, 30:1, 30:18, 31:4, 31:7, 31:10, 31:16, 32:13, 33:3, 33:17, 34:16, 37:4, 38:13, 38:17, 39:4, 39:11, 40:12, 40:13, 40:16, 40:17, 41:9, 41:13, 42:5, 42:9, 42:12, 42:19, 43:6, 43:10, 43:19, 44:1, 44:4, 44:7, 44:8, 44:14, 44:20, 44:22, 45:2, 45:8, 45:10, 45:11 285 25:19, 26:3, 26:13, 36:12, 37:2, 37:19, 38:7, 38:12, 41:12, 41:18, 42:2, 43:22 286 25:19, 26:13, 26:18, 26:22, 34:2, 36:15, 37:3, 38:16, 42:11, 43:8, 43:21
--	--	---	---

3	5th	
30	5:10	
97:1, 97:2, 103:8	6	
306	60	
14:6, 14:8	4:14	
362	614	
46:7, 46:13	60:21	
371	617	
48:3, 48:6, 49:19	62:15, 64:20, 75:19	
378	618	
54:3, 54:5	65:17, 66:22, 76:7	
382	622	
56:8	74:17, 78:14, 81:14, 98:3, 98:4, 98:9	
390	6531	
58:19	103:7	
4	68	
44	16:1	
50:8	6th	
46	14:12	
4:13	8	
47	80	
4:15, 97:2, 97:4	15:13	
4956	84	
3:15	4:16	
5	850	
51	3:14	
3:6	9	
52	2:4, 5:11, 46:3, 46:4, 102:15	
3:6	9,330,593	
53	1:16	
101:14, 101:15, 102:15	97	
55	4:6	
46:3, 46:4	99	
562356	4:7	
1:24		
593		
75:6, 90:14, 94:7, 95:20, 96:19		
595		
60:1		