

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AVANT TECHNOLOGY, INC.
Petitioner,

v.

ANZA TECHNOLOGY, INC.
Patent Owner.

Case IPR2019-00042
Patent 6,354,479 B1

Before GEORGE C. BEST, CHRISTOPHER L. CRUMBLEY, and
MICHELLE N. ANKENBRAND, *Administrative Patent Judges*.

BEST, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314

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I. INTRODUCTION

A. Background and Summary

Avant Technology, Inc. filed a Petition requesting an *inter partes* review of claims 1, 2, 19, 23, 37, 38, and 46–51 of U.S. Patent No. 6,354,479 B1 (Ex. 1001, “the ’479 patent”). Paper 1 (“Pet.”). Anza Technology, Inc., identified as the real party in interest to the ’479 patent, filed a Preliminary Response to the Petition. Paper 6 (“Prelim. Resp.”).

Pursuant to 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the Petition and Preliminary Response shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Taking into account the parties’ arguments, we conclude that the information presented does not establish a reasonable likelihood that Avant will prevail in challenging the patentability of claims 1, 2, 19, 23, 37, 38, or 46–51 of the ’479 patent. We, therefore, decline to institute an *inter partes* review.

B. Related Matters

Avant and Anza have identified the following related matters. See Pet. 3–4; Paper 4, 2–3.

1. District Court Proceedings
 - a. *Reiber v. Western Digital Corp.*, No. 2:07-cv-01874 (E.D. Cal.)
 - b. *CoorsTek, Inc. v. Reiber*, No. 1:08-cv-01133 (D. Colo.)
 - c. *Reiber v. TDK Corp.*, No. 2:11-at-00570 (E.D. Cal.)
 - d. *Reiber v. TDK Corp.*, No. 2:11-cv-01057 (E.D. Cal.)
 - e. *Reiber v. Western Digital Corp.*, No. 2:14-cv-00763 (E.D. Cal.)

- f. *Anza Technology, Inc. v. Xilinx, Inc.*, No. 3:16-cv-06302 (N.D. Cal.)
 - g. *Anza Technology, Inc. v. Xilinx, Inc.*, No. 1:17-cv-00687 (D. Colo.)
 - h. *Anza Technology, Inc. v. Toshiba America Electronic Components, Inc.*, No. 5:17-cv-07289 (N.D. Cal.)
 - i. *Anza Technology, Inc. v. Mushkin, Inc.*, No. 1:17-cv-03135 (D. Colo.)
 - j. *Anza Technology, Inc. v. Avant Technology, Inc.*, No. 1:17-cv-01193 (W.D. Tex.)
 - k. *Atkin v. Reiber*, Nos. 2:09-2017, -3483 (E.D. Cal.)
- 2. Patent and Trademark Office Proceedings
 - a. *Inter Partes* Reexamination No. 95/002,283
 - b. *Xilinx, Inc. v. Anza Technology, Inc.*, IPR2018-00527, filed January 25, 2018
 - c. *Xilinx, Inc. v. Anza Technology, Inc.*, IPR2018-00528, filed January 25, 2018
 - d. *Toshiba Memory Corp. v. Anza Technology, Inc.*, IPR2018-01597, filed September 11, 2018
- 3. Other Administrative Proceedings
 - a. *In re Hard Drives, Components Thereof, and Products Containing the Same*, No. 337-TA-616 (Int'l Trade Comm'n)

Concurrent with the filing of the instant Petition, Avant filed a petition requesting an *inter partes* review of related patent 6,651,864 B2, which was assigned case number IPR2019-00045.

C. The '479 Patent

The '479 patent issued on March 12, 2002, from Application No. 09/514,454, filed February 25, 2000. Ex. 1001, 1 (21), (22), (45). The

'454 Application claimed benefit of the filing date of Provisional Application No. 60/121,694, filed February 25, 1999.¹ *Id.* at 1:5–7. Steven Frederick Reiber and Mary Louise Reiber are the named inventors. *Id.* 1 (75).

The '479 patent's Specification describes bonding tool tips, particularly ceramic tips for bonding tools that fabricate electrical connections. *Id.* at 1:11–13. As the Specification explains:

Integrated circuits are typically attached to a lead frame, and individual leads are connected to individual bond pads on the integrated circuit with wire. The wire is fed through a tubular bonding tool tip having a bonding pad at the output end. These tips are called capillary tips. An electrical discharge at the bonding tool tip supplied by a separate EFO (electronic flame off) device melts a bit of the wire, forming a bonding ball. . . .

When the bonding tip is on the integrated circuit die side of the wire connection, the wire will have a ball formed on the end of the wire, as above, before reaching the next die bonding pad. The ball then makes intimate contact with the film formed on the die pad on the integrated circuit. The bonding tip is then moved from the integrated circuit die pad, with gold wire being fed out as the tool is moved, onto the bond pad on the lead frame, and then scrubbed laterally by an ultrasonic transducer. Pressure from the bonding tool tip and the transducer, and capillary action, 'flows' the wire onto the bonding pad where molecular bonds produce a reliable electrical and mechanical connection.

Bonding tool tips must be sufficiently hard to prevent deformation under pressure, and mechanically durable so that

¹ For the purpose of this decision only, we assume that the '479 patent has an effective filing date of February 25, 1999. *See* Pet. 11 (“[T]he Petition is giving Patent Owner the benefit of the doubt on receiving a priority date in February 1999 for the purposes of this Petition.”).

many bonds can be made before replacement. . . . *Bonding tool tips must also be electrically designed to produce a reliable electrical contact, yet prevent electrostatic discharge damage to the part being bonded. Certain prior art devices have a one or more volt emission when the tip makes bonding contact. This could present a problem, as a one volt static discharge could generate a 20 milliamp current to flow, which, in certain instances, could cause the integrated circuit to fail due to this unwanted current.*

Id. at 1:15–53 (emphasis added).

According to the Specification, the problems created by electrostatic discharge can be avoided by using a bonding tool tip that conducts electricity at a rate sufficient to prevent charge buildup, but not at so high rate as to overload the device being bonded. *Id.* at 1:66–2:6. “In other words, it is desirable for the bonding tip to discharge slowly. The tip needs to discharge to avoid a sudden surge of current that could damage the part being bonded.” *Id.* at 2:6–9.

Claims 1, 19, and 37 are representative of the challenged claims and are reproduced below:

1. A tip having a dissipative material for use in wire bonding machines for connecting leads on integrated circuit bonding pads, wherein said dissipative material has a resistance low enough to prevent a discharge of a charge to a device being bonded and high enough to avoid current flow large enough to damage said device being bonded.

Ex. 1001, 6:24–29.

19. A method of manufacturing a dissipative bonding tip comprising:

forming a dissipative material as a bonding tip that has a resistance low enough to prevent a discharge of charge to a

device being bonded and high enough to avoid current flow
large enough to damage said device being bonded.

Ex. 1001, 7:15–21.

37. A method of using a bonding tip, comprising:

bonding a device using a bonding tip made with a dissipative
material that has a resistance low enough to prevent a discharge
of charge to said device and high enough to avoid current flow
large enough to damage said device.

Ex. 1001, 8:54–59.

D. Avant's Evidence

Avant relies upon the following references as establishing the
unpatentability of claims:

Reference		Date	Exhibit
Mikaki ²	WO 98/49121	Published November 5, 1998	1005
Popp	DE 3,743,630 C1	Published March 16, 1989	1012 ³
AAPA ⁴			1001

Avant also relies upon the Declaration of Anthony Coyle. Ex. 1003.

² Avant refers to this reference as “Shunji.” The first-named inventor is listed on the PCT application as “MIKAKI Shunji,” where Mikaki appears to be the inventor’s surname. Ex. 1005, 2. We follow our established practice and refer to the reference by the surname of the first-named inventor.

³ The Exhibit includes both the original German language reference and a certified translation.

⁴ Avant refers to Figures 1–4, 5A–5B, and 6A–6B of the ’479 patent as “Applicant Admitted Prior Art” or “AAPA.” Pet. 7.

E. Asserted Grounds of Invalidity

Avant asserts the following grounds of unpatentability:

Ground	Claim(s) Challenged	Basis ⁵	References
1	1, 2, 19, 23, 37, 38, and 46–51	§ 102	Mikaki
2	1, 2, 19, 23, 37, 38, and 46–51	§ 103	Mikaki and AAPA
3	1, 2, 19, 23, 37, 38, and 46–51	§ 103	Popp and AAPA

Pet. 14.

II. ANALYSIS

As we have remarked in the context of evaluating one of Avant’s previous petitions requesting an *inter partes* review, the Board “is not a forum where notice pleading suffices.” *Avant Tech., Inc. v. Anza Tech., Inc.*, Case IPR2018-00828, (PTAB Oct. 16, 2018) (Paper 7). A petitioner is required to “identif[y], in writing and *with particularity*, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim.” 35 U.S.C. § 312(a)(3) (emphasis added). Our Rules also require that a petitioner set forth “[h]ow the challenged claim is to be construed,” and the petition “must specify where each element of the claim is found in the prior art . . . relied upon.” 37 C.F.R. § 42.104(b)(3), (4). “The Board may

⁵ The relevant sections of the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, took effect on March 16, 2013. Because the application to which the ’479 patent claims priority was filed before that date, our citations to Title 35 are to its pre-AIA version.

exclude or give no weight to the evidence where a party has failed to state its relevance or to identify specific portions of the evidence that support the challenge.” 37 C.F.R. § 42.104(b)(5).

Anza argues that Avant’s Petition fails to meet several of these requirements. As set forth below, we agree and conclude that the Petition is insufficiently specific to permit us to evaluate the patentability of the claims in light of Avant’s challenges.

A. Claim Construction

Avant asks that we construe six claim terms: 1) *a device*; 2) *wire bonding machine*; 3) *tip and an electrically dissipative bonding tool tip*; 4) *a device being bonded and said device being bonded*; 5) *dissipative material*; and 6) *dissipative material has a resistance in the range of and having a resistance range*. Pet. 11–13. For each claim term, however, Avant fails to discuss why its proposed claim construction is correct, and does not provide any citation to legal principles supporting its construction, or any argument whatsoever. Rather, the Petition merely states that “support for the claim constructions provided herein are itemized in *Coyle Decl.* ¶¶65-73, *SPX1003*, p. 30-34.” Pet. 12.

As an initial matter, incorporation by reference in this manner is improper.⁶ Notwithstanding the need to plead with particularity in a petition to institute an IPR, the PTAB has imposed word limits on the length of a petition. See 37 C.F.R. § 42.24 (imposing a 14,000 word limit on petitions

⁶ In view of our decision to deny institution of an IPR for other reasons, we need not address whether Avant’s improper incorporation by reference provides an additional reason to deny Avant’s Petition.

requesting *inter partes* review). To avoid self-help attempts to increase the length of the petition, see *DeSilva v. DiLeonardi*, 181 F.3d 865, 866 (7th Cir. 1999) (“[A]doption by reference amounts to a self-help increase in the length of the appellate brief.”), our rules prohibit incorporation by reference, 37 C.F.R. § 42.6(a)(3).

Even if we were to allow Avant to incorporate the large portions of Mr. Coyle’s declaration, Avant still fails to present any analysis or arguments in support of its proposed claim interpretations. For example, we reproduce the entirety of Mr. Coyle’s discussion of the interpretation of the claim term “dissipative material” below:

- e. “dissipative material”— material that conducts electricity and allows current flow (support: SPX 1001, ‘479 Patent, Col. 1, ln. 65–Col. 2, ln. 44; Col. 3, lns. 3–48; Figs. 1–4, 5A–5B; Col. 3, ln. 49–Col. 4, ln. 56; Figs. 6A–6B).

Ex. 1003 ¶ 70e.

This is a critical element of the challenged claims and a central characteristic of the tool tips of the ’479 patent. Yet neither Avant nor Mr. Coyle explains *why* a dissipative material is one that conducts electricity and allows current flow. Nor do Avant or Mr. Coyle explain how this definition distinguishes a dissipative material from a conductive material, which also would conduct electricity and allow current flow.

In some instances, citation to the specification of the subject patent, without more, may be sufficient to support a proposed claim construction. For example, the specification may clearly set forth a lexicographic definition, and the petition may cite to that specific portion of the specification to argue that we should adopt that definition. That is not the case here. For example, the string cite for *dissipative material* quoted above cites approximately 168 lines of the specification, as well as several figures

of the '479 patent whose relevance to the term is not particularly apparent. Those 168 lines include the entirety of the “Summary of the Invention” (Ex. 1001, 1:65–2:44) as well as the majority of the “Detailed Description of the Invention” (*id.* at 3:3–4:56). If there is anything approaching a lexicographic definition of *dissipative material* in those passages, we have been unable to root it out. *See Gross v. Town of Cicero*, 619 F.3d 697, 702 (7th Cir. 2010) (“Judges are not like pigs, hunting for truffles buried in [the record].”) (citation omitted).

The Petition’s lack of specificity and failure to communicate clearly why the Board should adopt its proposed claim constructions is itself sufficient reason to lead us to deny institution of trial. But these deficiencies undergird a more serious problem with the Petition, namely that without a discussion of proposed constructions sufficient to provide clear metes and bounds to the claims, it is impossible to evaluate the merits of Avant’s arguments regarding the prior art and whether those references teach or suggest the elements of the challenged claims. We turn to a discussion of the individual grounds of patentability that Avant asserts.

B. Anticipation by Mikaki

Avant contends that claims 1, 2, 19, 23, 37, 38, and 46–51 of the '479 patent are unpatentable as anticipated by the disclosure of Mikaki. Pet. 14–23. Anza does not address Mikaki’s disclosure in its Preliminary Response, but instead argues generally that the grounds of unpatentability proposed in the Petition are not explained sufficiently. Prelim. Resp. 3–11. For example, with respect to this specific ground, Anza notes that “the only mention or citation to the expert declaration in the nine pages that Ground 1 spans is a single citation to thirty-six pages of the expert declaration in an

introductory sentence.” *Id.* at 4. Anza also contends that the ground relies in several instances on unsupported conclusory statements regarding the “understanding of one of ordinary skill in the art.” *Id.* at 5–6.

We focus on the evidence regarding the *dissipative material* claim limitation discussed above. This term appears in each of the independent claims Avant challenges. See Ex. 1001, claim 1 (“A tip having a dissipative material . . . wherein said dissipative material has a resistance low enough to prevent a discharge of charge to a device being bonded”); claim 19 (“forming a dissipative material”); claim 37 (“using a bonding tip made with a dissipative material”); claim 46 (“a bonding tip having a dissipative material”); claim 48 (“forming a bonding tip having a dissipative material”); claim 50 (“providing a bonding tip having a dissipative material”).

For each of these elements of the independent claims, Avant’s evidence is similar.⁷ Our discussion focuses on claim 1, but applies equally to the other independent claims. Avant begins with the proposition that “[t]hose skilled in the art agree that the resistance range between 10^5 to 10^{12} ohms as shown in [Mikaki] would be low enough.” Pet. 16. Avant provides no support for this expansive statement, and it is not clear what evidence is in the record showing “agreement” among those skilled in the art. The Petition then states that Mikaki

shows a semiconductor and destaticizing member used in a bonding tool that has a resistivity that is low enough and not too high. SPX 1005, 18, [Mikaki], p. 14 (resistivity of 10^6 to 10^9

⁷ Avant discusses the proposed ground of unpatentability almost entirely in a claim chart, preceded by only two paragraphs of introductory narrative. Although this format is not improper *per se*, especially in the context of an anticipation ground, it is often detrimental to the persuasive value of a petitioner’s arguments.

ohm•cm and not greater than 10^9 ohm•cm); see also, SPX 1005, 26-27, [Mikaki], p. 22-23. SPX 1005, 27, [Mikaki], p. 23, with respect to bonding tool shown at Fig. 11a, b & c; see also, p. 23 (one oxide as a “conductivity agent”); SPX 1005, 6, [Mikaki], p. 2 (zirconia that adds at least one conductive [sic] imparting agent); SPX 1005, 15, [Mikaki], p. 11 (resistivity can be made 10^5 to 10^9 ohm•cm)

Id.

This passage does not support Avant’s naked assertion regarding the alleged agreement of those of skill in the art. Although the quoted passage does discuss the resistivity of Mikaki’s material, Avant does not explain the relationship between the *resistivity* of Mikaki’s material and the *resistance* that those of skill in the art allegedly agree would be low enough. Even if we were to accept Avant’s statement regarding a resistivity that is “low enough and not too high,” however, Avant fails to explain how this proposition relates to the claims and the recited *dissipative material*. For example, Avant does not address what relationship, if any, exists between a *dissipative material* and a resistivity that is “low enough and not too high.”

These deficiencies are repeated in the context of the other independent claims, whose claim chart sections generally refer back to the evidence for claim 1. We cannot accept this as sufficient evidence of unpatentability to support institution of trial.

As Anza points out, the claim charts for the Mikaki anticipation ground contain no specific citations to the Coyle Declaration. Instead, the introductory paragraph for the anticipation ground cites generally to a large portion of the declaration that spans 36 pages. Even if Mr. Coyle’s

testimony could remedy the deficiencies of the Petition, this lack of specificity precludes our reliance on it.

But even if we were to rely on it, Mr. Coyle's testimony suffers from the same flaws as the Petition. Mr. Coyle repeats the claim chart format used in the Petition, with little additional material or explanation. His testimony contains the same broad statements regarding alleged "agreement" among those skilled in the art:

It was known prior to the filing of the '479 Patent that if the resistance is too low the static charge will drain off too fast and damage the circuit being bonded. Those skilled in the art agree that the resistance range between 10^5 to 10^{12} ohms as shown in [Mikaki] would be low enough.

Ex. 1003 ¶ 98 (1b 42).

Our rules provide that "[e]xpert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight." 37 C.F.R. § 42.65(a). That is certainly the case here. Mr. Coyle's testimony does not disclose the basis for numerous statements that are then repeated in the Petition, again without support. Even if the Petition properly cited Mr. Coyle's testimony, we would accord it no weight on these points.

In sum, Avant's Petition contains numerous deficiencies as to the Mikaki anticipation ground, which in aggregation are fatal to any likelihood of success. In particular, we conclude that the Petition contains insufficient support for the proposition that Mikaki discloses a *dissipative material* as claimed in independent claims 1, 19, 37, 46, 48, and 50. This lack of evidence leads us to the conclusion that Avant does not have a likelihood of

success in showing that any claim of the '479 patent is anticipated by Mikaki.

C. Obviousness over the Combination of Mikaki and AAPA

In the alternative, Avant contends that even if Mikaki does not anticipate claims 1, 2, 19, 23, 37, 38, and 46–51, the combination of Mikaki with “applicant admitted prior art”⁸ would have rendered the claimed subject matter obvious. Pet. 23–43. Anza argues that, in addition to the lack of specificity discussed above, the Petition contains insufficient explanation as to why a person of ordinary skill in the art would have combined Mikaki with the AAPA. Prelim. Resp. 9–10.

As discussed in the preceding section, Avant’s Petition is deficient at least in respect to its showing on the *dissipative material* elements; the inclusion of the alleged AAPA does not remedy that deficiency. For example, we note that Avant’s claim chart as to claim 1’s *dissipative material* element cites only Mikaki.⁹ Even if Avant were to rely on the alleged AAPA as disclosing this element, it is not clear how the portions of the '479 patent alleged to be admissions are evidence of a *dissipative*

⁸ Because we determine that the Petition is deficient on other bases, we need not reach the questions of whether the portions of the '479 patent Avant relies upon are indeed “admitted prior art,” or whether we may rely on such material as the basis for a ground of unpatentability in an *inter partes* review.

⁹ The claim chart again contains a broad statement that “[t]hose skilled in the art agree that the resistance range between 10^5 to 10^{12} ohms as shown in [Mikaki] and AAPA Bonding Tips would be low enough,” but includes no citation to the latter; only Mikaki is cited with any degree of specificity on this element. Pet. 26.

material, because the Petition does not explain in the ground of unpatentability how the disclosure of the alleged AAPA relates to the claim language. We also note that, elsewhere in the Petition, Avant observes that the AAPA bonding tips are described as being made of alumina. Pet. 8 (citing Ex. 1001, 3:56–57). But the portion of the '479 patent Avant cites is describing prior art bonding tips made of “an *insulator* of alumina.” Ex. 1001, 3:56–57 (emphasis added). Avant does not explain why an insulator of alumina is a *dissipative material*, even under its own proposed construction of the term as a “material that conducts electricity and allows current flow.” See Pet. 12.

For these reasons, the combination of Mikaki with AAPA does not remedy any of the deficiencies that exist in Avant’s showings as to Mikaki itself. We conclude that the Petition does not establish a reasonable likelihood of success as to this obviousness ground, for the same reasons given above for the anticipation ground.

D. Obviousness over the Combination of Popp and AAPA

Finally, Avant contends that claims 1, 2, 19, 23, 37, 38, and 46–51 would have been obvious over the combined disclosures of Popp and the alleged AAPA. Pet. 43–64. But again, the Petition only contains broad, unsupported statements regarding how Popp allegedly discloses various claim limitations. For example, with respect to *dissipative material*, Avant again broadly states without support that “[t]hose skilled in the art agree that the resistance range between 10^5 to 10^{12} ohms as shown in Popp and AAPA Bonding Tips would be low enough.” *Id.* at 46. Avant cites certain portions of Popp that recite surface resistance of 10^5 to 10^{12} ohms, but makes no attempt to link these recitations in Popp to the requirements of the claims.

Id. (citing Ex. 1012, 2 at ll. 24–47, 3 at ll. 25–32, 51–54). And although Avant characterizes Popp as disclosing “tips (e.g., the ‘surfaces of the devices that hold the electrostatically sensitive components’) are made with a static dissipative material (i.e., ‘wear-resistant ceramic (KE) having a surface resistivity between 10^5 ohms and 10^{12} ohms.’)” (*id.* at 45), we note that Popp does not appear to use the term “static dissipative material.” This is entirely Avant’s characterization of Popp’s disclosure, and the Petition does not explain sufficiently why such a characterization is correct, or why a person of ordinary skill in the art would have understood Popp to disclose a *dissipative material* within the scope of the claims.

Again, the Petition does not cite the Coyle Declaration with any particularity (*see id.* at 44 (citing generally 53 pages of the declaration)), but even if we were to rely on Mr. Coyle’s testimony, it is unsupported as to Popp in the same manner as his testimony regarding Mikaki is unsupported. *See, e.g.*, Ex. 1003 ¶ 299 (1b 194). (“Those skilled in the art agree that the resistance range between 10^5 to 10^{12} ohms as shown in Popp and AAPA Bonding Tips would be low enough.”).

In sum, the Petition’s proposed ground of unpatentability based on Popp and AAPA suffers from the same deficiencies as those outlined above for the Mikaki-based grounds. We cannot conclude, based on the information Avant presents, that there is a reasonable likelihood that the challenged claims would have been obvious over Popp and AAPA.

E. Discretionary Denial

Anza contends that, notwithstanding our evaluation of the merits of Avant’s patentability challenges, we should deny institution using our discretion under 35 U.S.C. § 314(a). Prelim. Resp. 14–19. Because we find

Avant's Petition insufficient on the merits, we need not reach the question of discretionary denial of institution.

III. CONCLUSION

After considering the evidence and arguments presented in the Petition and Preliminary Response, we determine that the record does not demonstrate a reasonable likelihood that Avant will prevail with respect to any claim challenged in the Petition. We, therefore, do not institute an *inter partes* review.

IV. ORDER

For the reasons given, it is:

ORDERED that the Petition is *denied* as to all challenged claims and no trial is instituted.

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