

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

RESONANT SYSTEMS, INC.,
Patent Owner.

IPR2024-00983
Patent 11,152,882 B2

Record of Oral Hearing
Held: September 10, 2025

Before KARL D. EASTHOM, NORMAN H. BEAMER, and
BRIAN D. RANGE, *Administrative Patent Judges*.

APPEARANCES:

ON BEHALF OF THE PETITIONER:

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The above-entitled matter came on for hearing on Wednesday, September 10, 2025, commencing at 10:00 a.m., EDT, at the U.S. Patent and Trademark Office, 600 Dulany Street, Alexandria, Virginia.

P R O C E E D I N G S

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10:01 a.m.

JUDGE EASTHOM: Good morning. I'm Judge Easthom. Judge Beamer and Judge Range are remote for this *Inter Partes* Hearing, Petitioner Apple Inc. v. Patent Owner Resonant Systems, Inc. It's IPR2024-00983 in challenges to Claims 1 through 6, 10, 17, 19, and 20, at U.S. Patent Number 11,152,882 B2, which we'll refer to as the '882 Patent.

Can we have appearances by Petitioner, please?

MR. RENNER: Yes. Good morning, Your Honors. This is Karl Renner on behalf of Petitioner Apple. I'm joined by Craig Deutsch, and here in person from Apple, also, is Natalie Pous.

JUDGE EASTHOM: Thank you. Welcome, Mr. Renner and Mr. Deutsch. Are you both going to be presenting today, or --

MR. RENNER: Yes, Your Honor. We'll both present today.

JUDGE EASTHOM: Okay. Great. And then, how about Patent Owner?

MR. RUBIN: Good morning, Your Honors. Neil Rubin of Russ August & Kabat and I'll be presenting on behalf of the Patent Owner.

JUDGE EASTHOM: Welcome, Mr. Rubin.

We have the demonstratives, but for clarity of the record, and to ensure we're able to follow your argument, please identify the page number of the demonstrative you reference as you argue, and state your name when you begin, so we can help the Court Reporter.

Each party has 45 minutes to present their case. Petitioner has the burden of proving unpatentability and will proceed first, followed by Patent

1 Owner, then followed by the respective rebuttals by each party if reserved.
2 The clock behind me shows the total time you use. Please be aware of your
3 remaining rebuttal time. I may try to remind you of the time, but I don't
4 want to interrupt you either.

5 Petitioner, how much rebuttal time would you like?

6 MR. RENNER: Thank you, Your Honor. We'll take 15 minutes,
7 please. I don't intend to take --

8 JUDGE EASTHOM: And it's flexible, obviously.

9 And Patent Owner, do you have an idea?

10 MR. RUBIN: I'll reserve the same thing.

11 JUDGE EASTHOM: Okay, 15 for now, I'll put you down both for.
12 All right. Thank you.

13 With that, Mr. Renner?

14 MR. RENNER: Okay. Well, may it please the Board, good morning.
15 Karl Renner, on behalf of Petitioner Apple. This is the last of a series of
16 hearings involving patents between the parties, so it's a good a time, it
17 seems, to thank Your Honors and all their involved helps at these hearings
18 and the time taken. Today, we have just the 45 minutes, so we'll go ahead
19 and get started.

20 I'll be addressing -- if we go to Slide 2, please -- really two primary
21 references are involved in the proceedings, across a suite of grounds, and
22 we'll be looking at both of them. The first, I'll be looking at this from more
23 of a summarily standpoint and giving you a sense of where we're heading,
24 and my colleague Craig Deutsch will be walking through the slides in a little
25 greater detail.

1 With respect to the first, the Alexander-Cosper ground, there's really
2 two issues that are in front of us: one, the motivation to combine the two,
3 and the other being analogousness. And with respect to the analogousness,
4 we're going to speak to both field and the problem. And with respect to the
5 field, we'll be pointing out that the '882 relates to a vibration-generating
6 device, and we think clearly within that is the Alexander teachings, which
7 would be with respect to linear actuators, and those linear actuators actually
8 being vibration-generating devices.

9 We'll also be talking about how the Examiner had cited this reference.
10 It's only one of four that it cited into the record. It actually applied the
11 reference, and there was no counterargument by the Patent Owner at the
12 time for analogousness.

13 We'll speak to the problem as well. There, we see that Alexander it
14 seeks to just control feedback-type technologies, and those relate, we think,
15 pretty directly to the unbalanced motors and characterizing and controlling
16 of movement that is spoken to by the '882.

17 As to motivation, I think the thing I'd like to highlight to Your Honors
18 is there are several different motivations that we've entered into the record.
19 And among them, there were several or two that weren't even addressed,
20 weren't even spoken of by the Patent Owner. So my colleague will focus
21 some attention to those. It's promoting the efficient power usage through the
22 combination, as well as reducing the volume and the weight that comes with
23 that combination.

24 Turning to Gregorio, we really -- there's -- this is more about what the
25 actual claims teaches the means element that introduces the notion of
26 position and velocity. And Gregorio, we think, hits that directly. We'll talk

1 about why that's true. And oddly, there's a dependent claim that even feeds
2 more in detail into what is position and velocity and some features relating
3 to it.

4 And so, we'll also take some time to talk about how the Muramatsu
5 that's combined with Gregorio -- and you can see that in some of the 2G, for
6 instance, combinations, as well as the 2F and 2H combinations. They
7 address Claims 3 to 6, that Claim 3 being narrower on the elements that are
8 in question for Claim 1. We see that Muramatsu, even in more detail,
9 addresses those same features. So it's situation that's a little odd that way.
10 You've got the features in question both addressed by the primary reference
11 on the independent claim and then addressed in even greater detail by the
12 Muramatsu that's combined in for a couple of dependent claims.

13 With that, I'll ask Craig to join us and maybe talk us through some of
14 the slides. Thank you, Your Honors.

15 JUDGE EASTHOM: Thank you.

16 MR. DEUTSCH: Thank you, Your Honors. Craig Deutsch on behalf
17 of Apple. So I'll jump right into Alexander and Cosper, and to do so, I'll
18 step through each of those briefly and then talk about the combination that's
19 laid out in the Petition, starting with Alexander.

20 Alexander, of course, talks about linear actuators. In the top right, we
21 see Paragraph 22 laying out one of the objectives of precise motion control.
22 And then Claim 1 steps through a number of the main components that are
23 included in Alexander's system: a stator, a mover, a power supply, at least
24 one position sensor, and a controller, and that feedback controller is operable
25 to control the relative motion between the stator and the mover.

1 Cosper talks about a feedback control system, as indicated at the top
2 right box, Paragraph 49. At the end of that paragraph, provides a control
3 output from the control logic to drive the movable subassembly at or near
4 resonance using its feedback control. And Cosper --

5 JUDGE BEAMER: Counsel, could you do the slide numbers?

6 MR. DEUTSCH: Yes. This is Slide 5, Your Honor, and particular,
7 talking about the top right box, Paragraph 49.

8 Cosper also provides description around sensors and sensor
9 configurations that are used for that feedback control. We see discussion of
10 that in the top-left of Slide 5, talking about one or more sensors that detect
11 position, velocity, acceleration. And then those signals are used in that
12 feedback control system to maintain oscillation at or near a resonant
13 frequency.

14 Turning to Slide 6, the Petition laid out the Alexander-Cosper
15 combination, and there's a couple things that come from Cosper. The top
16 left box, we see the combination includes feedback control to facilitate
17 oscillation at a resonant frequency. And then, additionally, in the second,
18 bottom box, the combination utilizes one or more sensors that directly detect
19 position, velocity, acceleration, again, in accordance with Cosper's
20 suggestions.

21 And there's multiple motivations that support that combination of
22 Alexander and Cosper. And as Mr. Renner noted, at least a couple of those
23 really haven't been addressed in the record. And so, I'll jump ahead first to
24 Slide 10. This is testimony from Dr. Hannaford explaining benefits around
25 efficiency. And in particular, in that middle highlighted portion,
26 Dr. Hannaford explained that a POSITA would've recognized the benefits of

1 obtaining a given amplitude or velocity output while facilitating a more
2 lightweight and/or compact design. And then he continued --

3 JUDGE EASTHOM: Counsel, I don't understand. I thought your
4 friends argued -- at least the experts said something about you have to put a
5 weight or a spring in there to do the resonant. So that would seem to be to
6 add a little more weight.

7 And then, I think your friend's other position was that there wouldn't
8 be enough weight to do much there. It wouldn't really achieve resonance.
9 How do you respond to that?

10 MR. DEUTSCH: Yeah, I can speak to both of those. So, on the first
11 topic, and this motivation in particular around weight and volume, so you're
12 right; the combination would add a bias member. That could be a spring. It
13 could be an elastomeric member. So there's that additional component that's
14 coming into the combination.

15 And really, the, you know, where this benefit flows from is the
16 efficiency in generating a particular amplitude response for a given output.
17 And so, you know, when it's operating at that resonant frequency, less power
18 can be used to achieve that given amplitude output, which in turn results in
19 less current being required, less, you know, reduced components in terms of
20 the wiring that's required to --

21 (Simultaneous speaking.)

22 JUDGE EASTHOM: But I thought I saw there was evidence both
23 ways. And I thought their expert said that the -- you would need to add an
24 energy to go against the bias or the spring or the stored up force.

25 MR. DEUTSCH: Yeah, and --

26 JUDGE EASTHOM: Go ahead, yeah.

1 MR. DEUTSCH: Or I'm sorry.

2 JUDGE EASTHOM: No, you're fine. Sorry.

3 MR. DEUTSCH: Yeah. And so, that is really separate from this
4 reduced weight and volume, as I understand it, and I can speak to that.

5 So there is discussion from Patent Owner really looking at particular
6 embodiments within Alexander, to the exclusion of much of its discussion.
7 And in particular, they talk about one example that has a six-inch stroke
8 length operating at 1 hertz, and there is an assertion that, you know, there'd
9 be more energy because you're working against that spring in order to drive
10 it over that six-inch strength at a slow, slow 1 hertz frequency. And I think,
11 at best, that's talking about kind of one isolated possible scenario to the
12 exclusion of the rest of what Alexander talks about.

13 And so, Dr. Hannaford, for example, talked about a one-inch stroke
14 length that would've been very different than the parameters that the Patent
15 Owner is speaking to and that it would've been obvious based on Alexander
16 and Cosper's teaching to operate at resonance over at least a portion of that
17 stroke, and when operating at resonance in that way, you gain that benefit of
18 efficiency.

19 And I can step through that in a little more detail if we go back to
20 Slide 8. This is really the efficiency argument around achieving a particular
21 amplitude for a reduced or minimal amount of energy. That's something that
22 Cosper talked about expressly in Paragraph 5. And I think this is what
23 Patent Owner is speaking to with their example.

24 And the -- when we think about the combination, I'll turn to Slide 9
25 briefly, and in the combination, we have this same back-and-forth oscillation
26 that Alexander is talking about prior to the combination. It's enhanced with

1 Cospers to provide this control logic, sensors to facilitate operation at a
2 resonant frequency, in accordance with Cospers's suggestions.

3 And so, in that example, we have this kind of additive effect of being
4 able to operate at resonance and achieve the benefits of resonance that
5 Cospers talks about in Paragraph 5, for example, while still operating at other
6 frequencies, which might have less efficiency when it's operating outside
7 that resonant frequency.

8 And I think, you know, I can give an analogy that I think is
9 appropriate for the analysis that we see in the briefing here, and that is an
10 automotive analogy. So, if you think about a car tuned to operate most
11 efficiently at 55 miles per hour, for example, the vehicle can still drive
12 slower or faster, albeit at a less efficient output without that tuning, but you
13 have this tuning so that it operates at maximum efficiency at this resonant
14 frequency.

15 And so, the combination provides a means by which a POSITA would
16 have predictably enhanced Alexander's actuator in this way, facilitating
17 operation at the resonant frequency, still providing for operation at a range
18 of different frequencies, or rather operating parameters, and in that way,
19 complementing Alexander's existing functionality.

20 And there is one more motivation that I'll touch on briefly, and that
21 relates to improved precision of the oscillation output. And again, we talked
22 about Cospers's teachings around its sensors and how those sensors are
23 configured, with respect to its feedback control, to maintain resonant
24 oscillation. And so, that's yet another motivation to support the combination
25 of Alexander and Cospers.

1 JUDGE BEAMER: Counsel, is the combination that you're asserting
2 still resulting in just an improved sex device, or is it just an improved
3 oscillating resonant module? Are we required to still be analyzing this in the
4 context of its -- of Alexander's primary use, or is it more broadly the general
5 teachings of the two references when combined?

6 MR. DEUTSCH: So, Your Honor, I think it's more the latter. And
7 one of the reasons for that is because Alexander does give us broad
8 teachings about linear actuators generally. And so, it's not limited to a
9 specific application, not limited to, you know, the characterization that we
10 see here on Slide 12 from Patent Owner.

11 And I mean, we can step through various parts of Alexander that show
12 that. You know, the title, Linear Motor, the abstract, a linear actuator is
13 disclosed, and in the claims, in particular. So Independent Claim 1 talks
14 about a linear actuator. Independent Claim 4, same thing, a method of
15 controlling a linear actuator, not limited to a particular implementation. And
16 that's in contrast to some other narrower claims, Claim 7, that do specify a
17 specific type of device.

18 And then, stepping through the specification, same thing. Starting
19 with Paragraph 22, we see this general discussion of a linear motor, and the
20 many paragraphs that follow likewise continue with that more general
21 discussion, you know, that is untethered to a particular application.

22 And so, you know, we don't deny the disclosure of Alexander that
23 Patent Owner is pointing to that, I think, is leading them to the suggestion
24 about a device that penetrates and thrusts. You know, Alexander does talk
25 about a six-inch stroke length, but not to the exclusion of everything else
26 that Alexander talks about in terms of, you know, broadly talking about a

1 linear actuator configuration untethered to that application, and then, even
2 within that, specific variations and configurations that could be used.

3 And I can speak to that second point a little bit more. You know, one
4 example of this is on Slide 14, and we see Paragraph 23, Paragraph 25,
5 Alexander talking about the use of one magnet, the use of multiple magnets,
6 which can vary based on the design. And this informs what the parameters
7 of the device will look like.

8 Dr. Hannaford explained that, you know, where only one magnet is
9 used, the stroke length would be shorter, for example, as short as an inch or
10 less. And so, we have Alexander talking about general construction of a
11 linear actuator, linear motor. We have Alexander talking about variations of
12 what that might look like. And so, I think that's the zone we're in, Your
13 Honor.

14 I will -- you know, on that point, in terms of these other disclosures
15 within Alexander, I think it was somewhat telling that we have Dr. Goossen
16 acknowledging that those are things he just didn't consider in his analysis.
17 And so, an example, again, is this one magnet configuration. He
18 acknowledged that that wasn't something that he considered. He had looked
19 at, you know, is Alexander resonant in his opinion or not, and as to these
20 other configurations, said it was not necessary for my analysis.

21 And that's something; you know, there were a number of things,
22 again, going back to Alexander's more general discussion and variation in
23 configurations that it talks about that Dr. Goossen acknowledged he just
24 didn't consider. I think the top left quote there maybe is the most telling,
25 where he acknowledged that, again, any other analysis is outside the scope
26 of my report.

1 There is also -- you know, beyond the motivations that we've been
2 talking about, Dr. Hannaford provided testimony on reasonable expectation
3 of success, again, giving example here of a stroke length of one inch. The
4 process of implementing a bias member into Alexander is something that he
5 had described as conventional. I think, notably, that was corroborated by a
6 number of additional references showing a variety of ways that a spring
7 would be implemented into these types of device with an oscillating mass.

8 Three of them are shown here, and these are, you know, as to this
9 corroboration of the routine skill that would be used in implementing it,
10 really, that's un rebutted. And it, as a matter of selecting the geometry,
11 selecting dimensions, those are all things that fall within the routine skill of a
12 POSITA.

13 And so, ultimately, you know, I think what we have here, the Petition
14 laid out a prima facie case of obviousness that's supported by multiple
15 motivations, a reasonable expectation of success. And Patent Owner's
16 arguments are, at best, directed to isolated examples or isolated scenarios, to
17 the exclusion of everything else in Alexander that would inform a POSITA,
18 and that would've been obvious to combine with Cosper, as laid out in the
19 Petition.

20 So I'll pause there if there is any questions on the combination.
21 Otherwise, I can turn to the second topic that Patent Owner raises, which is
22 analogousness of Alexander.

23 JUDGE BEAMER: Go ahead.

24 MR. DEUTSCH: So, briefly, talking about analogousness, I think it's
25 worth noting here that it's of course a distinct test as compared to motivation
26 to combine. And I say this because in the briefing and in Patent Owner's

1 demonstratives, those things seem to be conflated. But the two tests for
2 analogousness really don't inform obviousness.

3 And the concern is that by conflating those two, it results in an
4 improper consideration of obviousness, right? Motivation to combine
5 involves how these references come together. Analogousness is not about
6 the combination; it's about comparison to the challenged patent, the '882
7 Patent. And so, it doesn't -- it shouldn't provide an additional burden on the
8 combination or motivation to combine. And so, we're trying to lay these out
9 separately, and I'll step through each of the tests for analogousness, which
10 Alexander falls within both.

11 And so, first, the field of endeavor. We see -- I'm on Slide 23, and we
12 see in the top left, the '882 Patent provides a description of technical field.
13 And in particular, the '882 Patent identifies vibration-generating devices.
14 And then it continues on in that paragraph, vibration modules that can be
15 incorporated into a wide variety of different types of electrical and
16 mechanical devices and systems to produce predetermined vibration
17 responses.

18 And so, you'll note that that second phrase is permissive, modules that
19 can be incorporated. It's not narrowing the field. It's providing an additional
20 explanation of something that's a vibration-generating device. And that's
21 something, as we step through the '882 Patent, there's additional detail and
22 discussion, additional examples, again, that fall within that field of vibration-
23 generating devices. And so, it's a big tent we're talking about here, and
24 something that Alexander squarely fits in. Again, on the right of Slide 23,
25 we see Paragraph 22, Claim 1, like we talked about earlier, describing linear
26 actuators with a mass that vibrate back and forth.

1 And so, I think it's squarely within the field with, you know, based on
2 that alone. We can dig deeper into discussion of examples within the '882
3 Patent and within Alexander. One of these is shown on Slide 24, where the
4 '882 Patent describes massage applications, in particular, in the top left box
5 there on Slide 24, device for massaging human skin or some other substrate,
6 depending on the application, which, again, seems to align quite closely with
7 Alexander, even beyond Alexander's general discussion of linear actuators,
8 but getting into specific examples, example implementations that Alexander
9 provides.

10 JUDGE EASTHOM: But what about -- isn't that ORM that it's
11 talking about in the '882 Patent, that's resonant module, right?

12 MR. DEUTSCH: That's right, yes. So ORM, oscillating resonant
13 module, and that's something, right? Throughout the description, it talks
14 about various examples of oscillating resonant modules.

15 JUDGE EASTHOM: But I'd say, you know, if Alexander isn't
16 resonant, what you're saying is the field of invention is broader than resonant
17 modules, I guess, based on your previous slide.

18 MR. DEUTSCH: Yeah, that's right. It's not limited to exclusively
19 devices that are resonant. Certainly, the '882 focuses on that. The claims, of
20 course, of '882 recite oscillating resonant module in the claim, but it would
21 be improper to narrow the field all the way down to, you know, what the
22 recitation of oscillating resonant module, based on this --

23 JUDGE EASTHOM: I only brought that up because it seemed like
24 you were comparing those two, but I guess you're not really comparing the
25 resonant part of it.

1 MR. DEUTSCH: The -- so, I think, we're right. I mean, here, it's,
2 you know, where within vibration-generating devices, it gives an application
3 for that, the massage application.

4 JUDGE EASTHOM: Okay.

5 MR. DEUTSCH: And so, the -- you know, I think there were
6 arguments from Patent Owner that Alexander is limited to this type of
7 device that penetrates and thrusts; that's different than a massage device.
8 And I think that distinction just doesn't hold up.

9 JUDGE EASTHOM: Oh, okay. I see where you're going. Thanks.

10 MR. DEUTSCH: But I do want to make sure I address your other
11 point around the '882 Patent's recitation of an oscillating resonant module
12 because I think it would be improper to focus on resonant devices to the
13 exclusion of things that fall within what the '882 provides as the technical
14 field, based on vibration-generating devices.

15 And I think, you know, one of Patent Owner's arguments relates to the
16 claims and saying Petitioner is excluding the claims and focusing too much
17 on other discussion in '882. And I think that just doesn't track with what the
18 Federal Circuit has said on this topic, and what we see from cases that are in
19 the record, in terms of how to determine what the field is. And so, it's not
20 limited based on, you know, what's in the preamble of the claim. We see
21 that in the Unwired World Google case, for example, that's cited where the
22 claims were -- go ahead.

23 JUDGE EASTHOM: Well, I -- it's also in the body of that claim, too,
24 right? Are you -- I was talking about the patent claims and the resonant --
25 are you talking about Alexander's claim here or --

1 MR. DEUTSCH: I'm sorry. Yeah, I'm sorry. I'm talking about the
2 '882 Patent that, you know, the narrowing the field down to resonance is just
3 too, too narrow. And again, we're talking about what is the body of art that
4 is relevant to a POSITA that would be considered here.

5 And I can -- there's a few other points that I'll touch on. One,
6 Alexander -- and this isn't something that -- this is something that's been
7 relevant to the '882 Patent throughout its history. And so, we see, on the
8 face of the patent, Alexander is one of four patents that was identified by the
9 Examiner, applied by the Examiner. And so, it's not something that was
10 pulled out from obscurity. The Examiner, looking at the claims of the '882
11 Patent, found it to be relevant prior art. It's something that was not argued
12 by Applicant as being non-analogous during prosecution.

13 And so, you know, we're not arguing this as dispositive on its own,
14 but it's certainly persuasive that the Examiner, during original prosecution,
15 looking at the '882 claims, found Alexander and cited it. And so, I think this
16 is relevant to both tests, both the fields, and certainly, the reasonable
17 pertinence prong.

18 And on that reasonable pertinence aspect, again, separate tests which,
19 also, Alexander, I think, squarely aligns with. There's a couple problems
20 that the '882 Patent speaks to and alleges its claims are directed to. One,
21 problems associated with unbalanced motors in prior devices, and I won't
22 step through all of these on the left, but they talk about destructive forces,
23 efficiency, generating a predetermined output. Alexander, of course,
24 provides a linear actuator that addresses these problems that are laid out by
25 the '882 Patent, particularly trying to provide precise control and
26 implementing a sensor-based feedback system to do that. And again, this is

1 subject matter that the Examiner specifically identified and applied
2 Alexander for.

3 And we see that, a slightly different problem, on Slide 28. This is
4 from the discussion of Figure 45 in the '882 Patent, again, talking about
5 problems associated with sensing and characterizing the movement of the
6 mass. And the '882 Patent talks about challenges of timeliness, immediate
7 control. Again, all things that Alexander are pertinent to. We can see that
8 from Alexander's text. We can see that from its use in the prosecution
9 history applied against these very claims by the Examiner.

10 JUDGE BEAMER: Counsel, you may want to move on to the issue
11 of the other combination. You only have 18 minutes left.

12 MR. DEUTSCH: Thank you. Yeah, I'd be happy to. The -- so I'll
13 turn to Gregorio with that, and there's really just one issue in the Gregorio
14 grounds, and that is around the use of position, velocity, target frequency
15 together. And so, I'll step through that first, on Slide 34, by way of
16 background. Claim 1 on the left, which of course recites a control
17 component, which has been interpreted as means plus function, and includes
18 the Figure 45 algorithm. And we see steps 4519 and 4520, which are talking
19 about position and velocity, and then also using target frequency.

20 And if we look at that discussion in the '882 Patent, it talks about
21 sensing position and then deriving or calculating velocity from that sensed
22 position signal. We see in this excerpt, the '882 Patent indicates that this
23 may involve a certain amount of computation. And so, that concept of
24 reading position, calculating velocity, using it in the control, that's
25 something that wasn't new with the '882 Patent. It's something that Gregorio

1 renders obvious. Gregorio talks about using a hall sensor to deduct position,
2 also talks about adjusting based on the target frequency.

3 And we see Dr. Hannaford speaking to that in these two excerpts on
4 the right. On the top, top highlighted portion, Gregorio's control
5 components reads position and reads or derives velocity data from the
6 sensor, and then, in that bottom box, speaking to the use of target frequency.

7 And so, Dr. Hannaford explained a number of reasons why it
8 would've been obvious to a POSITA, based on Gregorio, to determine
9 velocity from the available position data. It's something that he described as
10 a fundamental principle recognized by a POSITA, the relationship between
11 position, velocity, acceleration. And then, in that last highlighted portion, it
12 provides a controller with additional information relevant to the current
13 motion.

14 JUDGE EASTHOM: What do we have to rely on cited art? Like, I
15 guess that's what you alluded to with your dependent claims, the other art.
16 Recently, our Director came out with a memo and said, you know, not to
17 rely on the knowledge of an artisan of ordinary skill to reach a claim
18 element.

19 MR. DEUTSCH: Yeah, and I don't think we have to here, based on
20 what Gregorio describes. So we are relying on obviousness that's laid out in
21 the Petition.

22 JUDGE EASTHOM: Well, I understand Gregorio does disclose dv/dt
23 that's -- and you cited that, but how does that get you to velocity?

24 MR. DEUTSCH: The -- well, so, in --

25 JUDGE EASTHOM: I mean if we're going to ignore the dependent
26 claims.

1 MR. DEUTSCH: Sure.

2 JUDGE EASTHOM: For this rejection.

3 MR. DEUTSCH: Yeah. And so, we have -- I mean, we're in a zone
4 where it's -- we have a position sensor. We have Gregorio talking about a
5 velocity sensor in the EMF embodiment using dv/dt . And that relationship,
6 based on Gregorio explaining it, is reflected in Gregorio, the relationship
7 between position, velocity, acceleration. And so, you know, that is
8 something that I think Gregorio provides based on that discussion and that a
9 POSITA --

10 JUDGE EASTHOM: Where in Gregorio are you talking about?

11 MR. DEUTSCH: Yeah, so it's -- so, in the top of the column -- let's
12 see what column it is -- you'll recall the top-right paragraph; there is
13 discussion of the sensor configurations, including the hall sensor. And then,
14 halfway through that is when it transitions to discussion of the back EMF
15 embodiment and talking about the dv/dt use that you referred to.

16 JUDGE RANGE: This is Judge Range. I think that's the top of
17 column 4.

18 MR. DEUTSCH: Yes. Thank you. So that top paragraph is where
19 there is discussion of the hall sensor, the position sensor, and then there's
20 additional discussion below in the context of the alternative embodiment of
21 EMF sensing, which reflects that use of velocity, acceleration.

22 And again, this is a relationship that it was reflected based on
23 Gregorio's teachings, and it's something -- you know, when Dr. Hannaford
24 talks about additional information that's relevant to the current motion, just
25 to break that down, if in a position, you can imagine it tells us a point about
26 where the mover is at a given point in time. Velocity gives us more color,

1 an extra dimension about that movable mass. And then, acceleration also
2 gives us even more.

3 And it seems like Patent Owner's argument collapses down to, oh, if
4 you have position, that it gets you there; you can do it with position alone,
5 and so everything else is non-obvious. And you know what I think the
6 record reflects is that there is any number of ways that this can be done.
7 Even if position alone can be used, position and velocity provide additional
8 benefits that a POSITA would've looked to avail the system of, and that's
9 reflected by Dr. Hannaford's testimony. He expanded on that, the signal
10 processing advantages by having that additional dimension, that additional
11 characterization based on velocity.

12 And then, even aside from the information that's being used, the
13 applicability of that is broadened by having both -- having more than just
14 position. And so, the example of that is in that last highlighted passage from
15 Dr. Hannaford, where, by using velocity, it facilitates determining a resonant
16 frequency in Gregorio's system, at various points, separate from just the
17 absolute max that looking at position alone would be limited to. And so,
18 you know, this testimony, it's not filling gaps in Gregorio. It's speaking to
19 what Gregorio discloses to a person of skill in the art.

20 JUDGE BEAMER: In the --

21 MR. DEUTSCH: I'm sorry?

22 JUDGE BEAMER: I'm sorry. In the patent, I'm looking at the
23 section in -- at Columns 31 and 32, it described Figure 45, which is where
24 the means plus function corresponding structure is based on that part of the
25 patent, as I understand it. At the end, it talks about hall sensors measuring
26 position and velocity. And then, in Gregorio, I think it's the case where the -

1 - they mention hall sensors as measuring position but not velocity. But how
2 is it -- do you understand how, in Figure 45, hall sensors are used to measure
3 velocity? Is there some difference?

4 MR. DEUTSCH: No, I think there's no difference. And we see, if we
5 go into the discussion in Column 31 of the '882 Patent, where it first talks
6 about velocity, the '882 Patent expressly says that this may involve a certain
7 amount of computation. And so, what the record -- what the testimony from
8 Dr. Hannaford and the record shows is that it's reading a position signal from
9 the hall sensor, for example, and then this determination of velocity is
10 something that's computed.

11 JUDGE EASTHOM: Well, basically, they measure the position
12 twice, right? And then divide by time?

13 MR. DEUTSCH: Exactly. Exactly. And that's -- and so, I think, you
14 know, that's what we're -- that's what the '882 Patent describes. And so,
15 when in the top of column 32, talking about the hall sensor, that aligns with
16 this earlier paragraph talking about how they're doing that using a position
17 signal.

18 JUDGE EASTHOM: Well, you have eight minutes left if you want to
19 reserve that for rebuttal. That's the total of your rebuttal time.

20 MR. DEUTSCH: I'll take 30 seconds and just mention beyond this --
21 on this point, in terms of the advantages of using both, it's something that
22 Dr. Hannaford stepped through those advantages. When Dr. Goossen was
23 deposed, he found the same thing that -- the bottom excerpt there is the key
24 quote -- that it definitely tracks better if you do both. And so, with that, I'll
25 reserve the remainder of the time.

1 JUDGE EASTHOM: Thank you, Counsel. We have you at 7:30 left
2 for your -- and then give me one second off the record here.

3 (Whereupon, the above-entitled matter went off the record at 10:43
4 a.m. and resumed at 10:43 a.m.)

5 JUDGE EASTHOM: Oh, welcome, Mr. Rubin. Whenever you're
6 ready.

7 MR. RUBIN: Good morning, Your Honors, and may it please the
8 Board, Neil Rubin for the Patent Owner, Resonant Systems. So, today, I'll
9 be addressing the grounds in the same order as Petitioner did. I'll just briefly
10 touch on the issue of claim construction.

11 In the Institution Decision, the Board adopted the construction of a
12 control component, which we see on Slide 5, and none of the -- neither of
13 the parties disputed this construction during the trial itself, so the Board
14 should adopt this construction.

15 Turning to Slide 6 and Ground 1, so here we have -- in Ground 1, we
16 have one reference, Alexander, that does not utilize a resonance, and a
17 second reference, Cosper, that is all about the control of a resonant system.
18 And it just doesn't make sense to combine these two except from a position
19 of hindsight, trying to meet the claims of the '882 Patent. Specifically, it
20 follows from this that Alexander is not analogous art, and Apple has not
21 demonstrated motivation to combine Alexander with Cosper in the manner
22 proposed. First, I'll focus on the motivation to combine. On Slide 7 --

23 JUDGE BEAMER: Counsel, could we go back to the claim
24 construction issue? Now, granted, in our decision is to -- we did adopt the
25 construction, the means plus function construction that was in the parallel
26 litigation, but, and more recently, we noticed that Claim 1 specifically calls

1 out that the sensor is sensing position, and then Claim 3 adds to that that it's
2 sensing velocity. So why is it that it makes sense to require Claim 1 to have
3 velocity?

4 MR. RUBIN: Well, I think the answer to that question is that the term
5 control component is governed by 112, Subsection F. And so, we have to
6 look to the disclosures of the patent of a corresponding algorithm. And the
7 algorithm that's disclosed is the algorithm in Figure 45, and that includes --
8 you know, the only algorithm that measures position also measures velocity
9 and utilizes those two parameters and the target frequency as part of --

10 JUDGE BEAMER: So is Claim 3 just superfluous? I mean --

11 MR. RUBIN: So, I'll confess this isn't a question that I've thought
12 about, at least not recently. I mean, I think that it would not be superfluous
13 at least because it specifies a way that the velocity is determined from the
14 position at two or more points in time. There are other ways to measure
15 velocity.

16 (Simultaneous speaking.)

17 MR. RUBIN: For example, from a Doppler shift.

18 JUDGE EASTHOM: That's not true with that embodiment because
19 on Figure 45 refers to direct measurement, and then it explains how it
20 measures it twice. It measures position twice, is the way I was reading that
21 section about Figure 45, where the algorithm is. In other words, in one
22 embodiment, I think it's Figure 46; you have two hall sensors, or no, you
23 have two light detectors, I think. I can't remember if it's hall sensors or light
24 detector, but anyway, it's pretty specific about measuring position and then
25 calculating velocity directly from that.

1 MR. RUBIN: So, I'm not sure, Your Honor, whether you were
2 responding to my observation that there are other ways to measure velocity.
3 That was just a statement about, you know, is that in the world in general,
4 you can measure velocities in ways other than by comparing two positions.

5 JUDGE EASTHOM: But it says you only -- well, I didn't see
6 anywhere in your disclosure where you measure velocity with one sensor,
7 for example. And that claim only calls for one sensor. And it raise -- and
8 the claim says you're sensing position with it.

9 MR. RUBIN: So is Your Honor's point that you don't think that
10 Claim 3 actually does provide any further limitation on the scope of the
11 invention or the scope of what would be covered? I only ask; I'm trying to
12 make sure that I address your concern.

13 JUDGE EASTHOM: Yeah, that's a good point. I don't really know
14 for sure how that plays out with Claim 3. I was really focusing on Claim 1
15 and then Claim 3. Go ahead.

16 JUDGE RANGE: This is Judge Range. I think we were more
17 concerned with the possibility that Claim 1 might possibly not require the
18 velocity function, whereas Claim 3 then adds that in. That would provide
19 you some claim differentiation.

20 MR. RUBIN: So, again, with the caveat that I haven't deeply thought
21 about this issue, at least not anytime recently, I still think it's clear that the
22 algorithm calls out particular steps that, you know, on reading both position
23 and velocity, and that there's no algorithm recited in the patent that doesn't
24 involve velocity.

25 So I think that the first point would be that the doctrine of claim
26 differentiation doesn't trump the clear requirements of Section 112(6) if, in

1 fact, I'm right that that's the only algorithm disclosed, or that every algorithm
2 disclosed does involve reading velocity. And second, I think that it's -- that
3 it's still true that Claim 3 does impose some meaningful limitation on scope
4 by requiring that the velocity be computed by comparing the positions of the
5 two points in time, as opposed to some other way of computing velocity that
6 could've been used.

7 JUDGE RANGE: That's a good point.

8 JUDGE BEAMER: So, Counsel, I threw this at you out of the blue,
9 and I don't think you need to spend any more time on it. If we -- if this
10 really becomes an issue for us, we'll get back to the parties after the hearing.

11 COURT REPORTER: Sorry, Counsel. Would you mind unplugging
12 your device because our IT person is saying he can't see it, so plug it -- so
13 unplug it.

14 JUDGE EASTHOM: Let's go off the record, please.

15 (Whereupon, the above-entitled matter went off the record at 10:52
16 a.m. and resumed at 10:53 a.m.)

17 JUDGE EASTHOM: Okay. Can we go back on the record, please?
18 Thanks.

19 MR. RUBIN: All right. So, turning to Ground 1 specifically, I'll
20 focus first on the motivation to combine. On Slide 7, we see Claim 1 of the
21 '882 Patent. Like all the claims, that requires a resonant module. And
22 although we've highlighted the word resonant in the preamble, it also
23 appears in the body.

24 And likewise, the specification describes its disclosure as directed to
25 oscillating resonant modules, including linear resonant vibration modules.
26 We see that on Slide 8.

1 And on Slide 9, we see Figure 40A of the '882 Patent, which, just as
2 an example, illustrates that the embodiments of the patent also are directed
3 to resonance systems here using --

4 JUDGE EASTHOM: How do we deal with your friend's citation of
5 Column 1 under the technical field, where it says -- that's pretty broad -- it's
6 documents related to vibration-generation devices, in particular, the
7 vibration modules, dot, dot, dot, and also the fact that the Examiner cited
8 Alexander. Now, that's a pretty strong indication of a broader field than
9 you're arguing, isn't it?

10 MR. RUBIN: So, first, I think all of the case law that has been cited
11 by the parties on -- I mean, I think your question, Your Honor, goes more to
12 the analogous art question than the motivation to combine, but they're at
13 least related arguments.

14 JUDGE EASTHOM: I understand.

15 MR. RUBIN: The -- on the analogous art side, I think that all the case
16 law that's cited in the briefs and that I'm aware of says that analogousness,
17 you know, both the field of endeavor and a reasonable pertinence, is judged
18 by the invention or the claimed invention. So it's we really do have to look
19 to the claims and not general background statements in the specification.
20 And there's nothing -- there's certainly nothing in the '882 Patent that says its
21 invention covers non-resonant systems or is -- or that it's addressing non-
22 resonant systems.

23 So, language that doesn't specifically mention resonance in one place
24 considered together with language that very clearly does describe the -- what
25 the patent is directed to in terms of resonance and claims that require
26 resonance, Your Honor, I think you have to consider it together and fairly

1 conclude that the patent is -- that what the patent is concerned with is
2 resonant systems.

3 JUDGE EASTHOM: All right. Can we go off the record one more
4 time, please?

5 (Whereupon, the above-entitled matter went off the record at 10:57
6 a.m. and resumed at 11:00 a.m.)

7 JUDGE EASTHOM: Why don't we go back on the record, please?

8 MR. RUBIN: All right.

9 JUDGE EASTHOM: Go ahead and continue, Mr. Rubin. Sorry for
10 the interruption. We went off the record for a little bit.

11 MR. RUBIN: Thank you, Your Honor. So, now, I move to Slide 10
12 of our demonstratives. So I don't think it's disputed that Alexander does not
13 utilize resonance, but just briefly demonstrate that. So it's agreed --

14 JUDGE EASTHOM: No, I think that's clear. You can move on. I
15 think we -- we need some kind of mass storage device or energy storage
16 device, and so, they're adding that with the secondary reference, right?

17 MR. RUBIN: Right, I'll move on then.

18 JUDGE EASTHOM: So what about your friend's question that --
19 comment that you didn't address the precise control reason that they made
20 for the combination to control the frequency of the Alexander's device?
21 That was one reason to place the resonant feature in there.

22 And so, my question in general is, don't we have some what looks like
23 a tradeoff? In other words, if you -- we believe your expert that says that
24 there is going to be more weight added or there's going to be more -- it's
25 going to be harder; you have to put a spring in there, and say we use one of
26 the magnets, then you would have maybe some more weight added but that

1 you would also be able to achieve precision in the frequency and you would
2 also be able to get an amplitude with less input energy? How do you address
3 that?

4 MR. RUBIN: So they did mention something about precision of
5 oscillation, but I haven't seen a showing that Cosper would actually achieve
6 that outside the context of a resonance system. So Cosper does teach how to
7 find and maintain resonance, you know, in fact, to adjust the operating
8 frequency away from what might've been a target frequency, in order to
9 better achieve resonance. Alexander itself has mechanisms to control the
10 frequency. So it's I don't see a showing that Cosper would provide an
11 improvement there. As far as the other benefits --

12 JUDGE EASTHOM: I think they cited Intel Corp. on one of their
13 slides, and it says you don't really need to provide a benefit. It's another way
14 of, you know, benefit per se, and we -- you know, you have to get into the
15 specifics of the case, but you know, it's another way to control the
16 frequency.

17 MR. RUBIN: Well, there has to be some motivation, right? I mean,
18 they cited --

19 JUDGE EASTHOM: Right. We saw that one of them is that, you
20 know, you get a bigger amplitude for the amount of input that you put in.

21 MR. RUBIN: Right. So I put up on the screen Petitioner's
22 demonstrative 10, and here, they point to purportedly more efficient power
23 usage, purported benefits of weight or compactness.

24 But now I've moved to our Slide 17. You know, I don't think it's
25 enough to show that there's a motivation to combine to just have an expert,

1 in a conclusory way, say that combining them would produce lighter weight
2 or more compactness.

3 As our expert pointed out -- this is going back to Slide 16 -- it's not
4 clear where you would even put the spring or elastomeric member in
5 Alexander to achieve the resonance.

6 And here, on Slide 17, we see, for example, where the springs are
7 located, and then an embodiment of the '882 Patent, springs on either end.

8 JUDGE EASTHOM: And that -- but that's not addressing what they
9 were saying was a single magnet embodiment.

10 MR. RUBIN: A single magnet embodiment? Okay. So the single
11 magnet embodiment would be reducing the, you know, I guess the length of
12 the mover and the stroke length. Okay. So that's a teaching within
13 Alexander itself that might achieve more compactness without adding a
14 spring or elastomeric member, but it -- I mean, their argument that, again,
15 conclusory statement of their expert is that by modifying based on Cosper,
16 you get more compactness and lower weight, but you've got to put the
17 elastomeric member or spring somewhere.

18 It's not clear, looking at the right-hand side of Slide 17, that the
19 embodiment they rely on to a large extent from Alexander, you've got to put
20 the elastomeric member or spring somewhere. You have to put it
21 somewhere in a way that it will actually function. That additional member is
22 going to take up weight.

23 So, and our expert pointed out these issues in the Patent Owner
24 Response, and I don't think there's any response to those arguments from
25 their expert or otherwise in their reply. So I don't think you can credit these

1 conclusory and vague, you know, recitations of benefits from expert. That's
2 sort of -- it don't make sense if you think about them.

3 JUDGE EASTHOM: Okay.

4 JUDGE BEAMER: Counsel, I asked this question of Petitioner, but
5 in this combination, are we required to be using the specific implementation
6 details of the preferred embodiment, or can we broaden it out to look at the
7 overall teachings of the combination? In which case, I'm not sure all these
8 objections from your expert are really pertinent.

9 MR. RUBIN: So my response would be that you have to look to the
10 teachings that are -- that Petitioner proposes to combine or modify in the
11 Petition, and you have to look at the combination or modification that they
12 propose.

13 And you know, in particular, there was a slide this morning; I'm
14 showing on the screen Petitioner's Slide 12, which I think was up on the
15 screen when Petitioner was making some arguments about more general
16 teachings in Alexander. You don't see a citation on this slide to -- and the
17 slide lists, you know, the abstract, the claim language paragraphs, and the
18 specification. You don't see a citation on this slide to their petition or their
19 other papers because, at least as far as I've been able to tell, they don't rely
20 on, for example, the claims of Alexander as part of their combination. So I
21 think --

22 JUDGE EASTHOM: Can we -- I'm sorry to interrupt. Can we go off
23 the record again, please? We have a -- missing one of our judges.

24 (Whereupon, the above-entitled matter went off the record at 11:10
25 a.m. and resumed at 11:11 a.m.)

26 JUDGE EASTHOM: Let's go back on the record.

1 MR. RUBIN: So, if I remember the question I was addressing, they --
2 so I don't think that you're limited to -- let me start over. You're not
3 necessarily limited to considering a single embodiment of a reference, but
4 what you are -- what the trial is properly focused on are the teachings of the
5 references that are actually the grounds of the obviousness challenge
6 presented in the petition, how one skilled in the art would understand those
7 teachings, and the rationales presented in the petition for modifying those
8 teachings in a particular way.

9 So, now, I'm turning back to our slides, onto Slide 14. And here, we
10 have an analysis from the Patent Owner's expert, Dr. Goossen, showing that
11 for the particular parameters that are considered in Alexander, in particular,
12 the resonant frequency of 1 hertz. The spring constant required to achieve
13 that resonant frequency would require a very, very weak spring, so that in
14 the example that he works through, which is unrebutted, and --

15 JUDGE EASTHOM: I don't understand the math on that. He says a
16 force of gravity on 31 gram, but I thought we were talking about like a tenth
17 of kilogram, like 100 grams.

18 MR. RUBIN: Right. So I think that is the comparison to make. So
19 the mass he says is 100 grams in this example, and then he says for -- at
20 assuming the full 3-inch displacement in sort of the main embodiment of
21 Alexander, you can compute from the spring constant what the restoring
22 force would be, and it's 31 grams.

23 JUDGE EASTHOM: It would be restoring force on a 31 gram object,
24 so it would be -- that's roughly the force of gravity. So roughly the force of
25 three times of gravity would be the force on the 100 gram, right?

26 MR. RUBIN: Exactly, yes. Yes, yes.

1 JUDGE EASTHOM: Okay. Thanks.

2 MR. RUBIN: That was the point I was trying to make.

3 JUDGE EASTHOM: Oh, good.

4 MR. RUBIN: You got to it --

5 JUDGE EASTHOM: On the same page, okay.

6 MR. RUBIN: You got through it faster than I did, so --

7 JUDGE EASTHOM: So how does that -- is that three times the force
8 of gravity, is that -- why is that not doable? I guess I don't understand that.

9 MR. RUBIN: Well, I'm sorry. It's the other way around. So the force
10 exerted by the mass, by the spring, is only one-third of the force that it
11 experiences from gravity, so --

12 JUDGE EASTHOM: Well, no. It's three times because the -- you
13 have a greater weight. I thought he was saying the force of gravity on a 31
14 gram object would be like -- would be -- but we have 100 gram object.

15 MR. RUBIN: Right. So he computes the value as 0.3 Newtons, right,
16 assuming 1 hertz, 100 gram mass, 3-inch displacement, so he computes the
17 restoring force is 0.3. And so, and then to sort of help us understand what
18 that is, he says that that 3 Newton force is the same as the force of gravity
19 would be on a 31 gram mass, so that --

20 JUDGE EASTHOM: But the force of gravity on a bigger mass is
21 greater. You know, it's acceleration times mass.

22 MR. RUBIN: Right.

23 JUDGE EASTHOM: So, I mean, now you have three times that
24 force, right?

25 MR. RUBIN: Well, what he's saying is the force for the actual mass,
26 the 100 gram mass, the force that that's --

1 JUDGE EASTHOM: Oh, he's saying that's what the -- okay.

2 MR. RUBIN: The force being exerted on that --

3 JUDGE EASTHOM: I understand now. I'm sorry.

4 MR. RUBIN: -- on that mass is only the force of gravity on a smaller,
5 31 gram mass, so that, you know, if you -- you know, if you held the
6 Alexander object vertically, the force of gravity on this mass would be -- I
7 mean, I -- would be stretching the spring out, you know, more than three
8 inches, for example, right?

9 JUDGE EASTHOM: Okay.

10 MR. RUBIN: I guess the point is -- the point is just that it's relatively
11 small.

12 JUDGE EASTHOM: Okay.

13 MR. RUBIN: And that the benefits -- and the fact that it's small flows
14 from the fact that you need to achieve resonance at this low frequency, 1
15 hertz, which flows from the intended use of the product.

16 JUDGE EASTHOM: All right. Okay. But that's -- I mean, I think
17 your friend's other point was -- and I don't want to kick this dead horse here,
18 but it's if we're not limited to 1 hertz then, or the preferred embodiment then
19 -- because that's what I think Judge Beamer was asking you about.

20 MR. RUBIN: So --

21 JUDGE EASTHOM: But your point is that's what they are stuck with
22 because that's what they said in the petition?

23 MR. RUBIN: That's one point. And also, I mean, I think I hear an
24 argument that's basically, well, this thing vibrates; this thing vibrates, so it
25 would be obvious to change this thing that vibrates into sort of any other

1 thing that vibrates, make it into a skin massager, make it into, I don't know,
2 make it into a pile driver, or I don't know.

3 JUDGE EASTHOM: Okay. Well, I don't want to hold you up.

4 MR. RUBIN: Okay. So I do want to turn to the second set of
5 grounds, but briefly, I wanted to address Slide 26 from Apple. And here,
6 they point to In re Bigio. And I think what's important to recognize here is
7 that even the highlighted part talks about the invention subject matter. And
8 then, that sentence continues to talk about the claimed invention. So the
9 focus for analogousness for determining the field of endeavor, in particular,
10 is on the field of endeavor of the particular challenged claim, not necessarily
11 every sort of general statement of background in the specification.

12 Moving on to Ground 2, I'm showing Slide 21 on the screen. We had
13 the discussion about the construction earlier, but at least says it stems from
14 the Institution Decision how you have to receive or read both the position
15 and velocity data.

16 This is Slide 22. The embodiment of Gregorio utilizing back EMF is
17 involves a measurement of velocity. That's what the back EMF measures
18 directly and then computes from that the derivative of the velocity, dv/dt .

19 Turning to Slide 25, this is our expert addressing the hall sensor
20 embodiment of Gregorio and explaining that the hall sensor would measure
21 position and not directly measure velocity.

22 Now, to Slide 26, so they argue that --

23 JUDGE BEAMER: Counsel, is even the back EMF embodiment
24 directly measuring velocity? Isn't it just deducing acceleration from the
25 EMF?

1 MR. RUBIN: Well, so at least as I recall how back EMF works, the
2 measured voltage, the EMF voltage, would be proportional to the velocity of
3 the moving magnet. So I think that the acceleration then has to be computed
4 based on a derivative.

5 JUDGE BEAMER: Okay. Thank you.

6 MR. RUBIN: So this is our Slide 26 on the screen. So their argument
7 is that the POSITA would've recognized derivation of velocity and
8 acceleration as a suitable option.

9 So, two observations here: number one, as Judge Easthom noted
10 earlier today, this is just relying on expert testimony or common knowledge,
11 not on the teaching of any particular prior art reference. I mean, they do
12 point to the teaching of our patent, but that's also not an acceptable grounds
13 for invalidity for obviousness. So relying on expert testimony or common
14 knowledge rather than the actual prior art references, as Director Stewart's
15 July 31 memorandum says, is foreclosed by Rule 104(b)(4).

16 JUDGE EASTHOM: What about your friend's argument that
17 Muramatsu teaches this for the dependent claims?

18 MR. RUBIN: So I think they very, very briefly touched on that this
19 morning.

20 JUDGE EASTHOM: Right. It's in their brief, though -- I mean in
21 their petition. Something we have to address, something -- what's your take
22 on that? Is that fair game, or is that APA problem?

23 MR. RUBIN: So, certainly, that would not be a reason to invalidate
24 any claims other than Claims 3 through 6 because those are -- because the
25 grounds that rely on Muramatsu are only directed to Claims 3 through 6.

1 JUDGE EASTHOM: No, this is a big question. I've had several
2 cases. It seems, you know, if we say 3 is obvious and then 1 isn't, how does
3 that work?

4 MR. RUBIN: You know, I've had the experience of claims, you
5 know, dependent claims being invalidated and independent claims not being
6 invalidated, and the --

7 JUDGE EASTHOM: Just the result of the trial, I guess, huh?

8 MR. RUBIN: You know, seemingly, as a result of strategic decisions
9 by the petitioner that may, in hindsight, have been a mistake. You know,
10 I've handled appeals of those outcomes to the Federal Circuit, and the
11 Federal Circuit doesn't seem to think that that's --

12 JUDGE EASTHOM: Doesn't seem to be a --

13 MR. RUBIN: -- that that's a problem.

14 JUDGE EASTHOM: Okay.

15 MR. RUBIN: I mean, the one case I can think of there was -- yeah,
16 the -- we had dependent claims that the Panel found -- that the Board found
17 were invalid, and the determination that the independent claims were not
18 invalid was affirmed by the Federal Circuit. There was a remand on the
19 determination for the dependent claims, but --

20 JUDGE EASTHOM: Oh, that's interesting.

21 MR. RUBIN: But, yeah. So, on our Slide 35, we point out that
22 Muramatsu has no target frequency, so does not teach the use of a function
23 that depends on position, velocity, and target frequency. But they have these
24 lookup tables, but the lookup tables only involve position and velocity.
25 There's no resonance in Muramatsu. In fact, there's no oscillation or

1 vibration except of the, I believe, a piano string, which is unrelated to the
2 control sort of embodiment that they're relying on.

3 And there's no, you know, there's no separate analysis of the control
4 component limitation that's in Claim 1 and, as a result, in its dependent
5 claims, based on Muramatsu. They rely just on the Gregorio teachings for
6 that limitation, even in the dependent claims.

7 JUDGE EASTHOM: So you have about nine and a half minutes for
8 rebuttal.

9 MR. RUBIN: So I'd like to address what's on Petitioner's Slide 37 and
10 then any questions that the Panel might have, and then I'll reserve the rest for
11 rebuttal.

12 So, here, we see Petitioner's Slide 37, and one thing I would note is
13 that the Goossen testimony here is not cited, that I can see, anywhere in the
14 papers, so this is a new argument at the hearing. It's not cited on the pages
15 referenced on the slide, but it is testimony that's in the context of the system
16 of the invention, and specifically, the reasons for using step 420 -- I'm sorry
17 -- 4520 in the context of the invention.

18 So I'm showing on the screen, right now, page 29 of his testimony.
19 This is from Exhibit 119. And so, this is where the -- it's not cited on their
20 slide, but this is where that testimony comes from, where he talks about it
21 tracking better, in the context of the patent invention, if you do both. And
22 so, you have the whole transcript. But on page 25, just a few pages earlier,
23 which we see on the screen now --

24 JUDGE EASTHOM: Right. He's talking about the step 4520. I think
25 we understand that.

1 MR. RUBIN: Yeah. So that, at best, this is looking to the teachings
2 of the patent or our expert's explanation of the teachings of the patent to
3 argue that our invention is obvious.

4 So, with that, unless the Board has any further questions right now, I'll
5 reserve the rest of my time.

6 JUDGE EASTHOM: No, thank you, Mr. Rubin. You have seven
7 minutes.

8 Whenever you're ready, Mr. Deutsch.

9 MR. DEUTSCH: Thank you. I'm just pulling up the slides again. So
10 there's just a couple topics, Your Honors, that I'd like to speak to briefly. I'll
11 start on analogous art. We talked about some of the case law informing --
12 let's see. I guess, separate from the slides, so we talked about some of the
13 case law informing the analogous art analysis, how we, what do we look to
14 when we're determining the field, the problem. There's a few case --

15 JUDGE RANGE: I lost audio.

16 JUDGE EASTHOM: All right. Let's go off the record for a second,
17 please.

18 (Whereupon, the above-entitled matter went off the record at 11:31
19 a.m. and resumed at 11:31 a.m.)

20 JUDGE EASTHOM: Okay. Let's go back on the record.

21 JUDGE RANGE: Thanks.

22 MR. DEUTSCH: Yeah, thank you. And I was just speaking about
23 analogous art and how do we make that determination around the field, the
24 problem, what do we look to. There's a number of Federal Circuit cases that
25 are cited in the record that speak to this. One of the cases that we've been
26 talking about is the In re Bigio decision. There's one quote here talking

1 about that, referring to looking at the explanations of the invention, the
2 subject matter, and the patent application, including the embodiments'
3 function and structure. And so, you know, all of those things are relevant.

4 And in that case, you know, it's the facts of that case are telling. It's
5 not limited to the claims. The claims there were focused on a hairbrush.
6 The field was defined broad enough to encompass things like a toothbrush.
7 And so, just because the claims are limited in a certain way or focused on a
8 certain thing, it wasn't limited in that way.

9 And we see that in other cases that are cited in the record. The
10 Unwired Planet case that was a case where, again, the claims were narrowly
11 focused on some specific features related to prioritizing search results. The
12 field was determined to be much, much broader, related to interface design.

13 And so, we see that consistently from the Federal Circuit. We can
14 imagine what the logical end would be if it was extended, you know, not in
15 that regard, and things were limited down so it collapsed to the field, and the
16 claims being the same, and you can imagine what would happen with
17 amendments and different family members within a family. And so, that's
18 just not the test. And here, I think it's relatively straightforward, where the
19 '882 Patent tells us vibration-generating devices and what's discussed falls
20 within that field.

21 We touched on Muramatsu at the outset, talking about Claim 3. Like
22 we talked about, Claim 3 recites velocity, determining the velocity of a mass
23 from the positions of the mass at two or more points in time. And so, you
24 know, Claim 3 not only implicates velocity, but it demands it. And we see
25 that in the Muramatsu slides -- I'm jumping ahead to Slide 43 -- discussing
26 this. And so, the point here, Gregorio, we think, renders obvious 4519 and

1 4520 for all the reasons we're talking about. But the Muramatsu grounds, as
2 to Claim 3, it's all of the requirements of Claim 3.

3 JUDGE EASTHOM: What about your friend's point that if we agreed
4 with you, we still wouldn't reach Claim 1 with Muramatsu?

5 MR. DEUTSCH: I mean, I think this is something that the Board has
6 discretion on. It's something that, here, Patent Owner has had an
7 opportunity to consider and address. And so, I don't think it would be
8 problematic from that standpoint.

9 JUDGE EASTHOM: Can you just real quickly, when you said the
10 weight -- when your expert said the weight would be less in a resonant
11 circuit, could -- I know I asked you, and I'm sorry I didn't catch -- what's the
12 gist of it? You could put smaller weights in there; you could just put smaller
13 magnets in there, and it would resonate? Is that --

14 MR. DEUTSCH: Yeah, so yeah. So, going back to Alexander, that
15 motivation around weight and volume, it's not just the mass. It's really all of
16 the components that go into it because of that gain that you achieve by
17 operating at a resonant frequency. And so, it's kind of the whole set of
18 components, you know, the coil that is used to power and interact with the
19 movable mass that --

20 JUDGE EASTHOM: Is there anything that supports that testimony
21 that he --

22 MR. DEUTSCH: So this is something the -- relates its -- there's a
23 handful of things that go to this efficiency overall, with this reduced weight
24 and volume being one of them, the efficiency, the related --

25 JUDGE EASTHOM: I think there was something in one of the
26 references about that, but I wasn't sure.

1 MR. DEUTSCH: Yeah. So this is what -- I mean, if we go back to --

2 JUDGE EASTHOM: To Cosper, right?

3 MR. DEUTSCH: -- to Cosper when it's talking about this benefit, and
4 again, this is something that I think is just reflecting what was widely known
5 to a POSITA; Cosper expressly talks about it. This --

6 JUDGE EASTHOM: So I see your point. In other words, the
7 maximum system movement for reduced minimal amount of energy. So that
8 means you could put -- okay.

9 MR. DEUTSCH: So, yeah. For a given system movement, a given
10 amplitude output, you know, however you want to characterize it in a given
11 implementation, there is this reduced or minimal amount of energy. And so,
12 that's one example outside of Hannaford's testimony explaining how that
13 happens. And again, just, it flows from those benefits of the phenomenon of
14 resonance.

15 JUDGE EASTHOM: Okay. Thanks.

16 MR. DEUTSCH: And again, I mean, that's something we see in terms
17 of how to implement it, how to select the components for a given
18 implementation; that's also something that is supported by multiple
19 references.

20 JUDGE EASTHOM: Did you want to hit one more point because you
21 have about a minute left?

22 (Simultaneous speaking.)

23 MR. DEUTSCH: Very last point, you know, we talked about the
24 Gregorio grounds, whether the analysis relies on Dr. Hannaford's testimony
25 to fill gaps, and we don't think that's the case. The record shows outside of
26 and even beyond Hannaford's testimony, within Gregorio, the known use of

1 position and velocity, and acceleration, for that matter. And again, you
2 know, even if there was some reliance on Hannaford, the Director's Memo
3 that we've been talking about wasn't in force, doesn't apply to petitions at
4 this filing time.

5 JUDGE EASTHOM: Thank you.

6 MR. DEUTSCH: So, with that, if there's no further questions, I will --

7 JUDGE EASTHOM: Any questions? I don't see any. Thank you
8 very much, Counsel.

9 MR. DEUTSCH: Thank you, Your Honors.

10 JUDGE EASTHOM: Whenever you're ready, Mr. Rubin.

11 MR. RUBIN: Thank you, Your Honor. So, on the question of what
12 the relevant field of endeavor is, I think I have a suggestion, just know that it
13 would encompass all vibration-generating devices. And you know, while
14 my colleague raised a concern over the field of endeavor being drawn too
15 narrowly, I think there is also a concern about it being drawn too broadly.
16 And the field of vibration-generating devices is, I think, clearly too broad.
17 We can imagine far too -- or we can imagine a tremendous variety of
18 devices that generate vibrations.

19 I would note, on the Muramatsu question, so Counsel invited the
20 Board to enlarge Grounds 2E through H to also challenge Claims 1 and 2,
21 and you know, perhaps even the separate family of independent claims, and
22 our independent claim and its children. I think that would be clearly
23 foreclosed by the statute and its requirement to set out the grounds of
24 invalidity in the petition.

25 But I'd also noticed that -- I would also note that Muramatsu is not a
26 vibration-generating device. So, even in this extremely broad notion of the

1 field of endeavor, it's not a vibration-generating device, except insofar as it
2 relates to virtual reality interaction with a piano.

3 And here on the screen, I'm showing Petitioner's Slide 45,
4 where -- and I believe this is the declaration that accompanied the Petition --
5 what they said was the ground was at the control scheme of the combined
6 system operates consistent with Gregorio so that for the limitations of Claim
7 1, including the control component, they're still relying on Gregorio as
8 teaching those limitations.

9 And I guess, with the few minutes that I have remaining, perhaps I
10 can go back to some material that I had skipped with the jumping around
11 this -- or earlier.

12 So, here, we see, on our Slide 27, that it's not enough simply to show
13 that there was a known problem or that the combination was suitable.
14 Belden v. Berk-Tek and other cases in the Federal Circuit do make clear that
15 there has to be some motivation presented, some -- maybe it doesn't need to
16 be the best alternative, or maybe there can be some disadvantages along with
17 the advantages, but there does have to be an articulated motivation that has
18 to actually be based on some sort of evidence or analysis and not just
19 conclusory statements of the paid expert.

20 And on Slide 28, so they -- earlier, we discussed motivations like the
21 weight and compactness and power efficiency that are really unsupported by
22 any sort of actual articulated reasoning. I do want to address one purported
23 benefit, which is the, quote, sharper peak in the velocity curve and in the
24 position curve. But as Dr. Hannaford admitted in his deposition -- we'll see
25 the testimony here on Slide 28 -- that the velocity curve has the same
26 frequency and the same period as the position curve.

1 And here, on Slide 29, we walked him through some of the math here
2 that the position curve here would be a sinusoid with frequency ω , and
3 the velocity curve would also be a sinusoid with frequency ω , same
4 shape, maybe a difference in the amplitude, depending on what units you're
5 using, but no greater sharpness in the data. So, you know, the one sort of
6 technically supported rationale for combining is rebutted.

7 So, unless there are further questions, thank you very much, and I'd
8 ask that you please confirm the patentability of the challenged claims.

9 JUDGE EASTHOM: Thank you, Counsel. Thank you both, all of
10 you. That was very helpful for us to try to decide this. And with that, we're
11 adjourned.

12 (Whereupon, the above-entitled matter went off the record at 11:46
13 a.m.)

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