

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COOLER MASTER CO., LTD.,
Petitioner,

v.

AAVID THERMALLOY LLC,
Patent Owner.

IPR2019-00337
Patent 7,066,240 B2

Before LINDA E. HORNER, KEN B. BARRETT, and
ROBERT A. POLLOCK, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION

Denying Petitioner's Request on Rehearing of Final Written Decision
37 C.F.R. § 42.71(d)(2)

I. INTRODUCTION

Cooler Master Co., Ltd., (“Petitioner”) filed a Petition requesting *inter partes* review of U.S. Patent No. 7,066,240 B2 (“the ’240 patent,” Ex. 1001). Paper 2 (“Pet.”). The Petition challenged the patentability of claims 9–13 of the ’240 patent (“the challenged claims”) on the grounds of obviousness under 35 U.S.C. § 103. Petitioner asserted four grounds of unpatentability. *Id.* at 5. Aavid Thermalloy LLC (“Patent Owner”) filed a Preliminary Response to the Petition. Paper 6 (“Prelim. Resp.”). On June 12, 2019, the Board instituted *inter partes* review of all the challenged claims on all of the asserted grounds. Paper 7 (“Inst. Dec.”), 45.

Subsequently, Patent Owner filed a Response (Paper 22, “PO Resp.”) to the Petition, Petitioner filed a Reply (Paper 28, “Pet. Reply”) to the Patent Owner Response, and Patent Owner filed a Sur-Reply (Paper 34, “PO Sur-Reply”). An oral hearing was held on March 5, 2020, and a transcript of the hearing is included in the record. Paper 48 (“Tr.”).

We entered a Final Written Decision pursuant to 35 U.S.C. § 318(a). Paper 49 (“Final Dec.”). We determined that Petitioner had not shown by a preponderance of the evidence that claims 11 and 12 of the ’240 patent are unpatentable, but Petitioner had shown by a preponderance of the evidence that claims 9, 10, and 13 of the ’240 patent are unpatentable. Final Dec. 83.

On July 6, 2020, Petitioner filed a Request for Rehearing (Paper 50, “Request” or “Req. Reh’g”) of our Final Written Decision. Petitioner seeks reconsideration of the finding that Petitioner had not shown that claim 11 of the ’240 patent is unpatentable. For the reasons provided below, Petitioner’s Request for Rehearing is *denied*.

II. STANDARD OF REVIEW

A party requesting rehearing bears the burden of showing that the decision should be modified. 37 C.F.R. § 42.71(d). The party must identify specifically all matters we misapprehended or overlooked, and the place where each matter was previously addressed in a motion, an opposition, or a reply. *Id.* When reconsidering a decision on institution, we review the decision for an abuse of discretion. 37 C.F.R. § 42.71(c). An abuse of discretion may be determined if a decision is based on an erroneous interpretation of law, if a factual finding is not supported by substantial evidence, or if the decision represents an unreasonable judgment in weighing relevant factors. *Star Fruits S.N.C. v. U.S.*, 393 F.3d 1277, 1281 (Fed. Cir. 2005); *Arnold P'ship v. Dudas*, 362 F.3d 1338, 1340 (Fed. Cir. 2004).

III. ANALYSIS

Petitioner asserts that the Board failed to apply *KSR*'s¹ flexible approach to obviousness as it relates to the combination of Morikawa and Nakamura and the determination of patentability of claim 11. Request 1. In the Final Decision, the Board determined that Petitioner failed to provide adequate explanation for the proposed modification of Morikawa with the teaching of Nakamura in the manner recited in claim 11:

Petitioner has not explained adequately and persuasively what would have led one having ordinary skill in the art to replace only some of Morikawa's metal pipes 11a with Nakamura's depressions so as to have led one to a heat pipe containing both a depression and a spacer extending between and contacting both plates, as recited in claim 11. *See* Ex. 1002 ¶ 124 (analysis of claim 11, in which Dr. Pokharna opines that Morikawa's metal pipes 11a correspond to the "at least one spacer extending

¹ *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007).

between and contacting said first and second plates” of claim 11).

Final Dec. 68.

Petitioner argues the Board’s finding that Petitioner’s showing of a reason to combine Morikawa and Nakamura in the manner claimed was insufficient is “contrary to the law.” Request 6. Specifically, Petitioner asserts that it “need only provide ‘a reason’ as to why a [person having ordinary skill in the art] would substitute Nakamura’s depressions for some, but not all, of Morikawa’s columns in Morikawa’s device.” *Id.* (citing *Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 991–992 (Fed. Cir. 2017)). Petitioner asserts that the Petition satisfied this burden. *Id.* at 3.

Thus, the Request asserts that the Board misapplied the applicable law on obviousness and Petitioner’s burden to the facts of this case. We discuss below the applicable law and then examine the Petition with respect to Petitioner’s burden under the law.

A. Applicable law

1. Obviousness

As explained in our Final Decision, “A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007).” Final Dec. 9–10. “The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in

the art; and (4) any objective evidence of non-obviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).” Final Dec. 10 (footnote omitted).²

2. *Petitioner’s Burden*

As also explained in the Final Decision, “Petitioner bears the burden of proving unpatentability of the claims challenged in the Petition, and that burden never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioner must establish by a preponderance of the evidence that the challenged claims are unpatentable. 35 U.S.C. § 316(e) (2018); 37 C.F.R. § 42.1(d) (2018).” Final Dec. 9.

B. *Petitioner’s Arguments*

As discussed above, Petitioner argues that rehearing should be granted “because the Board failed to apply *KSR*’s flexible approach to obviousness as it relates to the combination of Morikawa and Nakamura.” Request 1. Petitioner contends that it “adequately explain[ed] why a [person having ordinary skill in the art] would find it obvious to replace some of Morikawa’s columns (the claimed spacer) with Nakamura’s depressions.” *Id.* at 2. Specifically, Petitioner argues that “the Petition identifies two reasons” for the proposed modification: “structural support and wick support.” *Id.* at 4. Petitioner explains, with citation to page 46 of the Petition, that “Nakamura is a follow-on filing to the Morikawa heat pipe patent application.” *Id.*

² Petitioner does not contest our finding as to the level of skill in the art. Final Dec. 11 (adopting Petitioner’s proffered level of ordinary skill). Further, as noted in the Final Decision, the record did not contain objective evidence of non-obviousness. *Id.* at 10, n.7.

We acknowledged in the Final Decision that Nakamura discloses an improvement to Morikawa's heat pipe, and, in fact, found that Nakamura's teaching of an improvement and criticism of Morikawa's configuration would have led one having ordinary skill in the art to replace all of Morikawa's spacers with Nakamura's concavities. Final Dec. 68 (agreeing with Patent Owner's arguments as to the manner in which Morikawa would have been modified in light of Nakamura's disclosure). Petitioner's citation to page 46 is misplaced to the extent Petitioner relies on this portion of the Petition for a reason to modify Morikawa to replace only *some* of Morikawa's spacers with Nakamura's concavities. Page 46 of the Petition addresses Petitioner's proposed modification of Morikawa to substitute Nakamura's concavities for Morikawa's pipes to meet the "hollow column" limitation of claim 9. *See* Pet. 49–50 (Petitioner explaining that the proposed combination is the modification of Morikawa's pipes "to solve these problems."). Claim 9, unlike claim 11, does not recite both "at least one spacer extending between and contacting" both plates and "at least one depression." Thus, the Petition's discussion of the challenge to claim 9 does not include a reason to replace only some of Morikawa's spacers with Nakamura's concavities.

Petitioner argues that a person having ordinary skill in the art at the time of the '240 patent was clearly aware of both Morikawa and Nakamura. Request 4–5 (citing Pet. 14–15 (discussing an overview of Morikawa), 41–42 (discussing an overview of Nakamura), and 45–46 (discussing combination of Morikawa and Nakamura for purposes of the "hollow column" limitation of claim 9)). We agree with Petitioner that a person having ordinary skill in the art would have been aware of both of these references at the time of the invention. This fact alone, however, is not

sufficient to provide a reason to modify Morikawa with the teaching of Nakamura *in the manner* claimed in challenged claim 11.

Petitioner also contends it explained that it is “obvious to replace only some of Morikawa’s spacers, *viz.* the metal pipes having through-holes (shown above, right), while retaining Morikawa’s conventional spacers, which do not have through-holes (shown below, left).” Request 5 (citing Pet. 46–47, 88–89; Reply 32–33). According to Petitioner, the modification would have been obvious “because, as explained by Petitioner, Nakamura’s ‘criticism’ of Morikawa relates *only* to the metal pipes that have through-holes, but *not* to the conventional spacers that do not.” *Id.* (citing Reply 32–33; Pet. 88–89). Petitioner’s argument is flawed for two reasons.

The first flaw in Petitioner’s argument is that it is premised on a misreading of Nakamura. Specifically, we disagree with Petitioner’s reading of Nakamura as criticizing only the metal pipes that have through-holes. Nakamura describes “work of joining the metal pipe 6 and an outer wall of the heat pipe 4 by brazing or the like is difficult, and there are manufacturing disadvantages such as the refrigerant leaking from a junction.” Ex. 1004, 4; *see also* Ex. 2012, 4 (describing that Morikawa “has shortcomings in manufacturing, such as the difficulty in joining the metal tubes 6 and the exterior walls of the heat pipe 4 by brazing or the like, the occurrence of a coolant leakage from the joints, and the like.”). Nakamura here is referring to metal tubes 6 of “a conventional heat pipe” as depicted in Figures 2(A) and 2(B). Ex. 1004, 4, 8. Figures 2(A) and 2(B) of Nakamura appear to be based on Figures 2(A) and 2(B) of Morikawa, where Nakamura’s Figures use element numbering that differs from Morikawa’s. Comparing the Figures, it appears that metal tubes 6 of Nakamura correspond to metal pipes 11a of Morikawa.

Morikawa describes that with demand for the walls of the heat pipe to be thin, “a spacer as a reinforcing material is generally disposed inside the enclosure.” Ex. 1003, 4:1–8. With respect to metal pipes 11a, Morikawa describes that “the large number of metal pipes 11a that define the holes 11 are very useful as spacers in place of or together with this conventional type of spacer.” Ex. 1003 4:9–12. Morikawa further describes that the through holes 11 in metal pipes 11a can be formed in one of two ways: (1) “by welding and fixing the metal pipe to the panel surfaces so the metal pipe is communicated to holes provided in advance in upper and lower surfaces of the panel,” and (2) “by welding and fixing a metal column to upper and lower inner surfaces of the panel like a conventional spacer to form the enclosure and afterward opening a hole in the panel walls and this metal column by a drill” where “the holes may be formed in advance in the upper and lower surfaces of the panel” and may be “closed from the inside by welding a metal column of a cross-sectional area sufficient to block these holes, and the metal column may afterward be drilled from the panel hole to bore the through path.” *Id.* at 4:25–41.

Thus, Nakamura’s criticism of Morikawa is not limited to the coolant leakage that would be an issue with the metal pipes that have through-holes. Rather, Nakamura’s criticism includes the disadvantage that it is difficult to join the metal pipes and the outer wall of the heat pipe. This criticism extends equally to all the metal pipes in Morikawa and would suggest using Nakamura’s concavities to form all the spacers between the plates. See Ex. 2002 ¶¶ 159–161 (Patent Owner’s expert supporting a contrary reading of Nakamura than that argued by Petitioner).

The second flaw in Petitioner’s argument is that the Petitioner did not present arguments in the Petition that Nakamura’s criticism of Morikawa

relates *only* to the metal pipes that have through-holes in the cited portions. Specifically, Petitioner cites pages 46–47 and 88–89 of the Petition in its Rehearing Request. Pages 46–47 of the Petition do not address the challenge to claim 11. As discussed above, pages 46–47 of the Petition are directed to modification of Morikawa with Nakamura for the “hollow column” limitation of claim 9, and do not address the proposed modification of only some of Morikawa’s spacers with Nakamura’s concavities.

Although pages 88–89 of the Petition are directed to the challenge to claim 11, this portion of the Petition fails to provide adequate support for the proposed modification. The Petition relies on paragraph 93 of Dr. Pokharna’s Declaration as support as follows:

A POSITA would have understood and found it obvious that Morikawa teaches a “conventional spacer” by “welding and fixing a metal column to upper and lower inner surfaces of the panel ... to form the enclosure.” (Morikawa 4:31-33.) *In particular, a POSITA would have understood that, when combined with Nakamura, Morikawa no longer needs to create the “through path” inside such “metal column” by “afterward opening a hole in the panel walls and this metal column by a drill.” (Morikawa, 4:30-35.) (Pokharna, ¶93.)* This is because, as a POSITA would have understood and found obvious, the “through path” isolated from the vapor chamber is now formed on the “concavity joining surfaces 9a” after modifying Morikawa in accordance with Nakamura, as discussed above in Sections XII.A.6 and XII.A.8.

Pet. 88 (emphasis added). No further support for Petitioner’s assertions as to the understanding of a person having ordinary skill in the art can be found in paragraph 93. Paragraph 93 of Dr. Pokharna’s Declaration falls within Section XI.A.1 of the declaration, addressing an “Overview of Morikawa”, and the sole content of this paragraph is a cross reference to itself. Ex. 1002 ¶ 93 (“See **Section XI.A.1** above”). Thus, paragraph 93 does not provide

any reasoning for the proposed modification of Morikawa with Nakamura in the manner called for in claim 11, i.e., replacing only some of Morikawa's spacers with Nakamura's concavities.

Furthermore, as noted in our Institution Decision, paragraph 93 does not address the spacer limitation of claim 11 or the asserted ground of unpatentability of claim 11 over Morikawa, Takahashi, and Nakamura. Institution Dec. 39, n.10. Paragraph 93 appears in the portion of the Pokharna Declaration addressing the challenge to claim 12 under the third asserted ground. Paragraph 124 of the Pokharna Declaration addresses the spacer limitation of claim 11, but the testimony in this paragraph does not match the assertion set forth in the Petition. *See* Ex. 1002 ¶ 124.

Likewise, pages 32–33 of Petitioner's Reply repeat the same error by simply referring back to the explanation on pages 88–89 of the Petition for the reasoning for the proposed modification:

As explained in the Petition, it would be obvious to use Nakamura's concavities/depressions to form the "through path" while also employing Morikawa's columns as spacers to help maintain a clearance between the two plates and/or to act as a supporting structure for the wick. (Petition at 88-89.) Accordingly, it is obvious to use Nakamura's known depressions with Morikawa's known columns under *KSR*.

Pet. Reply 32.

Further, although Petitioner presented its argument about Nakamura's criticism of Morikawa's heat pipe in its Reply, Petitioner failed to provide any expert testimony to support its argument as to how a person of ordinary skill in the art would understand Nakamura. Instead, Petitioner argued that "Nakamura describes some of its advantages over Morikawa's 'metal pipe 6' *only*" and that "Nakamura is not describing any disadvantages at all associated with Morikawa's 'conventional spacer' by 'welding and fixing a

metal column to upper and lower *inner* surfaces of the panel.” Pet. Reply 33 (citing Nakamura at 4; Morikawa, 4:31–33). Patent Owner, however, provided expert testimony as to how a person having ordinary skill in the art would have understood Nakamura’s criticism of Morikawa’s spacers. PO Resp. 58 (citing Ex. 2002 ¶ 160). We credited this testimony in our Final Decision. Final Dec. 67 (citing PO Resp. 58); *id.* at 68 (agreeing with Patent Owner’s argument).

Petitioner attacks Patent Owner’s expert’s testimony, arguing for the first time in the Request for Rehearing that “Patentee’s own expert testified that ‘too many depressions will begin to negatively affect the structural integrity of the plates and adversely restrict the vapor flow.’” Request 5–6 (citing PO Resp. 9; Ex. 2002 ¶ 58). Petitioner did not, however, raise this Patent Owner “admission” in its Petitioner Reply and did not independently present this argument about too many depressions in either its Petition or its Reply. See Pet. Reply 32–34 (responding to Patent Owner’s arguments regarding the claim 11 challenge). We cannot have misapprehended or overlooked an argument that Petitioner did not present.

Petitioner further contends that “the Board’s obviousness findings are not in accordance with the law.” Request 2; *see also id.* at 6 (arguing that “Petitioner need only provide ‘a reason’ as to why a [person having ordinary skill in the art] would substitute Nakamura’s depressions for some, but not all, of Morikawa’s columns in Morikawa’s device.”). Petitioner discusses the proposed replacement of Morikawa’s “through path” spacers with Nakamura’s concavities, but Petitioner does not discuss why Morikawa’s remaining spacers would also not be similarly replaced. In other words, as explained above, Petitioner provided no reason in its Petition to explain why one would have modified Morikawa by substituting only some spacers with

Nakamura's concavities, when Nakamura teaches making all of its spacers using abutting concavities. Pet. 88–89 (citing Pokharna ¶ 93, which cross-references itself); Final Dec. 57 (describing Nakamura).

As explained in the Final Decision, upon review and consideration of the arguments and evidence submitted by the parties, Petitioner failed to show that the combined teachings of Morikawa and Nakamura would have led one having ordinary skill in the art to the combination of conventional spacers, as discussed in Morikawa, and depressions formed by Nakamura's concavities, as recited in claim 11. Petitioner's arguments in the Request for Rehearing do not persuade us that we erred in our application of the facts as presented by Petitioner to the standard for determining obviousness, as set forth in *KSR*, in finding that Petitioner failed to show unpatentability of claim 11.

C. Conclusion

For the foregoing reasons, Petitioner has not shown that we misapprehended or overlooked Petitioner's arguments or evidence in determining that Petitioner did not show by a preponderance of evidence that challenged claim 11 of the '240 patent is unpatentable.

IV. ORDER

In consideration of the foregoing, it is hereby

ORDERED that Petitioner's Request for Rehearing is *denied*.

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