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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VIKING DRILL & TOOL, INC.,
Petitioner,

v.

HONGJIA WANG,
Patent Owner

IPR2023-00473 (Patent 11,007,583)
IPR2023-00474 (Patent 11,007,583)

Record of Oral Hearing
Held: April 9, 2024

Before WILLIAM V. SAINDON, JAMES J. MAYBERRY, and CYNTHIA L. MURPHY, *Administrative Patent Judges*.

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The above-entitled matter came on for hearing on April 9, 2024, commencing at 8:59 a.m., via video teleconference.

1 P R O C E E D I N G S
2 - - - - -
3 JUDGE SAINDON: Thank you. Good morning. I'm Judge
4 Saindon, and with me here today are Judges Mayberry and Murphy. This is
5 a hearing for IPR No. 2023-00473 and 00474. Before we get started, I
6 would like to do appearances for counsel. Let's start with Patent Owner.
7 MR. CUNNINGHAM: Good morning, Your Honors. My name is
8 Kelly Cunningham. I'm here on behalf of the Patent Owner, Hongjia Wang,
9 and with me is Aaron McGushion of McGushion Patent.
10 JUDGE SAINDON: Okay. Good morning. And Petitioner?
11 MR. VANDENBURGH: Good morning, Your Honor. This is
12 Derek Vandenburgh for the Petitioner. I think my name says Mitch
13 Williams. Mr. Williams will also be arguing in part this morning. Also in a
14 conference room with me are such. We have Saukshmya Trichi and Iain
15 McIntyre, and I believe we also have on the feed Katherine Chen from our
16 firm.
17 JUDGE SAINDON: All right. Good morning. Okay. So we had
18 90 minutes per side in the order. Petitioner, I know you had a LEAP request
19 that was granted for an additional 15 minutes. And then we also plan on
20 having a confidential session towards the end. Have the parties discussed
21 about how much time they want to budget for the confidential session?
22 MR. VANDENBURGH: Your Honor, we have not discussed it. I
23 will say our hope -- the confidential material is on only a very small portion,
24 and I believe that I can talk through that issue by just referring to our slides,
25 without actually saying the sales numbers that are confidential. So I'm

1 hopeful that we do not need a confidential session.
2 JUDGE SAINDON: Okay. And Patent Owner?
3 MR. CUNNINGHAM: Yes. Thank you, Your Honor. I do have
4 only a small section relevant to the non-confidential section. I have it
5 broken out in two parts, but obviously I'll do as much as I can to keep it all
6 into the non-confidential section. And that would probably be, you know,
7 20 percent or less, for the confidential.
8 JUDGE SAINDON: Okay. So I will leave it to the parties to
9 reserve time to be able to argue. I'll keep time. If you want to say you're
10 going to do 30 minutes on your opening brief or whatever, we'll hold you to
11 that, though of course you can go over, and we'll keep track of your time.
12 But in general, please let me know, so then we can warn you when you run
13 out of time. So I'll ask you that, before you speak, about the time budget.
14 Just a few other reminders. Please mute yourself if you're not
15 speaking. Please pause for questions every once in a while -- while you are
16 speaking. And in general, if I'm going to interrupt you, I'll just say Counsel,
17 pause a second to make sure you've heard me, and then ask my question. I
18 expect to ask a lot of questions, so you will hear that a lot. Okay. With that
19 all said, I think we're ready to begin. So Petitioner, you're going to go first.
20 Do you have an initial amount of time you want to use in this first --
21 MR. VANDENBURGH: Yes. I think our target is 60 minutes of a
22 total of 105 I believe we have. And in fact, I'd start by directing your
23 attention to slide two. Do you have our slides in hard copy?
24 JUDGE SAINDON: Yes, on the screen.
25 MR. VANDENBURGH: Okay. Great. So I have an overview of
26 what we are planning to present in the initial 60 minutes. It also shows the

1 order in which we would prefer to go through matters if the Board is okay
2 with that. We're going to start with the Ground 1 of the `473, which is the
3 Wang prior art reference. Then I'm planning to move on to the two grounds
4 associated with the Zhou reference, then to the two grounds associated with
5 the Bannister reference. At that point I will turn it over to our LEAP
6 Practitioner, Mr. Williams, to talk about the two grounds associated with
7 Welty.
8 And then finally, with the Board's permission, I don't plan to go
9 into detail on secondary considerations in the opening presentation. It's
10 Patent Owner's burden to at least conform with the prima facie case. So
11 we're going to let them make their case, and then we will respond to it,
12 although I do have a couple of comments I'd like to make in our opening.
13 So that's the road map.
14 Then just turning first of all to the Wang reference, which is
15 Ground 1 of the `473 IPR, this ground involves the all too common scenario
16 where a Patent applicant files a first Patent application, and then more than
17 one year after that application publishes, they file a continuation in part that
18 both discloses and claims new subject matter. Under that circumstance, the
19 original publication becomes prior art to the CIP.
20 And that is the case here. The Wang publication that we'll be
21 talking about is the publication that corresponds to the `900 Patent
22 application that the `583 Patent Claims priority to. Patent Owner does not
23 dispute that if Wang qualifies as prior art, it renders obvious all of the
24 challenged claims, so the real, the sole dispute with respect to Wang is are
25 the claims entitled to the filing date of the `900 application.
26 So the specific limitation that we have focused on, and I think

1 we'll be talking about it a lot today, is it's shown on our slide 6. It's what
2 we call the form spirally limitation, although there is more to it than that.
3 The Independent Claims require a plurality of composite cutting blade
4 groups, formed sequentially and spirally on a coned portion exterior from a
5 front end of the cone to the rear end. So that's the limitation we'll be talking
6 about.
7 But before I get into the specific arguments relative to support, I'd
8 like to pause briefly and talk about what exactly does that language mean?
9 You know? In the Board's institution decision, the Board pointed out
10 correctly that that language was not part of the specification that's filed. It's
11 not discussed in words in the specification. It was added during prosecution,
12 the original prosecution.
13 So we don't have a lot of guidance from that of what this term
14 means, but the real guidance we have comes from the ex parte reexamination
15 that this Patent went through. Because it was in the course of that
16 reexamination that this language became the focus, and I show this on Slide
17 7. Basically what Patent Owner argued successfully is that that language
18 refers to what is shown in Figure 3.
19 Figure 3 of the `058 Patent shows the composite cutting blade
20 groups, their word for the steps being distinctly slanted when viewed from
21 the side, relative to the axis of the drill. They focused on that, said that's
22 what that language means, and they distinguished the prior art on that basis.
23 And then they doubled down on that being the meaning in the litigation,
24 where they argued again that it refers to that slant from the side, including
25 even the relatively minor slant that you get with the presence of axial relief
26 of the steps. We adopted their construction for the purposes of this IPR, and

1 Patent Owner has as well.
2 JUDGE SAINDON: Counsel? I have a question about Claim
3 construction and the reexam. So as we alluded in the DI, one construction
4 for spirally really has nothing to do with axial relief. It's more of the fact
5 that the pattern continues the helical twist, and so it's really the reexam
6 where this concept of axial relief being spirally comes about, and, you know,
7 that's part of the prosecution history.
8 I'm just wondering, most of that case law is about a district court --
9 you know, respecting the prosecution history of the office. Are you aware of
10 anything that says that the Board can look at that a little different and say,
11 no, the examiner there was just wrong, and we don't think that that was
12 something that should have gone with, and we're going to stick with what
13 the specification says?
14 MR. VANDENBURGH: No, Your Honor. I do believe that the
15 Board follows the same rules. It's of course clear that the Philips standard of
16 Claim interpretation applies in IPR, so we are talking about using the same
17 tools, including statements made during prosecution.
18 JUDGE SAINDON: Okay. And then one other question on that.
19 I'm looking at the prosecution history, Exhibit #1003 at page 513 and 514,
20 and this is the area where in the reexam, the Patent Owner was arguing this
21 Zhou reference, and that it doesn't -- it was the parallel lines and the
22 perpendicular lines figure. And the Patent Owner argues two things -- that it
23 doesn't have the axial relief, you know, very exaggerated, and then on page
24 514, they also say that Wang has the cutting tips formed spirally. And they
25 have a highlight here, contrasting again Zhou from a top-down view, where
26 the cutting blades of Zhou are all -- I would call that fixed to the fixed angle,

1 whereas the one in Wang, you know, it spirals around, following the helical
2 chip evacuation flutes.
3 So anyway, is there a chance to read this, or the possibility to read
4 this as the Patent Owner is offering, you know, several different things, just
5 several different arguments, and the examiner, by contrast, doesn't tell us
6 which one has stuck? So maybe one or the other is the actual reason that the
7 examiner found that there is a distinguishing feature? That it's not really
8 this axial relief aspect, that it was really the spiral alignment on the clock
9 face argument?
10 MR. VANDENBURGH: Right.
11 JUDGE SAINDON: I'm wondering your answer
12 (CROSSTALK) --
13 MR. VANDENBURGH: Yes. A couple answers to that. I think
14 the answer is no, I don't think it is reasonable to read it that way. First of all,
15 it wasn't just Zhou that they were distinguishing. They also distinguished
16 the Sheldon reference. And again, they were very clear that when they were
17 talking about the spirally formed limitation, sequentially and spirally
18 formed, they were talking about the view from the side, and the fact that
19 Sheldon's cutting blade groups, so they said, were also perpendicular to the
20 axis of the drill, not slanted as shown in Figure 3.
21 The other point I'll make is I believe it was at this time that the
22 applicant added Dependent Claims 18 and 22, and we'll be talking about
23 those Claims quite a bit today. But those are the Claims that effectively are
24 Claiming that idea of the cutting edges and the cutting tips spiraling because
25 they are formed at the surface of the spiral flute. So I don't think that that's
26 an alternative here. The only reasonable meaning that they gave to this

1 phrase during prosecution was slanted when viewed from the side, not
2 perpendicular to the axis of the drill.
3 So then with that Claim interpretation, we turn to a disclosure of
4 the `900 Patent. And of course, you know, our view is that the problem they
5 now have, as shown on Slide 10, is that Figure 3 was part of the new matter
6 that was added during prosecution, and that all of the figures of the `900
7 application, including Figure 6 that we show on Slide 10, are distinctly
8 perpendicular to the axis, not slanted.
9 Now, before I get into these sentences, and the Board discussed
10 them in its institution decision -- before I get to those, I do want to make
11 three legal points that I think are particularly important to this analysis. One,
12 of course, is that obviousness and written description support are two
13 different things. You know, a hallmark of written description support is
14 disclosure. You have to disclose it. It doesn't matter how well-known or
15 obvious a feature is. If it's not in the disclosure, you can't Claim that
16 feature, or Claim priority to that feature.
17 The second point is that vague and ambiguous disclosure does not
18 provide written description support. We cited cases that have essentially,
19 when addressed with some ambiguous disclosure that can have more than
20 one meaning, have essentially applied an inherency standard, saying that,
21 well, the Claim language must necessarily mean what is later Claimed, in
22 order to provide written description support.
23 And the third legal point that I think is particularly important here
24 is what I like to call the no hindsight rule. You know, we're all very used
25 to -- in the obviousness analysis, Patent Owners often talk about the fact that
26 we need to analyze obviousness without using hindsight. Well, the same

1 thing is true when we're talking about written description support. It is
2 improper to use the knowledge of the later application to interpret the
3 disclosure of the earlier application.
4 Instead, what we need to do is look just at the earlier disclosure,
5 without using our knowledge of what we see in a later Claim, and ask
6 ourselves whether a POSITA, without knowing what was later Claimed,
7 would understand the language to unambiguously mean what was later
8 Claimed. And that's where their argument fails here.
9 So the language that they're relying on, we've put all three
10 passages on Slide 14, and they're basically the three instances in the `900
11 application stating that connecting lines of the flutes form a spiral structure.
12 Now, our primary position, this is just simply confusing language. There's
13 no clear description of what connecting lines of the flutes refer to, and
14 there's no description of what they mean by forming a spiral structure. So
15 on that basis alone, I think the Board could just ends its analysis and say this
16 is too confusing to try to make sense of.
17 But as we also pointed out in our petition, and as the Board
18 recognized in its institution decision, if you head down the road of trying to
19 say, okay, let's come up with possible things this could mean, there are at
20 least two that we have pointed out and relied on. The first one of course is
21 shown on Slide 15, and this I believe is the one that you already referred to,
22 Your Honor, which is it could refer to the edges of what the `900 application
23 calls the flutes, of course are the grooves, actually, that are cut out to form
24 the steps. And the front end of those grooves, you could -- there's a line
25 there, and you could connect the lines between the various grooves, and they
26 do in fact spiral, as shown in Figures 6 and 7.

1 So that is a rationale for that language that is consistent with the
2 drawings. You know, one of the reasons this makes particular sense is
3 because this feature in the `900 application was not just disclosed it was the
4 subject matter of a Claim. It was Dependent Claim 5. And of course, the
5 general rule is that if you want to Claim something, you have to show it in a
6 figure. So a POSITA reading this Patent application would be likely to
7 conclude that it refers to what's shown in Figures 6 and 7, where we've
8 added the red lines.
9 The second possible interpretation is what we've shown on Slide
10 16, which is the meaning that was given to Dependent Claim 5. It was
11 language in Dependent Claim 5 during the prosecution of the `900
12 application. The examiner rejected Dependent Claim 5 based on the Shibata
13 reference, and the examiner pointed specifically to Figure 3. So we've
14 reproduced Figure 3, and as you can see, Shibata shows a different sort of
15 relief. It shows radial relief, the departure from a perfect circle, which can
16 be viewed as a spiral. Certainly, it looks spiral there on Slide 16. So again,
17 yet another reasonable interpretation for what this language could mean.
18 So the bottom line, Your Honors, is without using hindsight, the
19 specification does not clearly indicate to a POSITA that the invention
20 included having cutting blade groups that are slanted when viewed from the
21 side, therefore they don't get the priority date of the `900 application.
22 Because Patent Owner makes no argument for Patentability if Wang is prior
23 art, the Board should hold all Claims unpatentable in view of Wang.
24 JUDGE SAINDON: Counsel, I have a question on the notion of --
25 the Claim construction proposed involved the word slanted, and I think in
26 general, the feature we're talking about is axial relief. And so, we're talking

1 about something that's, we'll say a term of degree. How much is slanted, to
2 be slanted, and how much radial relief is required to be slanted. And then
3 that also backs into the issue of most, if not all, drills are going to have some
4 amount of radial relief -- I'm sorry. Axial relief. Maybe radial as well, but
5 axial relief. That's what we're talking about here.
6 And I think Patent Owner will bring this up more in their session,
7 but it's kind of at the forefront of my mind, this conflict between, well,
8 pretty much everything's going to have this axial relief, but the Claims
9 require slanted, and saying that this is unique. So I'm trying to figure that
10 out. Do you have any thoughts on that?
11 MR. VANDENBURGH: Yes. Well, and I think part of the
12 problem is what we have seen throughout original prosecution, then the
13 litigation, and then this proceeding, is that Patent Owner keeps shifting their
14 position. Of course they made it sound like, in the first ex parte
15 reexamination, that this spirally formed that they pointed to Figure 3 was
16 something very unique, and the distinguishes Claims over the prior art was a
17 non-obvious thing.
18 They actually -- and keep in mind, ex parte prosecution, there was
19 no discussion of axial relief. It's just the very small, you know, often not
20 visible, slant that you get from axial relief was what they were trying to
21 cover. They made it sound like a much bigger deal. But then we went to
22 litigation. When they came to wanting to assert these Claims against
23 Viking, suddenly they say, well, you know, it's any slant whatsoever,
24 including this very tiny slant that you get from axial relief.
25 The bottom line is, you know, we don't -- you know, we've
26 adopted -- we've filed this IPR based on their positions in the District Court

1 litigation. They're the ones that have taken the position now that it's just
2 this very minor thing called axial relief. But it doesn't change the fact --
3 again, the difference between written description support and obviousness.
4 It doesn't matter how obvious this feature is. If it's not disclosed, they can't
5 Claim it. Merely saying, well, a POSITA looking at this drill would assume
6 it has axial relief, does not give them the right to expressly Claim it.
7 JUDGE SAINDON: So Counsel, do we have any evidence -- I
8 know we do, but can you talk about when is axial relief, you know, an
9 inherent feature, or are there some that explicitly do not have any axial
10 relief? Because we're --
11 MR. VANDENBURGH: Yes.
12 JUDGE SAINDON: -- not talking about here a certain amount of
13 axial relief required to be slanted. I think we're saying any amount qualifies.
14 So then it kind of boils down to --
15 MR. VANDENBURGH: Yes. Right. It's not an inherent feature
16 at all. And in fact, one of the points I'll get back on to probably much later,
17 when we're talking about commercial success, is, you know, we deposed the
18 inventor, Mr. Wang. He also is the owner of the company that manufactures
19 the Patent Owner's commercial products. And I asked him whether or not
20 their products had axial relief, and I sort of expected him to say, well, of
21 course they do, because, you know, you'd always have that. He didn't say
22 that. He said, I don't know.
23 So we do have evidence that it's not something that would --
24 certainly it's not inherent. It has to be added intentionally. But the evidence
25 suggests that it's also not beyond the realm of possibility that somebody
26 would commercialize a drill that maybe didn't have axial relief. Maybe you

1 can achieve what you want through other sorts of relief, like radial relief.
2 So if there's no more questions about Wang, I will move on to the
3 next primary reference, which is the Zhou reference I'd like to talk about
4 next. So as shown on our Slide 18, Zhou is an example of a twist drill with a
5 stepped tip. And of course, this is also the reference that was discussed
6 during the ex parte reexamination. On Slide 19, I think we have the portion
7 of the prosecution history that Your Honor referenced earlier, where the
8 applicant distinguished Zhou, saying it doesn't have spirally formed
9 composite cutting blade groups by applying these very heavy horizontal
10 lines, that assert with the text that those match up the edges on each side to
11 show that those are not spirally formed, but instead are perpendicular to the
12 axis.
13 Patent Owner I think now admits that that was just flat wrong. If
14 you read the Zhou reference, what you see is that the cutting edges on each
15 side are very intentionally not at the same level, and so you cannot draw
16 those horizontal lines matching up the composite cutting blade groups, as
17 they did during prosecution. And in fact, I think at this point they are not
18 disputing that Zhou meets the formed spirally limitation of the Independent
19 Claims.
20 Instead, I think the only argument that Patent Owner makes
21 relative to anticipation of the Independent Claims, the other Claims asserted
22 in Ground 1, is that Zhou does not have curved cutting edges, which Patent
23 Owner Claims are the inherent result of having the cutting edges formed
24 along a spiral flute. This argument, Your Honors, we submit fails for three
25 reasons. First of all is that the Claims don't require curved cutting edges,
26 nor do they require that both side walls of the spiral flute proceed in a spiral

1 manner all the way to the very tippy tip.
2 In other words, you can have a spiral flute that nonetheless forms a
3 straight cutting edge. You can see this on our Slide 22, by looking at
4 Figures 1A and 1C of the `583 Patent itself. That's the one that discloses the
5 prior art standard cutting drill. Nobody would disagree, looking at that drill,
6 that it shows a spiral flute -- excuse me -- that goes all the way to the very
7 end of the drill, and yet it has, and is labeled as having, straight cutting
8 blades. And this is also one where factually, the evidence is all one-sided.
9 On this point --
10 JUDGE SAINDON: Counsel, I have a question on that.
11 MR. VANDENBURGH: Yes?
12 JUDGE SAINDON: Counsel? So from the reexam that we were
13 talking about earlier, the Patent Owner there seemed to have two arguments
14 about what spirally meant. This slant that we were just talking about, that
15 Zhou I think seems to have. But then they were also trying to distinguish
16 spirally in the overhead view in Figure 2 of Zhou, where the blades are, you
17 know, not fixed to a particular hour, say, of the clock face, but they're
18 progressing.
19 I know in the Claim construction that you have proposed, it's
20 limited just to the slant aspect. But shouldn't we consider the prosecution
21 history as far as what that spirally meaning -- this other way of spiral?
22 MR. VANDENBURGH: Again, Your Honor, I don't believe that
23 they were arguing that if you had that sort of, say the cutting tips spiraling
24 around, that that's what is meant by composite cutting blade groups formed
25 sequentially and spirally from one end to the other. I believe that the
26 prosecution history indicates that that idea was instead the subject matter of

1 Dependent Claims 18 and 22.
2 And again, I'm going to get to those Claims, and explain why it
3 would have been obvious to modify Zhou to have that feature, and that's
4 why Claims 18 and 22 should also be held unpatentable in view of Zhou.
5 But for the purpose of Ground 1, anticipation and the Independent Claims, I
6 don't believe that it is reasonable to interpret that language as covering the
7 very feature that is the subject matter of Dependent Claims 18 and 22, and I
8 don't believe that the prosecution history supports that conclusion.
9 JUDGE SAINDON: And that is, just again to follow up, based on
10 the fact that the Dependent Claim, claims it more clearly, or because you
11 don't think that that was part of their argument in the reexam?
12 MR. VANDENBURGH: I don't believe that that argument is
13 clearly tied to that limitation, relative to Zhou. And again, they also
14 distinguish the Sheldon reference, and they made no argument relative to
15 that. And in fact, I also think it's true -- and I haven't focused on this
16 recently, but if you look at the Sheldon reference, the cutting tips do in fact
17 spiral around the drill. So Sheldon is a step drill that has cutting blade
18 groups that are not in a line. They do progress around the surface of the
19 drill. So that view of what -- if you're trying to say, well, spirally formed
20 could encompass that, too, it would not have distinguished over Sheldon, so
21 it makes no sense in view of Sheldon.
22 JUDGE SAINDON: Okay. Thank you.
23 MR. VANDENBURGH: So I think the last point I was making
24 relative to Zhou and anticipation, the argument they make is that the
25 evidence is all one-sided on this point. This is an issue, one of the issues for
26 which the Board struck portions of Patent Owner's technical expert report.

1 So they have no technical expert supporting the argument that having curved
2 cutting edges is an inherent feature of the Claims, and certainly our expert
3 has addressed that issue in detail, and explained why it is incorrect. The
4 reality is you can form those cutting edges whatever shape you want them to
5 be, and there's just no requirement in the Claims, or technically speaking,
6 why you need to have the shape that Patent Owner asserts for what's
7 Claimed in the Independent Claims.
8 So with that, I'd like to move on to Ground 2 of the `474 IPR,
9 which is obviousness in view of Zhou. And here is where we get to what
10 we've already been talking about, which is Claims that do recite that the
11 cutting tips spiral around the drill, like we also see in the figures. And this
12 is -- I've got the language of Dependent Claims 18 and 22 on Slide 25. They
13 both say that the cutting tips of the plurality of cutting blade groups are
14 formed spirally on a cone portion exterior thereof.
15 So that clearly is directed to what we've been talking about
16 already, but as we again point out in our petition, this is an extremely well-
17 known feature. The references that we rely on specifically are -- excuse me.
18 I've got to get back to this. For this prior art, we rely on Durfee and Gentry,
19 which are shown on Slide 26. And as you can see, it is very common,
20 particularly in this step drill area, to have cutting tips along a spiral flute, so
21 that the cutting tips also spiral with the flute.
22 As explained in Dr. Schmid's declaration, having those spiral walls
23 again, continue to spiral all the way to the tip, could be applied to Zhou's
24 drill in the same way it is in these references, to perform the same function,
25 to yield predictable results, predictable and successful results. As Dr.
26 Schmid also explains, spiral sidewalls all the way to the tip are efficient.

1 They have a benefit. They are efficient at removing cutting chips, and they
2 are also actually easier to manufacture that way. So there's a motivation to
3 do it, and again, not only is Dr. Schmid's testimony persuasive on this
4 point -- we have no contrary expert testimony from the Patent Owner.
5 JUDGE SAINDON: Counsel? Dr. Schmid, does he point to any
6 evidence to back up his statements, or are we just relying on his statements?
7 MR. VANDENBURGH: Well, I think for the benefits of doing --
8 certainly it's shown in the references, but I think the benefits -- I'm not sure
9 if he actually cites a reference for that point. But of course I think it is well-
10 known and accepted that that is why spiral flutes are so common, because
11 that is one of the key things they do, is lift cutting chips away from the
12 cutting surface.
13 JUDGE SAINDON: Okay.
14 MR. VANDENBURGH: I think with that, I don't have any other
15 things to cover relative to Zhou. And so, absent other questions, I'll move
16 on to the third reference, which is Bannister. Okay. Turning to Bannister,
17 it's actually pretty -- it's a reference that's pretty similar to Zhou. We show
18 Bannister on Slide 33, and again, it is a stepped tipped twist drill.
19 Here, the only difference between the Independent Claims and
20 Bannister's disclosure is that in Bannister, only some of the cutting surfaces
21 are taught to be conical, whereas he specifically says that there's a
22 preference for having some of them be flat. Horizontal, perpendicular to the
23 axis of the drill.
24 But you know, one thing that's important to point out -- I don't
25 think we emphasized this enough, maybe, in our petition papers -- he talks
26 specifically about the central tip and the outermost tip being beveled or

1 conical. That's the phrase he uses. I don't know if he's equating those or
2 saying they're two different things. They do seem generally synonymous to
3 me. So it is teaching, you know, cutting blade groups with conical surfaces,
4 just not the intermediate one or more that are a part of his drill.
5 But again, it would have been obvious to modify Bannister to have
6 this extremely well-known feature. You know, the specific references that
7 we relied on for this element are shown on Slide 34. We pointed back to
8 Zhou as well as Welty, which Mr. Williams will be talking about. But the
9 fact is, we also could have picked just about any step drill reference. They
10 all have conical cutting surfaces, and the reason they have conical cutting
11 surfaces is because that has known advantages. It reduces drilling resistance
12 and torque, provides more accurate holes, and reduced wear on the drill. So
13 again, we have an extremely well-known feature with known advantages in
14 a predictable art, such that it would have been obvious for a POSITA to
15 apply this to Bannister with successful results.
16 So just to address a couple of Patent Owner's responses to this,
17 first of all, of course they point out that Bannister does exhibit a preference
18 to have those little cutting blades horizontal. But under the law, merely
19 expressing a preference for a particular option does not rise to the level of
20 teaching away and does not preclude a finding of obviousness. And that's
21 particularly true in this case, where as Dr. Schmid points out, the
22 understanding of chip formation and the mechanics of drilling have
23 developed substantially since the time of the Bannister reference. And we
24 analyze obviousness at the time of the invention, which here is at least 2015,
25 if not later, and the Bannister reference is from 1940.
26 Dr. Schmid does cite specific reference works in the interim, where

1 again, the understanding of -- from which a POSITA would understand that
2 Bannister's description of why he wants flat surfaces as opposed to angled
3 ones, is just simply not accurate. And it's also in that intermediate period
4 that we've seen all these other references with conical surfaces. We've got
5 step drill development. Again, Bannister's mere preference for a flat surface
6 is not enough to overcome obviousness here.
7 Patent Owner then makes two other arguments unrelated to that
8 conical cutting surface issue. First of all, they make the same argument that
9 they make relative to Zhou, that there's an inherent requirement for curved
10 cutting edges, they say that arises because you are forming the cutting edges
11 along a spiral flute. Already addressed that. There's no requirement in the
12 Claims for a curved surface, cutting surfaces. And as we see from Figure 1
13 of the `583 Patent, you can have a straight cutting edge even when you have
14 a spiral flute that goes all the way to the tip of the drill. And again, also,
15 even if there was some merit to that, that's also an obvious feature, as I'll
16 talk about in connection with Dependent Claims 18 and 22.
17 The other argument they make is that Bannister's drill is not
18 "configured to crush cutting chips into finer chips," which is another
19 limitation in Independent Claims 1 and 8. But in doing so, this is another
20 instance where the Patent Owner is trying to change their position regarding
21 what that language means relative to the District Court. When we're in the
22 District Court, it's really broad. Now that we're in an IPR and we're
23 defending validity, suddenly they're saying it's much narrower.
24 So we've reproduced on Slide 40 their proposed construction of
25 this configured to crush limitation, and basically what they say is that this is
26 an inherent result of taking a standard conventional twist drill and adding

1 steps to the tip, so that you create smaller cutting edges. They say that each
2 composite cutting blade group is small, relative to the single major cutting
3 edge that the cone portion would have if there were no composite cutting
4 blade groups.
5 That's their construction from the District Court. Again, we
6 adopted that for the purpose of this IPR, and they have not formally backed
7 away from that as the proper Claim construction for this term. So when you
8 look at Bannister, that's exactly what Bannister has. We've added the red
9 lines on Slide 41 to highlight the fact that it has cutting edges that are
10 smaller than the drill would have if there were no steps formed on it. And
11 again, the evidence on this point is undisputed, as Dr. Schmid has testified
12 that as a result of this, you would have smaller cutting chips than if there
13 were no steps on the tip of Bannister's drill, and Patent Owner has no
14 contrary evidence.
15 Finally, before I cede my position to Mr. Williams, is Ground 3 of
16 the `474 IPR, which again, the only dispute -- and this, again, we're talking
17 about Bannister, but we're now dealing with Dependent Claims 18 and 22.
18 The same arguments I've already made with respect to Zhou apply here.
19 Having the cutting edges actually formed along a portion of the flute
20 sidewall that is spiraling is extremely well-known.
21 It's shown in -- again, in this instance, I'm not sure if this was
22 intentional, but we've relied on Durfee again, as well as the Korb reference,
23 as examples showing this feature. And in fact, I think one of the reasons
24 Korb is particularly relevant is because it specifically discloses both
25 alternatives as interchangeable. It says, okay, the flute can be merely
26 angled, or it can be spiral. So in addition to a known feature with

1 advantages, we have evidence of known interchangeability. It's predictable
2 art, and certainly one of skill in the art would foresee that they could apply
3 this feature to the Bannister reference to achieve the same benefits.
4 So with that, if Your Honors have no other questions on those
5 references, I will let Mr. Williams come forward.
6 JUDGE SAINDON: Okay. Thank you, Counsel. About 15
7 minutes remaining of your 60.
8 MR. VANDENBURGH: Thank you.
9 MR. WILLIAMS: Hello, Your Honors. Again, my name is Mitch
10 Williams, and I'll be discussing the Welty based grounds of the `474
11 proceeding. And first of all, thank Your Honors for allowing me to
12 participate through the LEAP Program.
13 So starting with Ground 3, we'll start with the spiral flute. Welty
14 teaches each and every, element of Claim 1, except for a flute that is spiral
15 rather than straight. However, this would have been an obvious
16 modification to Welty, that would constitute nothing more than substituting
17 an extremely well-known and widely used element for another.
18 Spiral flutes are known to have numerous advantages, and Patent
19 Owner's sole argument against this combination is that spiral flutes are
20 incompatible with Welty, because Welty is allegedly a gun drill for drilling
21 deep holes, and spiral flutes are not suitable for this purpose. However, as
22 an initial matter, Welty is not a gun drill. The Patent does not describe
23 Welty as a gun drill, and Patent Owner does not have expert testimony tying
24 Welty to being a gun drill.
25 But perhaps more importantly is that spiral flutes are consistent
26 with Welty's intended use, which is, if you'll refer to Slide 56, boring

1 accurate diameters of great depth. Welty does not give clear guidance on
2 what is meant by this, and it's not limited to drilling holes of any particular
3 depth to diameter. So looking at this language, and looking at the drill itself,
4 Welty is consistent with drilling holes that are on the order of about 3 to 1 to
5 10 to 1 depth to diameter, which various references consider to be a deep
6 hole.
7 So the evidence shows that spiral flutes are compatible with holes
8 on this order of depth, and in fact can be implemented on drills even without
9 using coolant channels. Even more standard twist drills are capable of
10 drilling holes on this order of depth using spiral flutes. But even so, if Welty
11 were intended only for drilling holes that are unquestionably more extremely
12 deep, such as 30 to 1 or 40 to 1, spiral flutes are still known to be
13 advantageous -- or excuse me, compatible and advantageous for drilling
14 holes on this order.
15 If you'll refer to Slide 58, it's shown that the same benefits that
16 spiral flutes are known to have for shallower holes also apply in these deeper
17 holes. That is superior chip evacuation, which can allow higher feed rates
18 and other benefits. Importantly, for deep hole drills having coolant channels
19 and spiral flutes, the improved chip evacuation can be achieved while also
20 allowing for a reduced amount of coolant flow rate, which is a clear benefit
21 in a manufacturing setting.
22 Now, importantly, not only would it be obvious to modify Welty to
23 have a single spiral flute, it would also have been obvious to modify Welty
24 to have two spiral flutes, because such configurations are known to once
25 again allow for higher feed rates, meaning holes can be drilled significantly
26 faster, as well as reducing or eliminating radial forces at the tip, which can

1 be undesirable.
2 And it's also known that having two cutting blades, or in this case
3 it would be two sets of segmented cutting blades, can also distribute the
4 cutting loads on two blades, and increase the tool life. So the way that the
5 evidence shows that spiral flutes are in fact compatible and advantageous
6 with Welty and would have been an obvious modification.
7 Patent Owner also challenges this combination by Claiming that
8 the heels on Welty would be incompatible with spiral flutes. I won't go into
9 much detail here, but essentially the uncontested testimony of Dr. Schmid
10 informs us that heels are compatible with a single spiral flute, as well as
11 multiple spiral flutes. And in a case with multiple spiral flutes, they might
12 not be necessary whatsoever.
13 Because of these heels, which are essentially just a slight increase
14 in the radius of these flank surfaces to provide a bearing surface and allow
15 for radial relief, Patent Owner also contends that Welty does not meet the
16 cylindrical second step surface limitation of the Independent Claims.
17 However, the uncontested testimony of Dr. Schmid informs us that these
18 surfaces are generally or approximately cylindrical and would thus be
19 understood to fall within the scope of this limitation.
20 Patent Owner has acknowledged this in making infringement
21 accusations of Viking's drills, which do employ radial relief that would
22 render these surfaces not precisely cylindrical, even though the Claim
23 language says cylindrical. If you'll turn to Slide 61, the specification of the
24 `583 Patent is consistent with Dr. Schmid's understanding that Welty's flank
25 surfaces would be cylindrical within the meaning of the Claim term, even
26 though they employ some radial relief. Patent Owner has not explained how

1 the radial relief that is provided by these heels are different than other forms
2 of radial relief, such as that employed on Viking's drills, and this position
3 should be rejected.
4 Turning to the next limitation of Claim 1, Patent Owner also
5 contends that Welty does not meet the configure to crush limitation. But as
6 Mr. Vandenburgh has already explained, under the proper construction of
7 this term that Petitioner has accepted for the purpose of this IPR, or these
8 IPRs, Welty meets this limitation because it has segmented cutting blades --
9 or in other words, a stepped tip or composite cutting blade groups -- and it
10 forms cutting chips that are smaller than they would be if Welty did not have
11 composite cutting blade groups.
12 Finally, the last element of Ground 3 would be the cutting tips
13 formed spirally limitation, which is shown on Slide 66. And again, Mr.
14 Vandenburgh has discussed these same Claims with respect to the Bannister
15 and Zhou references, so unless Your Honors have any questions that are
16 specific to Welty, I would submit that this would have been an obvious
17 modification, for those same reasons discussed by Mr. Vandenburgh, and of
18 course for the same reasons that it would have been obvious to modify
19 Welty to have a spiral flute in the first place, which would result in this
20 feature.
21 JUDGE SAINDON: Counsel, could I jump in for a second?
22 MR. WILLIAMS: Yes.
23 JUDGE SAINDON: So I have a question about the number of
24 flutes. So why would a person of ordinary skill in the art choose to design a
25 drill that has one cutting surface and say one flute, versus two cutting
26 surfaces and two flutes?

1 MR. WILLIAMS: I believe the primary advantage of having two
2 cutting surfaces and two flutes is that you do get a -- you can drill faster, as
3 well as you do get the increased tool life, because you're distributing the
4 cutting across two surfaces, rather than a single one. And I think the
5 testimony of Dr. Schmid would inform us that maybe on more traditional
6 gun-style drills or deep hole drills, there's a single flute, which simply just
7 makes it easier to manufacture the drill bit itself having the through hole for
8 providing pressure coolant. But modern drills are able to have both multiple
9 flutes, as well as a pressure channel, or multiple pressure cooling channels.
10 So I believe I'm getting a little short on time, but just turning to
11 Ground 4 briefly -- and I'll note many of the features that I discussed with
12 respect to Ground 3 are also found in Ground 4, so I won't go over those
13 again. But the only -- let's see. The only features that are exclusively in
14 Ground 4 that Patent Owner really challenges are the split point tip
15 limitation -- that is the limitation that the top blade has a chisel edge, a pair
16 of auxiliary cutting edges, and a pair of major cutting edges -- as well as the
17 top blade essentially being taller than the steps.
18 And Patent Owner's challenge really comes down to a lack of
19 motivation to combine features from step drills onto a drill such as Welty,
20 but this argument should not be persuasive, because we're talking about very
21 well-known, widely used features that have well-understood benefits and
22 uses, and a skilled artisan could readily apply those features to Welty's drill,
23 and use them in the exact same way that they are used, even if we're relying
24 on, for example, a step drill reference as just an exemplary reference,
25 showing something like a split point tip or a taller top blade. A skilled
26 artisan would recognize that these could be used on different types of drills.

1 So I believe that's everything for me, unless Your Honors have any
2 further questions?
3 JUDGE SAINDON: No.
4 MR. WILLIAMS: Hearing nothing, I'll hand it back to Mr.
5 Vandenburgh quickly, to talk about secondary considerations. Thank you.
6 JUDGE SAINDON: Five minutes left until we get to 60.
7 MR. VANDENBURGH: Perfect. I should have just time for this.
8 As I indicated, I am going to hold off on getting into the details of the
9 various arguments that the Patent Owner makes until our response, but I do
10 want to make two high-level points relative to secondary consideration for
11 the Board to consider while listening to Patent Owner.
12 One, of course, is that the secondary considerations evidence is not
13 relevant to several of the grounds at issue here. For the Wang reference,
14 Patent Owner does not assert in its papers that secondary consideration is
15 relevant to that. I think they've accepted the fact that if Wang is prior art, all
16 challenged Claims would have been obvious.
17 But also, under Ground 1 of the `474 IPR, we have anticipation by
18 Zhou. And of course, if the Board agrees with us that the Claims are
19 anticipated by Zhou, that renders secondary considerations irrelevant to that
20 ground. But in addition, even on the other grounds, it goes to the issue of
21 Nexus. Because if all of the Claimed features are shown in a single prior art
22 reference, there can be no Nexus to any alleged secondary considerations
23 and the Claimed invention.
24 The second thing I want to just leave the Board with here is the
25 real world evidence that we have put in through Mr. Taylor Fulk of Viking
26 and is reproduced on our Slide 88. The reason that this real world evidence

1 is particularly relevant is because it goes to the rationale underlying
2 essentially every sort of secondary consideration argument. You know,
3 basically secondary consideration arguments are almost all founded on the
4 idea that if the invention were actually so obvious, why did nobody
5 commercialize such a product before?
6 Here, there's real world evidence regarding why that is the case,
7 that has nothing to do with obviousness. There's no real dispute that the
8 commercial products at issue here are essentially step drill configurations
9 applied to the tip of a traditional twist drill. Patent Owner's own advertising
10 calls it -- refers to the multi-step tip acts like a step drill.
11 But as Mr. Fulk puts in his declaration, and this is on Slide 88, step
12 drills historically were a true specialty product. They typically sold for three
13 times more than just a regular old conventional twist drill. And when you're
14 applying a 300 percent price premium to something, it doesn't matter if that
15 product is particularly time-consuming and expensive to manufacture. It can
16 be manufactured slowly, take extra time. You're still making a profit,
17 because it sells for so much more.
18 But with these commercial drills that we're talking about here, the
19 price premium is at most on the order of 15 to 20 percent over just a
20 standard, regular, conventional twist drill. And when you're talking about
21 that small addition, you need to be able to make the product quickly and
22 efficiently, if you're going to make money selling that product.
23 And that's what Mr. Fulk describes on Slide 88, which is the steps
24 that Viking had to take to improve its manufacturing process. It invested in
25 new equipment. It had developed new tooling and methods to apply a step
26 tip to a twist, to a conventional twist drill quickly and easily. They could

1 make a ton of them in a short amount of time, so that they could sell them at
2 a price that was only a very small premium over conventional twist drills.
3 So again, we have a real world explanation that explains why these
4 drill works. Introduced earlier, it has nothing to do with obviousness. With
5 that, I will turn the table over to Mr. Cunningham.
6 JUDGE SAINDON: Thank you. Okay. Patent Owner, if you
7 know a certain amount of time you'd like to budget for this session, please
8 let me know. Otherwise you can begin when you're ready.
9 MR. CUNNINGHAM: Thank you, Your Honor. Yes, I think I've
10 kind of estimated about 40 minutes for my opening, and about 35 minutes,
11 maybe, for any kind of rebuttal of their rebuttal, and another 15 minutes, I
12 guess, for the confidential section. I don't know whether Petitioner has left
13 any time specifically for that. We've discussed that before. But I'll just
14 proceed, and we'll just see how far along we get. But I do want to be able to
15 respond further to anything they attempt to respond to, especially in the
16 secondary considerations area.
17 JUDGE SAINDON: Okay.
18 MR. CUNNINGHAM: All right. So if time does permit, and
19 provided the Board doesn't propose some other order, you know, I would
20 plan to address first Petitioner's weak arguments related to Wang's priority
21 Claim. Second, Petitioner's weak obviousness challenges to Wang's Patent
22 Claim 7121822, and comparably, Mr. Wang's strong evidence for objective
23 indicia of non-obviousness in response to that, those obviousness challenges.
24 And then third, Petitioner's arguments that Zhou anticipates most of Wang's
25 Patent Claims.
26 So as far as the Petitioner's weak argument and challenges to Mr.

1 Wang's priority Claim, Mr. Wang's `900 application does disclose axial
2 relief sufficient to support a -- to a person of ordinary skill in the art, that the
3 `583 Patent Claim element that recites composite cutting blade groups are
4 formed spirally. I think much has been discussed today already about how
5 that Claim language in the Independent Claims of the `583 Patent appear to
6 refer to axial relief, and Patent Owner agrees that is primarily what is shown
7 in Figure 3 of the `583 Patent and is what is intended by that.
8 I think a lot has been made out of that, because it's not -- as I
9 believe Your Honor has indicated, it's not a Patentably distinct feature of our
10 client's invention. It's an element of the Patent Claims and its material, but
11 it's also one of several material elements that, you know, you can find in the
12 prior art. You just don't find them in the combination of my client's overall
13 Patent Claim combination. You know, including things such as a cylinder
14 portion, a code portion and a shank portion, those are recited in the
15 element -- recited elements in Patent Claims, but they're not -- you know,
16 they don't get to the gist of what my client has invented, and much has been
17 made out of it.
18 But a person of ordinary skill in the art, as this Board has already
19 identified and agreed to, is a very educated person, has an extensive
20 education in mechanical engineering, and following graduation, has at least
21 two to five years of work experience in developing drill bits, including
22 reading Patents and trade journals. That's in, you know, the Court's DI at
23 page 9010.
24 Moreover, the person of ordinary skill in the art is imputed with
25 the knowledge and understanding of each of the decided prior art, as well as
26 a thorough knowledge and understanding of Wang's `900 application. As

1 shown in Slide 16, the figures of Wang's `900 application are idealized.
2 They're simplified, which is very common in Patent drawing drafting. But
3 they did not disclose a different invention. They disclosed the same
4 invention that's Claimed in the `583 Patent.
5 So Petitioner does not argue, it has never argued that Wang
6 somehow didn't have axial relief in his possession when filing the `900
7 application. The accompanying figures were Mr. Wang's written
8 specification, in which he explained in a standalone paragraph that these
9 lines are preferably formed spirally, a form of spiral structure. And we can
10 go to Slides 30 and 31 to show an example.
11 In Petitioner's own prior art references, a similar situation. The
12 Korb reference itself shows a very idealized step drill drawing, shown on the
13 left-hand side of Slide 31. But on the right-hand side, it makes clear in its
14 written description that this step drill can exhibit axial relief, which is shown
15 on the right-hand side of Slide 31.
16 Similarly, in our own client's `900 application -- back to Slide 16,
17 our client had drawings that show negligible axial relief, and that figure -- I
18 believe it's Figure 5, shown on Slide 16. But in the written description, you
19 see very clearly that in paragraph 10, I guess this could be -- fast forward to
20 Slide 23, and even better, Slide 25, and maybe I'll rest on Slide 25 for a little
21 while -- that one, in paragraph 10 of the `900 application, it says preferably
22 the connecting lines of the flutes form a spiral structure, and in paragraph 35
23 that's repeated. It says the flutes of the present disclosure may be arc-
24 shaped flutes adapted to a radian of the flank surface, or connecting lines in
25 the flutes form a spiral structure.
26 Any person of ordinary skill in the art that has a mechanical

1 engineering degree and at least two to five years of experience designing
2 drill bits, and familiar with reading Patents and trade journals, as this person
3 of ordinary skill in the art has been determined to have, would read that and
4 see that yes, Figure 5 of the `900 application shows negligible or -- hardly
5 you'll see any axial relief. But paragraph 10 and 25 say preferably it should
6 have some axial relief.
7 Now, there's been a lot of questions as to what a connecting line of
8 a flute is -- of these flutes and let me just be clear. Obviously we don't call
9 them flutes, typically. In a regular twist drill, the flute is that large helical
10 flute that helps the chips to be evacuated from the cutting surface. And what
11 I would describe the flutes for here instead are these parallel grooves. In
12 Slide 25, they're shown in alternating blues and yellows. They're those
13 parallel grooves.
14 Yes, they're parallel, and Petitioner has Claimed that since they're
15 parallel, they can't intersect, but that's nonsensical. If you look, they're
16 parallel, but they form two surfaces. They form a conical surface and a
17 cylindrical surface, generally speaking. I mean, a lot has been said about are
18 we talking about mathematically cylindrical or not, but roughly cylindrical
19 surface, and a roughly conical surface, and those are shown in, you know,
20 the alternating blue and yellow sections on the left-hand side of Slide 25.
21 And the conical surface of one flute four does in fact intersect the
22 cylindrical section, the cylindrical surface of the very next flute four. And
23 that intersection is that line that we've highlighted in red in between there,
24 and those are in fact the connecting lines of those two flutes four. And the --
25 JUDGE SAINDON: Counsel?
26 MR. CUNNINGHAM: Yes?

1 JUDGE SAINDON: So I don't know if I've seen connecting lines
2 used in this way. You know, I look at your red lines, and I would say those
3 are boundary lines, which in my view divide, not connect. They don't draw
4 them all together. They separate them, and they make -- they're very good
5 dividing lines, but I don't understand your use of the word connecting here.
6 MR. CUNNINGHAM: Well, they certainly -- it's the line that
7 connects to adjacent flutes. I guess I'm looking over at my door. I've
8 lodged it open. The hinge edge of my door connects the door to the wall.
9 It's actually at an angle where the door is somewhat conical, and the wall is
10 somewhat flat. Not cylindrical. But it's a connecting line. This obviously, I
11 would believe that a person of ordinary skill in the art would know this was
12 a -- there was a Chinese Patent application filed as a PCT, and this is a
13 continuation of that PCT application, and they would know that they have to
14 read this with a bit of a grain of salt. There's nothing difficult to understand
15 that the connecting lines here, if you want to call them border lines or
16 separating lines, they do connect to adjacent flutes four. Each one of
17 those -- each one of those red lines connect to adjacent flutes for.
18 Now, of course, both in the part application, the Patent draftsman,
19 or -- yes, the Patent draftsman probably had learned that yes, they need to
20 illustrate this. So they illustrated it, but they didn't change the overall
21 concept of either the disclosure or the invention. They illustrated it by
22 Figure 3 of the `583 Patent, and that's one reason why they abandoned the
23 `900 application in favor of the `583, is because they want to Claim the
24 spiral nature of the connecting lines here.
25 And, you know, my colleague on the other side says you can't --
26 you know, the general rule is that if you want to Claim it, you have to draw

1 it, but I don't think that's actually a Patent Office rule, but it is a general
2 understanding. And I think the Patent examiner -- I think the prosecution
3 history of the `900 shows that, you know, they were getting assembly
4 blocked because they hadn't drawn it, so they drew it. But the drawing
5 doesn't make it a new matter.
6 The description here is these are the connecting lines between two
7 adjacent flutes four, and the plurality of those lines form a spiral structure,
8 and that is the actual relief that is described in, you know, numerous prior art
9 references. And I believe a person of ordinary skill in the art would
10 understand that my client had in its possession the concept of axial relief in
11 relation to this invention when he filed the `900 application, and --
12 JUDGE SAINDON: Counsel, I have a question on that. So Korb,
13 you pointed out earlier has very, very little axial relief depicted, if any. And
14 the written description in Korb says axial relief. And in the Wang `900, we
15 have, again, very little, if any, axial relief depicted, and we don't have the
16 word axial relief, even though that's something everybody knows, that term.
17 So I guess that to me is a little bit of a disconnect in your
18 argument. Korb says axial relief, whereas `900 Patent doesn't. It uses other
19 words that you say mean axial relief, but I'm having a hard time
20 understanding how those words mean axial relief when they're said.
21 MR. CUNNINGHAM: Yes. I suppose I would just respond that a
22 person of ordinary skill in the art would look at that and say they form a
23 spiral structure. You know, Claim -- I'm sorry -- paragraph 35 seems to me,
24 although written in a sort of English conversion -- and if we're going to
25 criticize the foreign, you know, language applications converted into U.S. --
26 you know, into English for U.S. Patent applications, then that could upset

1 quite a few Patents out there.
2 But in this case, I think a person of ordinary skill in the art would
3 review paragraph 35 and say, oh, I see. It's not the most beautiful language.
4 It's not the most artful language. But they're saying it's an arc-shaped flute
5 adapted to a radian. You know, it's directly around the cone, or they can
6 form a spiral structure, which is not exactly an arc anymore, and it doesn't
7 actually follow the radian. It drops down like a spiral, or what we would call
8 axial relief. And we also wouldn't have necessarily called those flutes,
9 because that would be contrary to -- that would be a bit confusing with the
10 larger chip evacuating group.
11 But I think that's also something that's very well described, is
12 okay, we're going to call them flutes four, but in that -- you know, in the
13 application, it's very clear that flutes four are these parallel grooves and
14 could have easily been called a grooves four. And in some translations, if
15 you translate the PCT into English, you'll see the word grooves, but in the
16 one that the prior Patent attorney used, it said flutes.
17 Same thing here, as far as spiral versus axial relief. Again, it's not
18 the critical feature of the invention. The critical feature of the invention, if
19 you look, it was actually described quite well and illustrated quite well in the
20 `900 application that's shown on slide 16. It's a side by side comparison
21 between the prior art and the invention. And the invention shows that the
22 cone angle shown as one in prior art is then divided up into multiple sections
23 and spread back into a much more acute and overall profile angle of the drill
24 bit. And as a result, it reaps all the benefits that are described in both the
25 `900 application and the `583 Patent.
26 But it's most certainly the case that the grooves leave behind both

1 a conical surface and a cylindrical surface, as shown in Slide 25, and the
2 conical surface of one flute four intersects with the cylindrical surface of the
3 very next adjacent flute four, forming a line, and that line in fact connects
4 those two. It might intersect those two surfaces, but it connects the two
5 flutes four that have that material that's been removed from the cone surface
6 of the drill bit.
7 So Petitioner's arguments to the contrary are quite contrived.
8 Language like could possibly interpret, a person of ordinary skill in the art
9 could possibly interpret that as being some other sort of spiral line, that's not
10 the standard. The standard is a reasonably -- whether the application
11 reasonably conveys to those skilled in the art that the inventor had
12 possession of the Claim's subject matter as of the filing date.
13 And so, this reasonable clarity standard is the standard, not, you
14 know, could a person of ordinary skill in the art -- in fact, could a Petitioner
15 contrive what a person of ordinary skill in the art could possibly come up
16 with as an alternative, and therefore create a sort of confusion as to what the
17 inventor was stating, again, in the written portion of the `900 application?
18 In fact, if you look at Claim -- if you look at the paragraph -- on
19 Slide 25, if you look at the language in paragraph 35, the inventor, for
20 whatever broken English was used, clearly used the exclusive or, and there
21 is no reason to think that any of the Petitioner's alternative interpretations of
22 that second portion of that sentence is an apples to apples comparison to
23 what is referenced before the exclusive or.
24 I mean, why would -- we can do that. Why would a person of
25 ordinary skill in the art, with the experience and the education indicated,
26 believe that Mr. Williams meant that the connecting lines of flute four could

1 either follow along a circular path around the cone, or the flutes four can
2 form the spiral surface that's already been formed by the tip evacuating
3 flute? It's the tip evacuating flute that forms that spiral surface along the
4 edge.
5 In fact, the flutes four chip away at that surface. They chip away at
6 that spiral surface and create a step like structure, which is exactly what Mr.
7 Williams has described in paragraph 31 of his `900 application. He talks
8 about how you start with the spiral surface of the tip evacuating flute, and
9 the flutes four go and create a -- chip away or destroy that spiral edge, and
10 chip away, create a step like edge.
11 So, both in context with paragraph 31, and also in context with the
12 first half of the first sentence of paragraph 35, it seems to -- I think it
13 stretches credibility to argue that then a person of ordinary skill in the art,
14 with all that education and experience that he has, would read the second
15 half of, or the connecting lines of the flutes four form a spiral structure.
16 Any person of ordinary skill in the art as described by Petitioner,
17 and then adopted by this Board, would clearly see that it's the spiral flute,
18 it's the chip evacuating flute that causes that spiral structure along the
19 cutting edges, and it's the flutes four that chip away at that, or that destroy
20 the spiral edge and create a step like structure, which is exactly what
21 paragraph 31 says.
22 JUDGE SAINDON: Counsel, if I could jump in here? Looking
23 at -- let's see -- paragraph 51 that you were just discussing, so the way that
24 we described it in the decision on institution is that what it's doing here is
25 distinguishing between where the cutting edges are aligned, versus spiraling.
26 So for an aligned example would be, you know, Figure 2 of the Zhou

1 reference, Figure 2 of the Gentry reference, where the cutting edges -- you
2 know, looking from the clock face orientation straight down the axis, they're
3 all adapted to a specific radian, a certain angle. They're all at 0 degrees, for
4 example. Or the connecting lines of the flutes form a spiral. That's talking
5 about, okay, well now they're not all at 0. They, each one, will step out a
6 little bit to form the spiral, such as shown in Figure 4 of Durfee.
7 That's the way that we discussed that section in the DI, and at least
8 as I sit here today, that still makes a lot of sense to me. So I'd like to give
9 you an opportunity to discuss that.
10 MR. CUNNINGHAM: Let me understand what you're proposing,
11 is I'm looking at Figure 2 of Zhou. I believe I have that in my own slides
12 at -- I'm looking actually at my printed out version, but my slide for Zhou --
13 I believe let's look at -- let me direct your attention to Slides 142 and 123, if
14 I can jump down there.
15 JUDGE SAINDON: I also see it in Slide 35.
16 MR. CUNNINGHAM: Oh, okay. Thank you.
17 JUDGE SAINDON: Let me look closer to where we are -- so here
18 again, (CROSSTALK) --
19 MR. CUNNINGHAM: (CROSSTALK) -- Slide 35. So in Slide
20 35 -- I request your patience. Go ahead and explain to me what -- you're
21 talking about either having no radio relief, or having a measurable and
22 visible degree of radio relief? Is that what you're proposing as --
23 JUDGE SAINDON: No. So what I'm talking about are the edges
24 in Zhou here, so for example at the arrow, line number -- line 7, or item 7.
25 That line is pointing to the cutting edges, and those are adapted to a radian.
26 We'll call it 0 degrees from the origin. You know, at the 3:00 position. And

1 then the opposing number are adapted to the 9:00 position. We'll call that
2 180 degrees. And let's see. The other -- Gentry is basically the same thing,
3 the same idea. That's the adapted to a radian interpretation. And then the
4 connecting lines form a spiral structure could be seen in Figure 4 of Durfee.
5 I'm trying to find that in your slides here. That will be -- I'm not seeing it.
6 MR. CUNNINGHAM: (CROSSTALK) -- you know, I had this
7 other figure. And let me ask for your indulgence in moving to 50. If you go
8 to Slide 50, if this is perhaps what you're asking about?
9 JUDGE SAINDON: Yes. Yes.
10 MR. CUNNINGHAM: Okay.
11 JUDGE SAINDON: Yes. (CROSSTALK) --
12 MR. CUNNINGHAM: Yes. So those are the -- again, those are
13 cutting tips. What's shown in red is the spiral pattern of the cutting tips. I
14 believe Petitioner's counsel will also agree that the composite cutting blade
15 group that is supposed to be formed spirally would be the entire length of
16 those -- I guess for lack of a better description, the black, roughly concentric
17 lines that follow behind the red line in Wang, the right-hand side of Slide 50.
18 So it's those composite cutting blade groups which are the entire length of
19 those lines. That is what is formed spirally. And it's my position, and I
20 believe it's Patent Owner's position, that that is not shown very well here,
21 because we're looking end on, of course, and if we look sideways, we would
22 see the axial relief. And --
23 JUDGE SAINDON: I guess, Counsel, if I could jump in, I'm not
24 talking about axial relief here. That's because you can't see it. It's the fact
25 that the edges of the ends, the cutting surface of each of them in this Slide
26 50, the Wang picture you have identified there, those spiral away. And the

1 actual, the entire cutting -- I forget the name you used, but the compound
2 conical plus cylindrical shape that forms it that's behind it, those also kind of
3 move back with it. Those are spirally formed in this picture, because the red
4 lines spiral. And I understand that you said the tips, but I think the full
5 cutting surface is also spiral here.
6 MR. CUNNINGHAM: Okay. Yes. I don't -- I see. For the -- I
7 think that's more an artifact of the fact that you're looking down on a cone,
8 so the farther down composite cutting blade group will be longer, because
9 it's arcing out a larger diameter circle so it's longer in that sense. I don't
10 believe a person of ordinary skill in the art would conclude that, you know,
11 this end on image of Wang demonstrates the -- we could look up the -- I
12 guess I'd say one argument would be, in paragraph 10 it says it's preferably.
13 So preferably, the connecting lines of the group four form a spiral structure.
14 So my question would be, perhaps it would be hard to create -- I'm
15 having a hard time imagining how you would create a series of composite
16 cutting blade groups that, as you look down on the tip of Wang, would not
17 create a spiral structure in the way you described just now, and I believe that
18 a person of ordinary skill in the art would -- knowing that they are very
19 familiar with axial relief, they would probably conclude that what we're
20 talking about is axial relief.
21 I do agree with you there that that's an interesting concept. I don't
22 believe either Petitioner or Patent Owner have argued that those series of
23 composite cutting blade groups there you're looking at end on, on the right-
24 hand image of Slide 50, demonstrates the connecting lines forming a spiral
25 structure. But I do agree that we are talking -- you're finally looking at the
26 connecting lines. You're looking at the ridges between each respective

1 adjacent flutes four here.
2 And I just submit that the better way to view it would be to go
3 back to Slide 25 and note that those red lines in Slide 25 are shown with no
4 noticeable axial relief, but as is common in Patent drafting, the paragraph 10
5 and 35 both say it's preferable that it is a spiral structure, that there is axial
6 relief. And you know, I suppose I would like to actually go back to Zhou. I
7 believe you said it was in 35? Zhou?
8 Now, 35, a lot has been made out of those perpendicular lines that
9 Patent Owner drew in the Patent Owner's examination proceeding, and then
10 I also believe I heard Your Honor say that you believe that -- and I believe
11 Petitioner said that we don't dispute that Zhou has axial relief. It absolutely
12 does not. There's no axial relief shown in Figure 1, in Patent Owner's
13 opinion. Figure 1 shows no axial relief on the right-hand side of those two
14 chip evacuating flutes, and it shows no axial relief on the left-hand side. All
15 it shows is that they are staggered. There are sunken edges, and there are
16 protruding edges, but there's no reference to any kind of axial relief behind
17 the cutting edges of the -- there themselves. That's staggering.
18 So when the lines were shown perpendicularly, it's unfortunate
19 there's no drawing of Figure 1 that shows that side-on view with the drill bit
20 rotated 90 degrees around. There, the perpendicular lines would make
21 sense. And you know, it's intended to show that there are two chip
22 evacuating flutes in Zhou. On the right-hand side you have surfaces four
23 and two, and on the left-hand side you have surfaces one and three. And just
24 because surface four is protruding and surface three is sunken doesn't mean
25 that there's any axial relief there. It means that surface four does the cutting,
26 and surface three is sunken. It doesn't perform cutting.

1 The same goes with two and one. One is protruding, and two is
2 sunken. So they don't lay directly perpendicular to each other, but neither of
3 them has axial relief between the one chip evacuating flute and the next chip
4 evacuating flute. There, they're perpendicular, as far as Zhou has disclosed.
5 All Zhou discloses is that one is a protruding edge, and surface two is a
6 sunken edge and does no cutting.
7 And in that sense -- and in fact, you know, numeral seven and six
8 refer to chip separating grooves, and they're only on the two protruding
9 edges, not on the sunken edges that don't perform any cutting. So what you
10 have here is actually another example of where Zhou doesn't necessarily
11 create -- it isn't configured to crush chips into finer chips, because they're
12 actually quite thick chips. They might not be as long and wide as if there
13 were no sunken portions and protruding portions, but the protruding portions
14 cut much deeper into the material than if the sunken portions were carrying
15 their share of the burden of cutting.
16 So you only have one chip -- you only have one cutting edge on
17 each side of that top blade in Zhou, but they don't demonstrate axial relief,
18 since one is on the right-hand side of the two-chip evacuating flutes, and the
19 other surface is on the left-hand side. They're just staggered. They're not --
20 this doesn't answer if they're spiral.
21 JUDGE SAINDON: Counsel, if I could jump in? So five minutes
22 left in your -- you can go over if you need to, that's fine.
23 MR. CUNNINGHAM: Yes.
24 JUDGE SAINDON: I just wanted to let you know. And I do have
25 a question. So you said a person of ordinary skill in the art wouldn't
26 understand the Zhou reference to teach axial relief, but I thought I heard you

1 earlier say that a person of ordinary skill in the art would understand almost
2 any drill bit to have axial relief. So I just wonder if you could square those
3 in my mind for me?
4 MR. CUNNINGHAM: Well, I don't really feel that Petitioner
5 deserves to use the prevalence of axial relief to prove anticipation, yet also
6 prove that it -- but also say that, you know, the prevalence of axial relief
7 doesn't allow my client to have priority back to the `900 application. In
8 other words, we had to -- you know. We had to teach. We had to spoon
9 feed the person of ordinary skill in the art the axial relief in the priorities
10 portion, but the person of ordinary skill in the art well knows that Zhou
11 would be anticipatory, because it's just well-known that axial relief -- it
12 seems like somehow it seems that they're using that as both a shield and a
13 sword, and I would just like them to pick a side, in my opinion.
14 I would say that Zhou doesn't show axial relief, but I wouldn't be
15 surprised if a person of ordinary skill in the art would look at it, as far as my
16 expert says, absolutely they have axial -- all step drills, at least, have axial
17 relief, in his opinion. It would be very hard to drive -- and maybe I'll
18 twist -- I can't recall his testimony exactly, but -- and it's in the record. But
19 the fact is -- is that axial relief allows for penetration.
20 If you didn't have axial relief, a hand drill would be much more
21 difficult. Something like a machine drill, like the gun drill Welty, may not
22 need axial relief, because it's a machine pushing it in through a deep hole.
23 But a hand drill operator will want axial relief on a drill, whether it be a twist
24 drill or a step drill. Now, although it's not disclosed in Zhou, I believe it's
25 only been expected that any drill bit, including Zhou and all the other ones in
26 the prior art of record in this case, have some axial relief, even if they're not

1 shown, including my own client's `900 application.
2 And if I could skip back to priority -- I know I went out of order,
3 because it was something that was kind of surprising to hear Petitioner claim
4 that Zhou shows axial relief, when really it shows staggering is really what it
5 shows. So if I go back and resume back to priority, I just wanted to finish up
6 with the fact that, you know, paragraph 35 -- as shown in Slide 25,
7 paragraph 35 is in fact an either/or. And the first thing is there's no way
8 about it. It's either/or. It's either the grooves go circularly around the cone
9 surface, or they form a spiral structure.
10 And that's really all there is to it. It's either/or. And you know, all
11 of the interpretations that Petitioner puts forth ignore that either/or, and just
12 say that the groove can either go circularly around the cone, or something
13 else somewhere else in the drill bit could happen, and there's no reason for
14 that to be an exclusive either/or, unless you're talking about the same
15 orientation, the groove going around the cone circularly, or a groove going
16 around the cone spirally. And I would acknowledge that that's axial relief.
17 If there's no questions about the priority, then, and I'd be happy to
18 entertain them, I'd move on then to our next argument that I would like to
19 point out, and that is Patent Owner's evidence of objective indica of
20 obviousness. And I don't know if I need to spend much time here, other
21 than to point out it's overwhelming. I mean, I've rarely been in a case where
22 so many people have tried to copy my client's invention.
23 I mean, I'm very happy that my client has such a great invention
24 that everyone is copying it. You know, multiple competitors out there are
25 trying to copy it, and, you know, our expert, Professional Endres, made clear
26 with quite a few, quite a series of Claim charts that the Nexus is undeniable.

1 The coexistence is undeniable. This is talking about the hyper step drill bit
2 down to a tee. Petitioner hasn't identified any element or feature that is a
3 strong basis for sales, other than the features that are recited in the Patent
4 Claims.
5 I believe that our client is entitled to a presumption of Nexus, but
6 then we also demonstrated Nexus by -- actual Nexus by, you know,
7 Petitioner's own words. You know? And its own desire to make a copy,
8 because again, the product is, you know, flying off the shelves. The product
9 is -- you know, and we can get into some of the confidential statements that
10 haven't been cleared by Petitioner to be provided in the non-confidential
11 portion, but there's quite a bit.
12 I believe here, you know, third party is referring to -- in Exhibits
13 2011 through 2022, Exhibit 2049, 2051, and 2052 are all these third party
14 statements saying that the -- they're demonstrating that the hyper step drill
15 "pushes through hard metals like butter," in quotes, quote. And it just goes
16 on and on. I believe my Slides 56 through 70 all discuss the prior art -- I'm
17 sorry. Not the prior art, but the commercial success of both a Claim, and
18 also -- you know.
19 I mean, I'm trying to push through this pretty quickly, but it's
20 pretty clear in my opinion that these slides demonstrate, and the evidence
21 demonstrates that there is a commercial success, and the commercial success
22 is clearly tied to the Claims of the invention. It's not like the invention is --
23 only a portion of the drill bit is Claimed. It has everything from the tip of
24 the cone to the shank, and specifically the geometry of the tip, which again
25 can be seen compared to a standard twist drill in Slide 16.
26 JUDGE MAYBERRY: Excuse me, Counsel?

1 MR. CUNNINGHAM: Yes?
2 JUDGE MAYBERRY: This is Judge Mayberry. May I ask a
3 question, please?
4 MR. CUNNINGHAM: Yes, please.
5 JUDGE MAYBERRY: Actually, I have a couple. The first one is,
6 I believe I heard Petitioner's counsel say this morning that there is no
7 secondary considerations asserted against the Wang ground. So if we do
8 find that you're not entitled to priority, would that be the case, or should we
9 weigh secondary considerations when we're evaluating the Wang ground as
10 well?
11 MR. CUNNINGHAM: Well, Wang obviously didn't -- the Wang
12 `900 application didn't result in any Patent Claims issue, but it clearly
13 described in detail this same invention about the `900 application. So to the
14 extent that the secondary considerations demonstrate inventiveness, it goes
15 all the way back to the `900 application.
16 JUDGE MAYBERRY: All right. Thank you. And my other
17 question is, in passing, you made a statement about your declarant and the
18 Claim charts, and I thought I heard you say that your declarant made the
19 Claim charts. Is that true?
20 MR. CUNNINGHAM: The declarant reviewed the Claim charts.
21 They were made by Counsel, but the Claim charts, along with the drill bits
22 themselves, were shipped to the declarant, and the declarant made detailed
23 evaluations of the drill bits and the Claim charts and signed off on them.
24 They are part of his exhibits to his declaration.
25 JUDGE MAYBERRY: So the Claim charts are evidence that he
26 bases his opinions on, so they are part of the foundational evidence of his

1 declaration?
2 MR. CUNNINGHAM: That's correct.
3 JUDGE MAYBERRY: All right. Thank you.
4 MR. CUNNINGHAM: And you can find the Claim charts at I
5 believe Exhibits #2074 through Exhibits #2097, and his deposition
6 testimony of them, including his determination that there is a Nexus and that
7 there is coextensiveness, is in his declaration, which is Exhibit #2044 at
8 paragraphs 149 through 161. I believe he indicates that he received the
9 Claim charts and evaluated them in detail.
10 So, you know, I will reserve some of our secondary consideration's
11 argument to a confidential area if I talk about sales numbers. But the most
12 important thing, I believe, is once we presented our secondary
13 considerations, all they provided in response was a declaration not from any
14 marketing person at the Petitioner's company, not any expert in marketing or
15 sales, but simply their engineering manager. Their engineering manager
16 then went about saying, well, the sales of twist drills are pretty large, and the
17 sales of these stepped tipped drill bits are, you know, only a small portion of
18 those larger twist drills.
19 And then he would not also agree that the step twist drills are an
20 improvement on the twist drills. He instead would say, well, they're -- you
21 know, he would say they're not an improvement on twist drills. They're a
22 specialty drill. But at the end of the day, he's quoting figures and -- you
23 know, national sales figures. Not only just Viking's sales figures, but
24 national sales figures -- without any attachment to the declaration
25 whatsoever.
26 So when asked at deposition, what do you -- you know, what do

1 you base this on, he says, well, he talked to the marketing director, Mr.
2 Russin. And Mr. Russin has given declarations in this matter, at least at the
3 District Court level, maybe at the Petitioner level. I can't recall. But the
4 main thing is they have marketing people and sales people at Viking, but
5 they didn't present them. They presented their engineering manager. And
6 all of that should be discounted as him not having personal knowledge, him
7 not providing any support for his numbers.
8 And in essence, our secondary considerations really are
9 unopposed. It really should be concluded as being unopposed. So to me,
10 they actually knock out all obviousness arguments in this case, because of
11 the strong secondary considerations demonstrating how important my
12 client's invention, my client's Claimed invention was and is to the industry,
13 and including the fact that Petitioner continues to refuse to stop doing what
14 they're doing and selling their product and hoping that they'll come out with
15 some sort of invalidity here. But the point is that they're unwilling to stop
16 selling, and you've got to expect that means despite the cost that all of this is
17 causing them, they think it's a valuable invention. I don't know how --
18 JUDGE SAINDON: Counsel, I just want to jump in here, because
19 we are getting close to 10 minutes into your rebuttal time. But you do have
20 some slides here that I have questions about, if we could (CROSSTALK) --
21 MR. CUNNINGHAM: (CROSSTALK) -- yes. I'd be happy to go
22 into that time as much as necessary. I'm not interested -- I'd like to be
23 answering your questions, and you know, get through a bit more of my
24 presentation. So if you wanted to address a slide, I'd be happy to do that
25 now or in the future.
26 JUDGE SAINDON: Yes. Let me get my questions in, because

1 maybe that will make us cover what you're going to cover anyway. So let's
2 go to Slide 77. This is a slide on industry praise. I believe this is an excerpt
3 from Exhibit #2012. I think this was a video, but the video's not in the
4 actual exhibit.
5 My question is more broad. When we say industry praise, who has
6 to say that industry praise? I think this exhibit right here gives a pretty good
7 example of why in my position, I'm skeptical. Because one, you have this
8 exhibit, and page two basically says that this is a paid promotion by the
9 owner of the product, and, you know, they received compensation
10 potentially for some of them. They're at least getting this stuff for free.
11 They're getting the descriptions and specifications of the product from the
12 manufacturer.
13 Anyway, I think we all know that most of the reviews that we see
14 are actually paid product placements, and I think this kind of shows that. So
15 is this really industry praise, or is this just advertising? And I'll ask a little
16 more, because it's related. Same with the -- you know, somebody giving a
17 five-star review. You know, just a random person who probably owns the
18 stuff. Why would they comment otherwise? But still, just random people
19 on the Internet. Is that really industry praise?
20 MR. CUNNINGHAM: You know, I would be remiss not to
21 present it into the evidence, and probably wouldn't be serving my client well
22 if I didn't take everything, put it into the evidence. I think all of the
23 statements that opposing counsel made as well need to be taken with a grain
24 of salt. I heard him, you know, put into my lips quite a few things that I
25 disagree with. I didn't interject, of course. It's not my place to interject.
26 But you know, you can just take everything he said, that Patent Owner

1 seems to do this, Patent Owner seems to do that. I would disagree with
2 those.
3 In this case, yes, I believe you would be entitled to take those
4 tertiary statements with a grain of salt. You don't know whether my client
5 or my client's reseller is out there trying to put this in other people's lips. I
6 don't have a problem with that at all. But the most important thing is, me,
7 there's a gradation between the fact that Viking is infringing my client's
8 Patent, and they refuse to stop or sell. Number two, third parties are also
9 copying, and we haven't yet sued them. But they must be looking at this
10 saying, well, you know, maybe we should worry about getting sued. Yet
11 they're all still selling out there.
12 Competitors are making statements. Viking has made statements
13 that are in the record, and that's not my client's paid statements. The
14 competitors are also advertising the product, trying to point out that the same
15 benefits that our client is pointing out, the benefits of the invention. So I
16 would say that -- and when you look at the videos, it's the video.
17 I mean, if you can see that the -- unless you think the video's
18 doctored, you can see maybe the drill bit penetrating at a much faster rate,
19 and with much more success into hardened steel, as, you know, a competing
20 product that is maybe a standard twist drill, or, you know, some of these
21 alternatives or variations on a standard twist drill, but not my client's easy
22 boost or hyper step twist drill. It's the actual seeing is partially believing, as
23 opposed to just some person comments, or what some tech staff writer here
24 in Slide 77 says in tech shop. Because you're correct. It could be promoted
25 by my own client, my own client's retailer.
26 JUDGE SAINDON: Counsel, just something you said there, I

1 have a question. I'm not aware of any videos in the record. Am I wrong
2 there? Did I miss something?
3 MR. CUNNINGHAM: I believe 2049 and 2051 are videos.
4 JUDGE SAINDON: All right.
5 MR. CUNNINGHAM: And one more is 2052. They are actual
6 videos that were submitted.
7 JUDGE SAINDON: Are these the ones that were excluded?
8 MR. CUNNINGHAM: No. There were others that were excluded
9 because they were too big, and we were taking too long. My staff was
10 taking too long to chop -- figure out how the PTABs would be able to accept
11 them. And unfortunately, those were excluded because they were submitted
12 way too late.
13 JUDGE SAINDON: Okay. Thank you. I just --
14 MR. CUNNINGHAM: So --
15 JUDGE SAINDON: -- wanted to make sure I wasn't missing
16 something.
17 MR. CUNNINGHAM: So the ones that were excluded were 2050,
18 2053, and 2054, but the previous numbers I gave you were not excluded, and
19 they were submitted timely.
20 JUDGE SAINDON: Okay. All right. I didn't want to derail, but I
21 just wanted to make sure I didn't miss something there. Now, you --
22 MR. CUNNINGHAM: All of your questions are probably the
23 most important thing I could do today, so --
24 JUDGE SAINDON: Okay. Well, on that note, I do have -- I have
25 two questions. Again, these hopefully are very simple ones. Slide 96, this is
26 an excerpt from Exhibit #2059, which is an evaluation, a product evaluation.

1 Right? And so, this slide says this is Kimball's evaluation of the hyper step.
2 When I was looking at the slide -- or I'm sorry, the exhibit, it looked like it
3 came from Astro, not Kimball. So I just wanted to question you about that.
4 Isn't this, I mean effectively Patent Owner's own internal testing, not
5 Kimball's?
6 MR. CUNNINGHAM: Well, first, I do know that there was one
7 test -- I don't believe it was this Exhibit #2059. But I do agree that the fact
8 that Kimball had in its possession Astro's test material, to us was the
9 relevance. The fact that they had it in their possession. Not so much what
10 it -- I mean, obviously what it said is relevant, but that they had it in their
11 possession, it means they were targeting this Astro product or Matco
12 product, that they wanted to copy.
13 They initially came to our client and asked for a license to sell, a
14 supply agreement, and in parallel -- it looks like the date, the timing, it looks
15 like in parallel, they were also asking Viking to develop this as well. And I
16 think that it was very clear that our client's product was being targeted, and
17 maybe they thought there wasn't going to be Patent protection, because that
18 was before the Patent was actually issued, and that's the fact.
19 Now, as far as #2059, let me confer about #2059. Do you have
20 any idea? I'm getting a lot of hand gestures. It might have been a copy. It
21 might have been a copy that Kimball took to heart. You know, that they
22 adopted, copied from something from Astro, but was themselves put into
23 their own material.
24 JUDGE SAINDON: Okay. And do you have some sort of
25 evidence that says that that's where it came from, and the relevance that
26 Kimball made the test is that Kimball had the test?

1 MR. CUNNINGHAM: Those were the documents produced by
2 Kimball, and that's what we could -- we haven't gotten any waiver of
3 confidentiality for Kimball's materials.
4 JUDGE SAINDON: Okay.
5 MR. CUNNINGHAM: And those are in the confidential section.
6 But yes. In fact, I see up there -- I'm sorry -- it does actually say
7 confidential, attorney's eyes only. So to the extent this was -- I apologize
8 for that. But it looks to me like -- all I can say at this point, again, in the
9 public section, is -- public portion, is we received document production from
10 Kimball, and it included this statement.
11 JUDGE SAINDON: All right. I asked the question, so thank you.
12 My other question I see is in the confidential section, so we'll skip that for
13 now. Okay. Yes. All my remaining ones are getting into the confidential,
14 so we will leave those for later.
15 MR. CUNNINGHAM: All right. Can I ask how much time I have
16 left in my 90 minutes total?
17 JUDGE SAINDON: So let's see. You started at 10:05, so you're
18 almost to 60 minutes now.
19 MR. CUNNINGHAM: Okay. So if you don't mind, I'll move on
20 to -- I believe we discussed the objective indicia of non-obviousness. I'll go
21 into the primary evidence that Petitioner presented. And these are these
22 combinations where, as the Petitioner acknowledged in his opening
23 statement, that Claims 7, 12, 18, and 22 were not challenged as anticipated,
24 only as obvious. And that's important because even if anticipation is found
25 here for some of the Claims, and not found for 7, 12, 18, and 22, that's why
26 you heard him talk at the end of his anticipation section about how Zhou

1 plus other prior art references render 18 and 22 nevertheless obvious, not
2 anticipated.
3 And it is Patent Owner's position that it is not so easy to take the
4 top blade from prior art references like Gentry or Durfee, and the plurality of
5 spirally arranged cutting tips of Gentry and Durfee, to render Claims 18 and
6 22 obvious. And this is basically the Zhou -- this is Ground 2 of the `474
7 IPR, Zhou being raised as a primary reference, in combination with Gentry
8 or Durfee. And as seen on Slides 1.3 -- in fact, go to 133, if you don't
9 mind -- 133 is the combination of -- is the combination of Zhou plus Durfee.
10 So the Petitioner had to go all the way to step drills to find spirally
11 oriented cutting tips, and of course he did, because twist drills with that very
12 broad, obtuse cutting angle of 118 degrees isn't going to present spiral
13 cutting tips. You're not going to have enough cutting tips to create a spiral.
14 Two tips don't make a spiral. One tip doesn't make a spiral. We just
15 discussed how Zhou really only has one cutting tip on each side of the top
16 blade, because the other surface is simply a sunken, non-cutting surface. It
17 doesn't provide a cutting tip.
18 So Zhou has one cutting tip on one side of the top blade, and one
19 cutting tip on the other side. That doesn't form a spiral coming down from
20 the tip of the drill bit. They had to go far afield to these complicated Durfee
21 and Gentry references, that their particular configurations of step drills. And
22 don't forget, each one is its own Patent. Durfee, Gentry, Korb, Shibata,
23 they're all four different step drill Patents. My client, you know, objects to
24 Petitioner Claiming that all we did was we put a step drill on a tip end of a
25 twist drill, and the Petitioner can't just simply say, well, we found step drills
26 out there, we found twist drills out there, therefore there's obviousness here.

1 That's what they're trying to do.
2 But the fact is -- is that these specific configuration of Durfee has
3 never been shown how it can be put on the tip of Zhou, or that it would be
4 obvious to a person of ordinary skill in the art. And the fact that my client
5 did it and has all this objective indicia of non-obviousness demonstrates that
6 it isn't obvious through combined Durfee with Zhou. And neither for the
7 cutting tips or the top blade.
8 If you notice also, at least the top blade in Gentry -- well, I guess
9 here they're saying the major cutting blade of the -- the major cutting edge
10 of the top blade is slightly larger here in Durfee than each of the subsequent
11 major cutting edges of what we would call in our Patent would be composite
12 cutting blade group. Each cutting blade group has its own major cutting
13 edge, and the Claim 1 and 8 both recite that the top blade's major cutting
14 edge, what can be seen on the -- in Durfee, you'll see it on that in view,
15 Figure 4 on the right-hand side of Slide 133, is slightly longer than each of
16 the subsequent ones.
17 And they have to go there because Zhou clearly does not disclose a
18 top blade that has a major cutting edge longer than any of the subsequent
19 cutting blades, major cutting edges of the composite cutting blades that are
20 in Zhou. In fact, if you take Zhou literally with its numbers, the top blade,
21 major cutting edge is always going to be smaller than the others. At
22 maximum, they're equal, but it's either equal or less, if you add up all the
23 diameters there.
24 So it's our position that this weak argument of obviousness is
25 overcome by our objective indicia of obviousness, and it continues with --
26 for Zhou, attempting to use Zhou as a primary reference for an obviousness

1 argument, combining with either Durfee or Gentry. That's their second
2 ground in the `474 Patent, and it's completely inadequate, and is easily
3 overcome by our client's objective indicia, the real-world indicia. The real
4 world out there demonstrates that this is non-obvious, Patentable invention.
5 Bannister is the same. It's similar. If you go to Slide 34, Slide 34
6 we address Bannister in the same order, basically. I'm skipping around in
7 my slides because I'm trying to go along the same order that I've learned
8 that Petitioner wished to address these. So at Slide 34 is Bannister.
9 Petitioner argued that Bannister shows multiple conical surfaces. The top
10 blade isn't part of our client's Claim recitation of how the cutting blade --
11 the composite cutting blade group are the surfaces that follow along after the
12 top blade. And here, there's only a shoulder that is beveled, and for a
13 specific purpose.
14 Don't forget, Bannister has a principle of operation. It wants to
15 create short chips with its relatively flat cutting surfaces, and then longer
16 chips by its beveled surfaces, so that the longer chips pull out the short
17 chips, and don't get stuck in the cutting -- or in the chip evacuating flutes.
18 So to ignore that, and to revert right back to conical surfaces where you see
19 flat surfaces there on the right-hand side of Slide 34, would completely
20 undercut the principle of operation that Bannister brings in.
21 I heard Petitioner argue that, well, since Bannister's just not proper
22 physics, a person of ordinary skill in the art would come to their own
23 conclusion. Well, I would say if it's not proper physics, then a person of
24 ordinary skill would come to the conclusion that Bannister provides them no
25 information whatsoever for any obviousness argument, certainly not to
26 revert back to conical surfaces.

1 If you look, if you were to take those flat surfaces, flattened
2 surfaces in Bannister, you make them conical, you'd come right back to a
3 simple twist drill. I'm not sure exactly what Petitioner would say in
4 response to that. It's just a standard twist drill. I mean, they've basically
5 taken a standard twist drill cone and, you know, made notches in them, for a
6 particular theory that the flat surfaces create short tips. To combine that then
7 with the secondary references to render some of my client's Claims obvious,
8 is -- it's just Zhou and Welty were the one that he cites, that Petitioner
9 recites to present this conical surface.
10 And then they cite then again to Korb a step drill, far afield from
11 twist drills -- Korb, as if a person of ordinary skill in the art would just
12 readily combine Bannister with Korb. I believe that's Slide 51. If we go to
13 Slide 51, we see Bannister on the left-hand side, and we see Korb on the
14 right-hand side, and somehow these two are supposed to be readily
15 combined, to render some of my client's Patent Claims invalid as obvious.
16 And I believe if you'll go to Slide 52 then, you've got the text that
17 kind of explains the principle working for Bannister. You've got the fact
18 that Korb is a step drill for drilling different diameter holes in thin metal or
19 thin work pieces. And you know, again, my client hasn't just simply put a
20 step drill on the tip end of a twist drill. My client recites much more detail
21 than that.
22 And then we come to Welty. My colleague, Mr. Williams spoke
23 on Welty then at the end. And again, Slide 162 -- let me get down to there --
24 shows the obviousness argument for Welty, Welty of course being a deep
25 hole drill, pretty clearly a gun drill that has a straight flute, with a
26 pressurized lubricant system to push out the chips down this very long

1 channel, this straight channel shown on the left-hand side, and then Durfee
2 of course is on the right-hand side.
3 And the reference that they bring -- I believe it's their Slide 58,
4 references a 2018 disclosure of a long drill bit that has two spiral chip
5 evacuating flutes. My client's priority date is 2016, not 2018. It's still left
6 to some question whether, you know, you can put spiral channels easily on a
7 gun drill, as shown in Welty. Welty's a straight flute, and it's got a single
8 flute. That's why they have to have the heel on the back side. And again,
9 their expert said, well, Welty's a very old, old -- 1942, I believe, filed in
10 1940. It's very old. You know, there's a sea change in drill bit technology
11 in the '50s, and Welty's just on the wrong side of that.
12 Well, I would say, again, a person of ordinary skill in the art would
13 discount Welty, discard Welty, as not being particularly relevant to
14 particularly my client's invention that was recited and disclosed in 2016.
15 JUDGE SAINDON: Counsel, can I jump in here?
16 MR. CUNNINGHAM: Yes.
17 JUDGE SAINDON: Just want to let you know you hit 70 minutes.
18 I want to make sure that we have time for your surrebuttal in the confidential
19 section. So I don't know if you have any major points to hit, but I would
20 consider stopping now or soon.
21 MR. CUNNINGHAM: Yes, sir. I agree, Your Honor. I'd be
22 happy to stop now, and I reserve my time for later.
23 JUDGE SAINDON: Okay. Okay. Thank you. So Petitioner, is
24 there a particular budget you wish for this section? Otherwise you can just
25 use your time as you see fit. You're muted.
26 MR. VANDENBURGH: Sorry about that. I think technically,

1 including our LEAP time, we have 45 minutes remaining. I cannot believe
2 we need that much. My hope is that we can rebut in no more than a half an
3 hour, and then we can deal with any confidential issues that need to be
4 addressed after that.
5 So let me start with Wang, and the first point I wanted to make --
6 excuse me -- is while Mr. Cunningham was speaking, I went back and
7 revisited the ex parte reexamination prosecution history, because I wanted to
8 make sure I was responding correctly to your questions about Claim
9 interpretation, Judge Saindon. And I believe I was generally right in my
10 description.
11 If you look at the prosecution history, and I would back up to page
12 510, what you see first of all is the rejection was not actually based on Zhou
13 as a primary reference. It was Sheldon in view of Zhou. And if you look at
14 page 510, you can see Zhou Figure 1 does have cutting blade groups that are
15 along a spiral flute, and therefore the cutting edges spiral.
16 JUDGE SAINDON: Counsel --
17 MR. VANDENBURGH: (CROSSTALK) --
18 JUDGE SAINDON: 510 of the Exhibit #1003?
19 MR. VANDENBURGH: Oh. #1003, correct.
20 JUDGE SAINDON: So are you talking about Sheldon, not
21 necessarily --
22 MR. VANDENBURGH: I'm talking about -- did I misspeak?
23 Yes, Sheldon.
24 JUDGE SAINDON: Okay. Just making sure.
25 MR. VANDENBURGH: Yes. So Sheldon clearly shows in
26 Figure 1 cutting blade groups where the tips are spiraling, so when Patent

1 applicant distinguishes Sheldon, he does that solely on the basis, Claims
2 again, does not have spirally formed -- sequentially and spirally formed
3 cutting blade groups, because they Claim the individual conical portions are
4 perpendicular to the axis, not slanted, when viewed from the side. So we
5 know then that that term has to be limited to that. It can't also be broad
6 enough to cover having the cutting tips spiraling around together with the
7 flute, because otherwise their distinction of Sheldon would have made no
8 sense. And --
9 JUDGE SAINDON: Counsel, I have a couple questions on that.
10 MR. VANDENBURGH: Yes?
11 JUDGE SAINDON: So I'm looking at 510 of Exhibit #1003, the
12 Sheldon Figure 1. You can see one set of cutting blades going down from
13 the top to the bottom. The numbers are too small. I can't see them. But
14 they're very thin edges, and they look like they have axial relief in the
15 drawing. And then you can also see two others kind of on either side of it.
16 And was, in your view, the argument that there's no axial relief shown, or is
17 it that if you look at those three cutting blades, maybe they have axial relief,
18 but they're all on the same, you know, axial position, down from the tip?
19 Do you know?
20 MR. VANDENBURGH: Yes. Your Honor, this gets to an issue
21 in the District Court. Certainly we have taken the position in the District
22 Court, I think it's true, that their arguments with respect to Sheldon were just
23 wholly wrong, that Sheldon does in fact show axial relief. But the argument,
24 just like they misdescribed Zhou, I think they misdescribed Sheldon. But we
25 know what their argument was, and their argument -- which is at the top, I
26 believe, of page 511, is that the inner and outer edges of the conical surfaces

1 do not spiral, but rather are perpendicular or orthogonal with respect to the
2 center line axis of rotation of the drill bit.
3 So whether we agree with that or not is not really the point. The
4 point is that was their argument, that was the meaning that they gave to the
5 formed spirally limitation in an effort -- in a successful effort to overcome
6 Sheldon. We considered bringing Sheldon as another grounds in these IPRs,
7 but considering that it was so directly addressed, we chose not to do that.
8 And then just to complete the conversation, when you go a couple
9 of pages later, starting on 512, where they address Zhou as a secondary
10 reference. Again, they do, at the top of page 513, directly make the
11 argument that Zhou does not show spirally formed cutting blade groups
12 drawing the thick horizontal lines. And then when they go on -- and that is
13 specifically tied to cutting blade groups that are formed spirally on the cone
14 exterior.
15 In the next paragraph, where they say, moreover, Zhou only
16 discloses cutting tips are themselves formed in a straight line, not spirally,
17 that's not tied to that Claim language. Instead, that language ties much more
18 closely to, again, the Dependent Claims that I confirmed were added in the
19 same office action, the Claims that became Dependent Claims 18 and 22.
20 JUDGE SAINDON: Counsel, on that point, on page 514, where
21 they are discussing Zhou, and then they have Figure 4A, it looks like, of
22 their own Patent -- it says accordingly, combining the teachings of Sheldon
23 and Zhou does not render obvious Claims 4 and 5. Does that cut against the
24 argument you just made about it being the other Dependent Claims?
25 MR. VANDENBURGH: Right. I view that as neutral. I think
26 those are the specific Claims for which the examiner rejected based on the

1 combination. So it's not really clear why it was -- you know. Well, it's
2 clearly why they focused on Claims 4 and 5, because those are the Claims
3 that were at issue for that rejection. But their arguments don't seem to
4 particularly respond to those Dependent Claims.
5 JUDGE SAINDON: Okay. And while I have you, I'd be
6 interested in your response to Patent Owner's discussion of Zhou Figure 1,
7 where you're looking at it from the side. And the position as I understood it
8 was, you know, that the shoulder is kind of stepped one after the other on the
9 way down, and that is not spirally. And I'm wondering, does your position
10 require that, or care about that one way or the other?
11 MR. VANDENBURGH: Right. Our basis for -- well, our basis
12 for saying Zhou meets the spirally formed limitation is not premised on the
13 shoulders being at different heights. It's premised on the sentence of Zhou
14 that says that each of the cutting edges have a back angle of 6 to 18 degrees.
15 As Dr. Schmid says in his declaration associated with the petition, a person
16 of skill in the art would interpret that reference to back angle as referring to
17 axial relief, and I'll point out that Patent Owner hasn't disputed that in either
18 an expert declaration, or frankly even in their briefing. There's no
19 disagreement with that in their briefing.
20 Stepping back to Wang, I wanted to make two more points in
21 rebuttal. One is Patent Owner suggested that there's a special rule for the
22 written description requirement for foreign Patent applications. That is
23 simply not true, and I would suggest that if he has case law to support that,
24 he should come forward with it, because I would be shocked if that were
25 such a rule.
26 But the other thing he said is that there is no rule that a feature

1 you're Claiming needs to be shown in the drawings, talking about
2 Dependent Claim 5 of the `900 application, and trying to decide, you know,
3 what that language means. There is in fact a rule that says that every feature
4 you want to Claim needs to be shown in a drawing. It's 37 CFR 1.83 says
5 exactly that.
6 And again, further confirms the conclusion that when we're trying
7 to make sense of that very confusing Claim language regarding connecting
8 lines forming a spiral structure, it would be reasonable to conclude that what
9 they were talking about is the feature shown of the cutting -- the edges along
10 the flute spiraling around, as shown in the figures of the `900 application,
11 not what was later Claimed in the `583 Patent.
12 And again, I guess the last point I'll make is just responding to Mr.
13 Cunningham's Claim that we are somehow having our cake and eating it
14 too, or trying to have it both ways by saying that this feature was both well-
15 known and obvious, and also not to disclose, not sufficiently disclosed in the
16 `900 application. That is exactly the case law point that we make on -- I
17 believe it's Slide 11, but that's the way the law works.
18 You know, they didn't need to include the spirally formed
19 limitation in the Claims. They have in fact gotten later Patent applications
20 where they've omitted that limitation. But if you want to expressly Claim a
21 feature like that, the written description requirement says you need to
22 disclose it, and they did not. So that was it for Wang.
23 On Zhou, I've already addressed the one argument, that our basis
24 for axial relief in Zhou is the disclosure, not what's shown in the drawings.
25 The second point, I heard an attempt to disagree that Zhou teaches
26 composite cutting blade groups that are configured to crush cutting chips

1 into finer chips. First of all, of course that's wrong, because of the position
2 they took on what this term means, that it's the inherent result of taking a
3 single blade and breaking it up into multiple steps. But perhaps more
4 importantly, that's just not an argument that they've raised in either brief,
5 and this is not the right time to be making brand-new arguments that Patent
6 Owner never presented before.
7 A final point, and this actually applies to both Zhou and Bannister,
8 Mr. Cunningham asserted that relative to Dependent Claims 18 and 22, that
9 to have spiraling cutting tips, you need more than two cutting blades, and
10 that is both wrong and unsupported by the Claim language. The Claims very
11 clearly only require two composite cutting blade groups.
12 And if you look, for example -- if you take one that I believe is
13 indisputably showing spiral cutting blade groups, which is Slide 47 of our
14 deck, showing the Durfee reference, if you just -- you know, while there's
15 probably 10 steps shown there, if you picture just cutting out all the other
16 steps except the top two, those would still be spiraling. They're still
17 progressing around the outside. There's no Claim language basis, and
18 there's no factual basis for their assertion. And then finally, at least with
19 respect to Bannister, it expressly says that you're not limited to the steps
20 shown in the figures. You can have more steps if you want.
21 With that, I think Mr. Williams was just going to make one point,
22 and then I'm going to come back and talk about secondary considerations.
23 MR. WILLIAMS: Hello. I would just like to make one quick
24 point about the Welty reference. While we certainly dispute that the `583
25 Patent is entitled to a priority date that would pre-date Exhibit #1008, I
26 would also just refer Your Honors to Exhibit #1050 in the `474 proceeding,

1 that describes deep hole drilling used two fluted, two bladed drills with
2 pressure coolant, which was published over one year before the earliest
3 potential priority date of the `583 Patent. And that's the only point I'd like
4 to make. I'll give it back to Mr. Vandenburgh.
5 MR. VANDENBURGH: All right. Secondary considerations.
6 We obviously disagree on the relative strength of the obviousness case and
7 the evidence on secondary considerations, but I don't think we disagree on
8 the law, which states that weak evidence of secondary considerations does
9 not overcome a strong showing of obviousness, and that is what we believe
10 is present here.
11 I want to start with Nexus, because Nexus is a necessary part of
12 any secondary consideration finding, and here there are serious flaws with
13 their Nexus argument that go directly to their allegations, specifically on
14 commercial success and industry praise. One of the reasons that Nexus fails
15 is because Patent Owner bears the burden of proving that the commercial
16 products they're relying on are covered by the Claims. And they have failed
17 to do this in this instance because, again, going back to the spirally formed
18 limitation. It may be a very common, well-known feature, but we still need
19 to know that the Patentee's products have it.
20 And I highlight the evidence here on our Slide 73. Of course we
21 have the conclusory statements from their expert that it's covered by the
22 Claims, but he doesn't specifically address this limitation, and he admitted
23 he conducted no measurements. That's important, and I'll get to this in a
24 second, because the axial relief, if it's there, is so small that you can't see it.
25 It's not something that you can reasonably assert, just because you looked at
26 a picture or even held the product in your hand.

1 And again, this is partially supported by Mr. Wang's testimony,
2 the inventor and the manufacturer of the commercial drills, who, when asked
3 whether their products had axial relief, testified that he did not know
4 whether that was present. So what we got from Patent Owner in their sur
5 reply was what we view as an effort to backfill the absence of evidence, and
6 we see this on Slide 74, where they presented this image of their product
7 with, again, a vertical red line, and then a horizontal dashed lines,
8 supposedly showing the clear slant associated with their cutting blade
9 groups. I included the old Zhou picture on the other side simply to make the
10 point that they're doing the same thing again, saying things that are not
11 accurate, and supporting it with inaccurate annotations.
12 And this can be confirmed, if you flip ahead one slide to Slide 75,
13 where we've went into the record and just found two pictures of what appear
14 to be the same drill they rely on -- on Slide 74, showing what they look like
15 from the angle they show it in their brief, but also a different angle. And I
16 submit that you look at that and you cannot reasonably conclude that there is
17 axial relief on that drill. It's just -- if it's there, it is simply too minor to see.
18 They haven't met their burden of proof.
19 Secondly, still on the issue of Nexus, though, Nexus also fails
20 because the commercial drills are not reasonably coextensive with the
21 Claims. There's two requirements for Nexus. The product needs to be
22 covered by the Patent, but it also needs to be coextensive with it. And one
23 of the reasons we know we don't meet that here is because the Claims, the
24 Independent Claims are anticipated by Zhou.
25 One of the rules -- of course, we know that secondary
26 considerations doesn't apply to anticipation, but also, if you have all of the

1 Claimed features shown in a single reference, that shows that by definition,
2 there's not Nexus between the commercial product and the Claims. There
3 must be something beyond what is Claimed in the Claims that leads to the
4 alleged success and other evidence of secondary considerations.
5 JUDGE SAINDON: Counsel, could I jump in here?
6 MR. VANDENBURGH: Yes.
7 JUDGE SAINDON: So what I just heard, the coextensive
8 requirement, you view that as -- I don't know if this is the right term, but I'm
9 thinking on the fly here -- two-sided test? You know, the claims can be very
10 broad, and obviously will cover lots of things. You're going to be
11 coextensive in that something so we'll read on would be completely
12 encompassed. And you know, here it's a drill bit. It's Claiming a drill bit.
13 Clearly that's within -- it's not like we have some software function, and that
14 we're trying to have Nexus to like a cellphone, you know, there's a big
15 difference there.
16 So that would be kind of a -- I don't know, a narrowing, looking
17 down co-extensiveness. But you're saying there's also a bottom up, that you
18 have to find something almost unique in the prior art in order to say this is
19 actually due to the Claim convention? Unique in the Claims, not in the prior
20 art. I'm sorry.
21 MR. VANDENBURGH: I think that's correct. Let me state it,
22 and hopefully we're saying the same thing. You know, the first part of the
23 analysis is -- is the commercial product covered by the Claims. I don't view
24 that as maybe coextensive at all, or at least it's only a part of it. The real
25 part of co-extensiveness is are there features that are responsible for the
26 success that aren't in the Claims? And those features could be physical

1 features, like the number of steps, or it could be other things that can make a
2 product successful, like aggressive advertising, marketing of a product.
3 But what I'm talking about now is the physical features of the
4 product. If all the Claimed features are shown in a single prior art reference
5 like Zhou, that shows that there must be some Unclaimed aspects of that
6 commercial product, things in part of that commercial product that are
7 responsible for whatever success and other factors there are. Because again,
8 the Claimed features are all in the Zhou reference.
9 JUDGE SAINDON: Counsel, can I ask a question then? So if you
10 look at the Bannister, the Zhou references, the Welty, they all have a couple
11 steps. Most of the Patent Owner drills, the Matco drills, for example, have
12 lots of steps, and some of them don't. So what you're saying is, well, maybe
13 it's just that there's a lot of steps, and that's something that people like, but
14 that's not Claimed?
15 MR. VANDENBURGH: Yes. And I mean, I don't want to, you
16 know, address an issue that might come down the road, and we cross that
17 bridge when we came to it. But that is a perfect example of something that
18 is in the commercial products, that could be associated with the alleged
19 success, that is not in the Claims.
20 JUDGE SAINDON: Okay.
21 MR. VANDENBURGH: But the other point, the last point I want
22 to make on the Nexus relates to the fact that we also have clear evidence of
23 things that are arguably contributing to the alleged success that have nothing
24 to do with the physical product at all. You know, it's well accepted that if
25 the success is due to things like aggressive marketing, that that belies an
26 argument that the secondary considerations show obviousness.

1 We make that point on -- if you'll turn to Slide 81 of our deck, on
2 the left hand side you'll see that Patent Owner's importer, Astro, the
3 company owned by Mr. Fisher, the declarant, was asked in his deposition,
4 has Matco been aggressive in its marketing of the hyper step products, in
5 your opinion? Yes. And has that aggressive marketing been successful?
6 Yes. So we have that evidence.
7 And Your Honor, you actually headed it off, but the other point I
8 was going to make on this -- if you look at their slides, and the praise that
9 they point to, a lot of these YouTube, maybe all of the YouTube videos, are
10 not actually Independent praise. They are part of Matco's aggressive
11 marketing strategy. They are trying to create hype about this product with
12 things like YouTube videos.
13 So again, that evidence can be relied on to find that there is no
14 Nexus here, because whatever success we have, whatever, you know, chatter
15 we have in the market about these products is due to Matco's aggressive
16 marketing, as well -- I guess just so I don't forget it, also on Slide 81, Mr.
17 Fisher also acknowledged that they have a lot of warranty Claims on this
18 product, because Astro actually has a lifetime warranty on these drill bits.
19 One of the things you see from some of the comments confirms that these
20 step tips actually can wear out quickly. They can't be resharpened. And so,
21 part of their success is just selling additional drill bits through warranty
22 Claims.
23 JUDGE SAINDON: Counsel, I have a question there. Are you
24 saying that when we see sales data of X dollars, that some percent of the
25 sales data is actually just kind of a second sale or resale because of the
26 warranty?

1 MR. VANDENBURGH: Certainly that is indicated by the record,
2 by the evidence for the Patent Owner Tsteigen, which is a company related
3 to Mr. Wang. That's on the bottom of Slide 81. Well, and I guess I
4 sometimes mix up the companies. As I understand it, the products are
5 manufactured by Mr. Wang's company, called Tech Spiral, and then
6 somehow there's a company called Tsteigen that steps in in the distribution
7 chain.
8 But if you see at Slide 81, towards the bottom on the right-hand,
9 am I correct that warranty Claims don't hurt the profitability for Tech
10 Spiral? They don't replace them for free, correct? Correct. They make
11 money on warranty Claims. So that's -- again, Nexus is a necessary part of
12 the secondary considerations of any secondary considerations finding, and in
13 the absence of Nexus, all of their other evidence could be rejected.
14 Let me just go briefly through some of their specific ones, starting
15 with commercial success. As we pointed out on our brief -- and I have a
16 slide on this -- one of the necessary elements of commercial success, an
17 allegation of commercial success, is to put the sales numbers into context.
18 Just throwing numbers out there is not particularly helpful, if you don't have
19 something to compare them to.
20 Patent Owner put no comparative evidence in their showing. They
21 didn't make any effort to contextualize their sales numbers or our sales
22 numbers. And we then came forward in response to provide that context,
23 and again, this is where I'm not going to speak the numbers out loud,
24 because I don't think we need to. But if you look at Slides 79 and 80, we
25 have created bar graphs. First, the bar graph on 79 shows the sales of
26 Viking's drill bits over a three-year period compared to their overall twist

1 drill sales.
2 As you can see there, it's a small fraction, which again shows that
3 this is not some huge step forward in the step drill world, where you would
4 expect that the new drill bits would replace the old drill bits. They really
5 haven't had much of an effect at all. On Slide 80, that shows the same data.
6 What Patent Owner comes forward on a five-year basis for their sales of the
7 hyper step drills, we've compared that with an extrapolated estimate of the
8 overall sales of twist drills.
9 Now, Mr. Cunningham criticized these numbers, Claiming that,
10 well, the deponent, Mr. Fulk, doesn't know what he's talking about. He did
11 explain in his declaration where he got those numbers. You know, we were
12 addressing both sales and technical issues, so we put them all in one
13 declaration. But there's no reason to question that he can go within his
14 company and get accurate numbers on Viking's own sales, so that's what's
15 shown on Slide 79.
16 Slide 80, the overall market, obviously those are Viking's
17 estimates. Those are always going to be estimates. But there's indicia of
18 reliability here. Obviously Viking isn't the only manufacturer of twist drill
19 bits. There's many out there. They're relatively big. But you would expect
20 the overall industry to be many times larger than Viking's sales. And again,
21 Patent Owner has come forward with no evidence to the contrary, so this is
22 the only evidence we have.
23 JUDGE SAINDON: Approaching 30 minutes.
24 MR. VANDENBURGH: Okay. Let me see if there's anything
25 else that I think is not well-addressed in our briefing. I do think, you know,
26 Your Honor correctly recognized that their praise evidence is very suspect.

1 Some of it is literally sponsored by the manufacturer. It's advertising, not
2 Independent praise. You have comments that in many instances, you know,
3 they're of course random people from the Internet. We don't know if
4 they're reliable or not, if they're authentic. This is certainly evidence that
5 can often be tampered with.
6 But in addition, there's negative as well as positive, as there
7 always is. And we point those out on Slide -- our Slide 90 shows a couple of
8 examples of people saying, look, these things aren't really that great at all. I
9 think I've addressed everything that I heard from Mr. Cunningham, so I will
10 go ahead and end at this point, and we'll come back to address any specific
11 confidential comments that Mr. Cunningham makes. Thank you, Your
12 Honor.
13 JUDGE SAINDON: Okay. Thank you. So Patent Owner, I have
14 you with -- excuse me -- 20 minutes remaining, some of which I understand
15 you're going to want for the confidential section. So if you have a few
16 things to respond to for surrebuttal, please begin.
17 MR. CUNNINGHAM: Yes. So I think I can maybe avoid a lot of
18 the confidential, as long as I can avoid the specifics. I would say that chart
19 on their Slides 79 and 80, those weren't in the record. So there's quite a bit
20 of new matter there, as far as characterizing it as such. He doesn't rebut the
21 fact that -- or doesn't, you know, counter the fact that again, Mr. Taylor Fulk
22 is their engineering manager, and they presented him to counteract our
23 commercial success arguments, our copying arguments and our, you know,
24 Claim arguments. It was just him, the videos that actually show the product
25 and performance.
26 And so yes, they should be discounted. I mean, I don't know

1 where the $200,000.00 comes from. I'm looking at their Slides 79 and 80.
2 They should just be discounted. Yes. The Matco hydro step sells for a lot
3 more than a twist drill in price point, price. Same thing with their vertex
4 point. The fact that it sells so well, despite having a huge, huge markup
5 compared to the twist drills, is relevant.
6 And he's not correct. He made a big mistake that Astro, the slide
7 then -- our slide showing actual sales of -- or actually, Slide 105, which is
8 Exhibit #2034 or #2039 -- #2039. So Exhibit #2039, a portion of which is
9 reflected in Slide 105, doesn't ask for sales. Astro gets no extra sales for the
10 warranty sales. Okay? Testigen maybe, but we're looking at the Exhibit
11 #2039. That's Astro's sales. So there's no warranty sales that are
12 implicated there. The price on those -- the profit on those are zero.
13 You know, in rebuttal -- well, let me see real quick before I head
14 over to some of the other rebuttals I want to challenge. He says that
15 something else -- you know, since Zhou, or Zhou chose everything in our
16 client's Patent Claims, we can't enjoy our evidence of permanent success,
17 but Zhou doesn't. Zhou doesn't show the spiral tips that are identified in
18 Claims 18 and 20 -- let's see -- 18 and 22, and it doesn't show or disclose
19 the major cutting edge of the top leg being larger or longer than any of the
20 major cutting edges of the subsequent cutting blade group, composite cutting
21 blade groups. There, he had to go again to Durfee and Gentry as an
22 obviousness argument.
23 So the fact that he says that there's something in Zhou that
24 undercuts our commercial success demonstration and our secondary
25 consideration indications is just not true. They had to go to an obviousness
26 argument to show it in Gentry and Durfee. And Gentry and Durfee, again,

1 very disparate point. They are step drills, particular configurations of step
2 drills that drill through thin sheets of metal, and that's not what's happening
3 in the twist drills. It's not what is happening in the hyper step that's being
4 sold.
5 And I'll just leave it to the Board to look through the Claim charts
6 that I listed off previously, to show you can just visually see many, many of
7 those photographs show axial relief. Many of them. I may be able to point
8 out one or two that had an angle where, you know, my staff might have
9 taken a picture at a certain angle that minimizes the axial relief, but they all
10 have axial relief. You know, you can see it in most of the photos that are in
11 those Claim charts. You know, the one that he showed in one of the slides is
12 Exhibit #2081 at page three. There's just one example that we just came up
13 with today that shows axial relief. It's not something that you had to
14 measure.
15 Now, of course my expert didn't say he didn't measure for axial
16 relief. He said he didn't measure for penetration rate. And then he said his
17 master's student did, at least performed some drilling on these drill bits, and
18 was amazed at the penetration rate. Yes, it wasn't a specific measurement,
19 but it had nothing, nothing, nothing at all to do with axial relief, and that's
20 the height of -- it's just not accurate. It's the height of inaccuracy to state
21 that my expert didn't measure, when he had all the drill bits in his hand and
22 could visually see axial relief, like you can see in those photos in the Claim
23 charts.
24 And their expert never thought to complain that the drill bits don't
25 have axial relief, or don't have any measurable axial relief. Their expert
26 didn't say that. This is something that Petitioner has not come up with

1 without any support from their own expert, as far as I know. The other
2 thing --
3 JUDGE SAINDON: Counsel?
4 MR. VANDENBURGH: -- that I guess I -- go ahead.
5 JUDGE SAINDON: Can I jump in? So looking at Exhibit #2081,
6 page two, it's a very similar drawing to page two that you just mentioned.
7 But this is where it talks about the composite cutting blade groups form
8 sequentially and spirally, and the drawing there has some annotations
9 showing different features, but it doesn't say anything about the spirally. So
10 you know, this is what we have to work with. This is what the expert said
11 they agreed with. But how do we know that there was an analysis about
12 sequentially and spirally, just looking at this? Everything else is labeled, but
13 not that.
14 MR. VANDENBURGH: Well, my expert's statement is in the
15 right-hand side, compared to the Claim language that's in the left-hand side.
16 So when it says -- I believe I'm in Exhibit #2081, and he says Matco's one
17 inch extra -- at the very top, side by side with the preamble, he says, Matco's
18 one-inch extra-large twist drill comprises an operation portion. And then it
19 moves on down, and then we can skip forward to page two, where it says, it
20 has a plurality composite cutting blade groups formed sequentially and
21 spirally.
22 That's him saying that it's formed -- that's his statement saying
23 that it's formed sequentially and spirally. He adopted that when he looked at
24 these Patent Claim charts closely, and declared under his own signature that
25 it's his opinion that they are formed sequentially and spirally. And yes, you
26 can look at Claims -- you can look at that photo, and it's taken at an angle

1 that doesn't accentuate any -- you can tell that it looks like it's tilted back a
2 bit. It doesn't accentuate the spirally. But then you go to, again, the next
3 page, and it's much more clear that they're spiral.
4 Now, it's very difficult without you having it in your hand to see
5 the spiral on a cone, generally speaking. I'm not saying even in these. I
6 think you can see them here in these photographs. But again, I think it's
7 easy to take a photograph. And so, my expert had it in his hands. My expert
8 handed them to his master's student to use and see what the big deal is about
9 all this. So he saw them. He could see. He could rotate them around and
10 see the axial relief, but --
11 JUDGE SAINDON: I guess my question is more the -- I don't
12 doubt that the expert believed what he signed. It's more a matter of how do
13 we know that he was looking at the right thing, because we have no evidence
14 of his analysis as to what that limitation -- how that limitation is applied to
15 this drill bit? It's just silent. So you know, he marks everything else out.
16 You know, I know it wasn't him that actually made this, but he agreed with
17 the characterizations. But there's no analysis of "spirally" in this chart.
18 MR. CUNNINGHAM: Yes, certainly. I guess I would also go
19 just to the next image down, the one on page five of #2081, and I think that
20 the axial relief is pretty evident there, too. And he does actually -- the axial
21 relief is pretty clear there. And the same thing in page six. Yes, some of
22 them are less evident. But if you look on that page -- what was it? Page
23 two? Let me go back up to page two.
24 Page two, he has identified what the -- he does annotate or re-
25 annotate and adopts what G1 through G2 of GN is, so he clearly identifies
26 that the -- he understands what the G1 and G -- what are identified as the

1 plurality of cutting blade groups. He identifies them there, clearly knows
2 what they are, and then identifies that they're formed sequentially and
3 spirally.
4 I submit that other drawings in this Claim chart, as well as plenty
5 of others -- if you want to go to #2082 and, you know, #2076, a lot of the
6 other Claim charts, you'll see axial relief. And, well, I don't suppose he
7 marked out any specifically, but I don't think he's in doubt -- I don't know if
8 either of his declarations identifies what he thinks axial -- what the spirally
9 refers to. But it's been our position since even the -- as you said, the
10 prosecution history of the reexamination proceeding, that spirally means
11 axial relief. So even before we retained the expert, we were of that position,
12 that the spirally means axial relief.
13 And you know, one thing I did want to point out -- in the
14 prosecution history, there was quite a bit of conversation about Sheldon, and
15 you know, he's one of -- I didn't want to interrupt the valuable conversation
16 by raising my objection to new argument, but it seems like a lot of that was
17 new argument in the discussion about Sheldon. It's not one of the prior art
18 references, not the primary reference or a secondary reference in any of the
19 grounds.
20 And I would submit that the examiner there quickly allowed the
21 Claims to -- you know, not reissue, but reaffirm, reaffirm the Claims, but
22 would have been happy to -- it was in, you know -- that should be seen in the
23 context of what the examiner initially thought was the -- you know, upon
24 reading the amount of time the examiners have, as you may know, in an ex
25 parte reexamination proceeding.
26 Now, granted, he misunderstood what -- he thought we were

1 talking about the spiral tips, I believe, and we clarified that we weren't. We
2 were talking about a spiral -- we were very clear on saying we were talking
3 about the spiral shape that the whole composite cutting blade group makes
4 around the circumference of the cone. And I'm not talking about, you know,
5 where a cutting blade group starts at one chip evacuating flute and then the
6 next one, but the actual relief of each cutting blade group.
7 And you may say that the -- you know, I've heard that you may
8 say that it looks like there might be some axial relief there on Sheldon, but
9 we made a point about the axial relief. And if they wanted to continue that
10 argument, I would have been happy to point out that Sheldon is really far
11 afield. I mean, Sheldon was challenged by previous counsel, saying, look, a
12 lot of step drills were challenged, and they're not relevant to a twist drill.
13 You know, they're not relevant to a twist drill unless there's obviousness.
14 And the other thing is Sheldon is a hollow step drill. It's an angler
15 cutter. I don't even know -- it's very far afield. There were a lot of reasons,
16 ways they challenge Sheldon as the primary reference in that Patent
17 examination proceeding. We just pointed out one. I could have pointed out
18 a couple. But the examiner acknowledged their misunderstanding of the
19 Claim term spirally, and then allowed the Claims. But there are quite a few
20 things we could have argued in the alternative against Sheldon, one of which
21 is it starts as an open circle, and then just broads out from there, and it's not
22 relevant to my client's Patent Claims.
23 JUDGE SAINDON: Okay. Counsel, about eight minutes.
24 MR. CUNNINGHAM: Okay. So one more thing that was very
25 important also -- and yes, if I have to eat up some of my eight minutes -- is
26 Counsel said that by all means, there are -- you know, a single or two cutting

1 tips can form a spiral, and I think that's geometrically just not possible. And
2 he says, well, look at Gentry or Durfee, and if you just ignore all the
3 multiple remaining cutting tips, just the first two create a spiral. They don't.
4 The top leg's not part of the spiral pattern of the cutting tips. One or two
5 cutting tips don't make a spiral shape, nor does even three, barely.
6 I mean, and Claim -- and he talks about how Claims 1 and 8 only
7 require two cutting tips but Claim 18 and 22 is a Dependent Claim 1 and 8.
8 So the Dependent Claims say that the cutting tips, there are enough cutting
9 tips to form a spiral pattern. That's different than what Claim 1 and Claim 8
10 point out, is that the number of cutting tips need to only be a plurality, which
11 is technically two in the middle following the top blade. So he conflates his
12 argument of the number of cutting tips that need to be to satisfy Claims 1
13 and 8, versus the number of cutting tips that are required to be covered by
14 Claims 18 and 22. 18 and 22, you have to have enough cutting tips to form a
15 spiral pattern, as is recited.
16 JUDGE SAINDON: Okay. Counsel, you have about five minutes.
17 I'll figure out the exact number, but about five minutes left.
18 MR. CUNNINGHAM: I'd like to reserve. Thank you, Your
19 Honor.
20 JUDGE SAINDON: Okay. So let's take a very short break. We
21 don't even have to step away. But just want to go off the record, give the
22 court reporter a moment, because we're going to have a new transcript for
23 the second part, and give time for the ushers to make sure that we have only
24 folks from the USPTO and from Petitioner and Patent Owner's sides
25 remaining. So just give a few moments for that.
26 (Whereupon, the above-entitled matter went off the record at 12:04

1 p.m.)

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