

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MAHLE BEHR CHARLESTON INC.,
Petitioner,

v.

FRANK AMIDIO CATALANO,
Patent Owner.

IPR2023-00861
Patent RE47,494 E

Before GRACE KARAFFA OBERMANN, JON B. TORNQUIST,
and CHRISTOPHER M. KAISER, *Administrative Patent Judges*.

Opinion for the Board filed by *Administrative Patent Judge* KAISER.

Concurring Opinion filed by *Administrative Patent Judge* TORNQUIST.

KAISER, *Administrative Patent Judge*.

DECISION

Denying Institution of *Inter Partes* Review on Remand
35 U.S.C. § 314, 37 C.F.R. § 42.4

I. INTRODUCTION

MAHLE Behr Charleston Inc. (“Petitioner”) filed a petition for an *inter partes* review (Paper 1 (“Pet.”)) challenging claims 12, 15–17, 19–29, 31–40, and 42–47 of U.S. Patent No. RE47,494 E (Ex. 1001 (“the ’494 patent”)). Frank Amidio Catalano (“Patent Owner”) filed a Preliminary Response. Paper 12 (“Prelim. Resp.”). We determined that the information presented in the Petition did not establish a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims, so we did not institute an *inter partes* review. Paper 13 (“Inst. Dec.”). Petitioner requested Director review of our decision denying institution. Paper 14. The Director vacated our decision and remanded the case to us with instructions to reconsider certain of Petitioner’s arguments. Paper 15 (“Dir. Dec.”).

We have reconsidered the arguments the Director instructed us to reconsider, and, for the reasons set forth below and in our original decision,¹ we determine that the information presented in the Petition does not establish a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims. Accordingly, we do not institute an *inter partes* review.

II. ANALYSIS

A. *Our Original Decision*

In analyzing Petitioner’s argument that the challenged claims were anticipated by Godefroy, would have been obvious over Godefroy, or would

¹ We do not duplicate in the present decision any of the analysis in our original decision, which we adopt except to the extent that it is contradicted here or is inconsistent with the guidance provided in the Director’s decision.

have been obvious over the combination of Godefroy and Hanazaki '069, we determined that both Petitioner and Petitioner's declarant, Dr. Dana J. Medlin, relied on a figure of Godefroy, which failed to provide dimensions, as disclosing or suggesting the placement of a sacrificial anode within 10 inches of a hot liquid inlet to a radiator. Inst. Dec. 18 (citing Ex. 1008, 1–15, Fig. 1). Because “patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue,” we determined that Petitioner's reliance on Godefroy's Figure 1 does not support Petitioner's anticipation and obviousness arguments. *Id.* at 18–19 (quoting *Hockerson-Halberstadt, Inc. v. Avia Group Int'l, Inc.*, 222 F.3d 951, 956 (Fed. Cir. 2000)). We came to the same conclusion with respect to one of the arguments Petitioner made for the anticipation of the challenged claims by Hanazaki '196, the obviousness of the challenged claims over Hanazaki '196, and the obviousness of the challenged claims over the combination of Hanazaki '196 and Hanazaki '069. *Id.* at 16 (citing Ex. 1007, 5–6, Fig. 11).

B. The Director's Decision

On review of our decision, the Director determined that we erred by applying *Hockerson-Halberstadt* because Dr. Medlin “testified that ‘[a]t least an upstream edge of the sacrificial anode 14 *is explicitly shown* at the inlet [in Godefroy Figure 1].’” Dir. Dec. 7 (first alteration and emphasis in decision). Because “a drawing may be relied upon for what it clearly shows,” and because Petitioner “assert[ed] that Figure 1 ‘is clear on its face,’ in showing that sacrificial anode 14 is ‘at, and lining, the inlet’ and so is ‘necessarily’ within 10 inches of that inlet,” the Director determined that we

failed to “address Petitioner’s assertion.” *Id.* at 7–8 (quoting Paper 14, 1–2; citing Paper 14, 10, 13; Ex. 1004 ¶ 144; Pet. 69–70).

Accordingly, the Director instructed us to “determine whether Petitioner has demonstrated that Figure 1 of Godefroy ‘is clear on its face’ or would have reasonably suggested the placement of Godefroy’s sacrificial anode ‘within 10 inches’ of the hot liquid inlet.” *Id.* at 9. “In making this determination,” the Director instructed us to “consider whether the expert testimony provides sufficient ‘technical detail, explanation, or statements supporting why the expert determines that the feature in question was required or would have been obvious based on the prior art disclosure.’” *Id.* In addition, although the Director’s decision “is limited to [our] application of *Hockerson* to the grounds in the Petition involving Godefroy,” the Director instructed us also to “consider what effect, if any, this decision has on the other asserted grounds.” *Id.* Finally, the Director instructed us to “set forth [our] interpretation” of “the limitation ‘within 10 inches of a hot liquid inlet to the radiator.’” *Id.* at 8 n.4.

C. Claim Construction

In an *inter partes* review, we construe claim terms according to the standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2022). Under *Phillips*, claim terms are afforded “their ordinary and customary meaning.” *Phillips*, 415 F.3d at 1312. “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Id.* at 1313. “Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the

context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Id.*

We have been instructed to construe the phrase “within 10 inches of a hot liquid inlet to the radiator.” Dir. Dec. 8 n.4. Petitioner proposes that this phrase be construed as “within 10 inches of the center axis of [a] hot liquid inlet” to the radiator, because this was the construction agreed to by the parties and adopted by the district court in the related infringement lawsuit. Pet. 17–19 (citing Ex. 1016, 8). Patent Owner argues that “the Board need not construe any claim term in a particular manner to arrive at the conclusion that the Petition is procedurally and substantively deficient,” so Patent Owner does not propose any alternative to Petitioner’s construction. Prelim. Resp. 8.

Petitioner’s proposed construction is supported by the intrinsic evidence. The challenged claims require that a sacrificial anode be placed within a certain distance—10 inches—of the hot liquid inlet, and, because the inlet has some non-zero size, it might be possible for an anode to be within that distance from some parts, but not from all parts, of the inlet. Accordingly, specifying the center axis of the inlet as the point from which to measure the distance to the anode improves on the plain words of the claim in terms of achieving the claim’s objective of placing the anode within a specified distance of the inlet. Moreover, when discussing the distance from the inlet to the anode, the specification of the ’494 patent uses the language “within 10 inches in any direction of the center axis of the inlet connection.” Ex. 1001, 7:61–64. Thus, the intrinsic evidence supports adopting Petitioner’s claim construction.

Petitioner's declarant, Dr. Medlin, relies on Petitioner's proposed construction. *See, e.g.*, Ex. 1004 ¶¶ 20 (noting that the construction "within 10 inches of the center axis of [a] hot liquid inlet" "ha[s] been adopted by Petitioner"), 96 ("the sacrificial anodes contained in each of the turbulators 2 would be placed within 10 inches of a center axis of a hot liquid inlet to the radiator of Tomosada"), 144 ("A POSITA would understand from Figure 1 that the sacrificial anode 14 is within 10 inches of a center axis of a hot liquid inlet"), 267 ("These teachings would further motivate a POSITA to located the sacrificial anode 12 within 10 inches of a center axis of the hot liquid inlet."). This support for Petitioner's proposed construction provides further reason for us to adopt it.

Because it is supported by the intrinsic evidence of record, because Patent Owner proposes no alternative construction, and because Petitioner's expert supports it, we adopt the construction of "within 10 inches of a hot liquid inlet to the radiator" that Petitioner proposes. Thus, we construe this term as "within 10 inches of the center axis of a hot liquid inlet to the radiator." In other words, when discussing the distance between a hot liquid inlet and a sacrificial anode, we interpret "hot liquid inlet" as "center axis of the hot liquid inlet."

D. Challenges Based on Godefroy

Petitioner contends claims 12, 15–17, 19–21, 24–29, 31–34, 37–40, and 42–45 are anticipated by, as well as unpatentable as obvious in view of, Godefroy. Pet. 8–9, 66–77. Petitioner also contends claims 22, 23, 35, 36, 46, and 47 are unpatentable as obvious in view of the combination of Godefroy and Hanazaki '069. *Id.* at 8–9, 77–79.

1. *Godefroy*

Godefroy “concerns a device for protecting the aluminum walls of a heat exchanger against corrosion by an aggressive environment to which its walls are subjected.” Ex. 1008, 1. The invention of Godefroy “aims in particular to provide . . . a device which avoids the use of an anti-corrosion alloy applied, for example co-laminated, to the walls of aluminum tubes.” *Id.* at 5. The device “comprises at least one renewable sacrificial resist formed of elements capable of lowering at least locally the electrochemical potential of the aluminum of the walls of the heat exchanger.” *Id.* In one embodiment, Godefroy discloses “a heat exchanger manifold provided with a pipe in which a protection device according to the invention is placed.” *Id.* at 8, Fig. 1.

2. *Analysis*

Each of the independent claims of the ’494 patent recites the placement of an anode or an anode holder “within 10 inches of a hot liquid inlet to [a] radiator.” Ex. 1001, 11:57–63; *see* Ex. 1001, 12:35–42, 12:65–13:4. In arguing that the challenged claims are unpatentable on grounds based on Godefroy, Petitioner relies on Godefroy to teach or suggest these 10-inch limitations. Pet. 69–70, 73, 75–76.

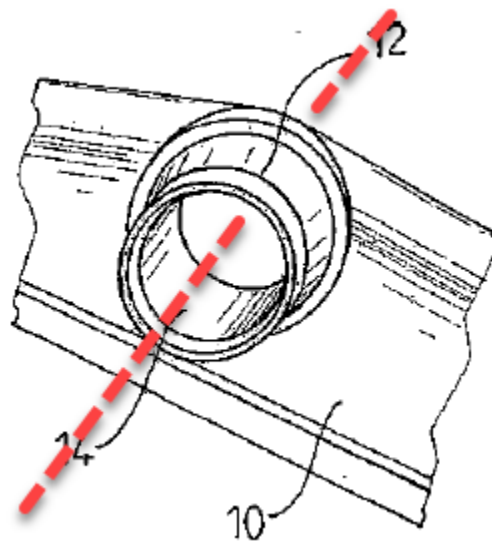
Godefroy itself does not disclose that its sacrificial anodes are placed within 10 inches of a center axis of a hot liquid inlet to a radiator. Ex. 1008, 1–15. Instead, Petitioner directs us to the testimony of Dr. Medlin to explain why a person of ordinary skill in the art would have understood that Godefroy’s anodes were placed within 10 inches of a center axis of the inlet, as required under the construction proposed by Petitioner. Pet. 69–70, 73,

75–76 (citing Ex. 1004 ¶¶ 144, 355–361, 381–382, 406–408). Dr. Medlin testifies that a person of ordinary skill in the art

would understand from Figure 1 that the sacrificial anode 14 is within 10 inches of a center axis of a hot liquid inlet because the sacrificial anode 14 is disposed on the inside of the connector 12, which Godefroy teaches is “intended for the inlet . . . of a heat transfer liquid.”

Ex. 1004 ¶ 144 (quoting Ex. 1008, 8); *see* Ex. 1004 ¶¶ 361, 382, 408 (similar testimony). In particular, Dr. Medlin testifies that Figure 1 of Godefroy shows “that an entirety of the sacrificial anode 14, or at least a significant portion of the sacrificial anode 14, is within 10 inches of a center axis of the inlet” and that, in the same figure, “[a]t least an upstream edge of the sacrificial anode 14 is explicitly shown at the inlet.” *Id.* ¶ 144. Because Dr. Medlin and Petitioner propose a construction that requires us to interpret “hot liquid inlet” as “center axis of the hot liquid inlet,” and because we have adopted that proposed construction, we interpret Dr. Medlin’s testimony as stating that the “upstream edge of sacrificial anode 14 [and possibly some additional portion of sacrificial anode 14] is explicitly shown at the [center axis of the] inlet.”

On the present record, however, there is no evidence at all that any portion of Godefroy’s anode 14 is “at” the center axis of Godefroy’s hot liquid inlet 12, as Dr. Medlin testifies. Below, we reproduce Figure 1 of Godefroy with an annotation showing the center axis of the inlet as a red dashed line.



Ex. 1008, Fig. 1. Figure 1 of Godefroy, reproduced above, depicts a portion of “a heat exchanger manifold,” depicted as element 10, “provided with a pipe,” depicted as element 12, “in which a protection device . . . is placed.” *Id.* at 7. The particular protection device depicted as element 14 in Figure 1 is “in the form of a tubular insert applied against the internal wall of the pipe 12.” *Id.*

It is worth emphasizing that the center axis of the inlet is an imaginary line running along the center of pipe 12. Because the center axis of the inlet is in the center of the pipe, and because Godefroy’s anode 14 is “applied against the internal wall of the pipe 12,” there is a gap between the center axis and the anode that is approximately as large as the radius of the pipe. Because we have adopted Petitioner’s construction of “hot liquid inlet” as “center axis of the hot liquid inlet,” the device depicted in Figure 1 of Godefroy directly contradicts Dr. Medlin’s testimony that “[a]t least an upstream edge of the sacrificial anode 14 is explicitly shown at the inlet.” Ex. 1004 ¶ 144 (emphasis added). The word “at” expresses the thought that something is located precisely in a particular place, not merely nearby, and

the anode of Godefroy is located only near, not precisely in, the center of the inlet pipe. Thus, Godefroy's anode 14 is not located "at" the center axis of Godefroy's inlet, and Dr. Medlin is incorrect in testifying that it is.²

Dr. Medlin also testifies that Figure 1 of Godefroy shows "that the sacrificial anode 14 is within 10 inches of a center axis of a hot liquid inlet." Ex. 1004 ¶ 144. We take this as support for Petitioner's contention that Godefroy's "sacrificial anode 14 is . . . *necessarily* placed within 10 inches of a center axis of a hot liquid inlet to the radiator." Pet. 70 (emphasis added) (quoting Ex. 1004 ¶ 361; citing Ex. 1004 ¶¶ 144, 360; Ex. 1008, 8). Petitioner relies on this contention in arguing for the unpatentability of all independent claims on grounds based on Godefroy. *Id.* at 73, 75 (citing *id.* at 68–70). This contention is an attempt to establish that, in Godefroy's device, the sacrificial anode inherently must be placed within 10 inches of the center axis of the hot liquid inlet. *Schering Corp. v. Geneva Pharms.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (reference inherently discloses an element of a claim "if that missing characteristic is necessarily present, or inherent, in the single anticipating reference"). Neither Dr. Medlin's testimony nor Petitioner's arguments are based on pipe 12 having any

² We note that Godefroy describes the entirety of pipe 12 as the "inlet . . . of a heat transfer liquid." Ex. 1008, 8. Thus, when Dr. Medlin testifies that the upstream edge of Godefroy's sacrificial anode is "at" the inlet, we acknowledge that Dr. Medlin may intend to indicate that the upstream edge of the anode is touching inlet pipe 12. Ex. 1004 ¶¶ 144, 361. To the extent that Dr. Medlin intended to apply this reasoning, however, it is contradicted by Dr. Medlin's (and Petitioner's) adoption of a construction under which "hot liquid inlet" means "center axis of the hot liquid inlet." Pet. 17–19; Ex. 1004 ¶ 20. Accordingly, we do not credit this understanding of Dr. Medlin's testimony.

particular diameter, and Godefroy itself is silent on the question, so the argument is that the missing 10-inch limitation is, in the words of Dr. Medlin and Petitioner, “necessarily” present in Godefroy’s disclosure. Pet. 69–70; Ex. 1004 ¶¶ 144, 359–361, 381–382, 406–408; Ex. 1008, 1–15.

Inherency may be relied upon in arguing either anticipation or obviousness. *Schering*, 339 F.3d at 1377 (applying inherency in an anticipation context); *Par Pharma. Inc. v. TWI Pharma., Inc.*, 773 F.3d 1186, 1195–96 (Fed. Cir. 2014) (applying inherency in an obviousness context). In both cases, however, “[t]he mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Therasense, Inc. v. Becton, Dickinson & Co.*, 593 F.3d 1325, 1332 (Fed. Cir. 2010). Instead, “the limitation at issue necessarily must be present, or the natural result of the combination of elements expressly disclosed by the prior art.” *Par Pharma.*, 773 F.3d at 1195–96.

Here, Petitioner has not shown sufficiently that, in Godefroy, the sacrificial anode necessarily is placed within 10 inches of the center axis of the hot liquid inlet. Dr. Medlin testifies that Figure 1 of Godefroy shows that “an entirety . . . or at least a significant portion of the sacrificial anode 14, is within 10 inches of a center axis of the inlet.” Ex. 1004 ¶ 144. But we cannot say that Figure 1 of Godefroy is clear on its face, or reasonably suggests, that this is necessarily the case. There are no dimensions shown on Figure 1, so it is unclear from the figure what the diameter of pipe 12 is. If that diameter is larger than 20 inches, then it simply is untrue that “sacrificial anode 14 is . . . necessarily placed within 10 inches of a center axis of a hot liquid inlet to the radiator,” as Dr. Medlin testifies. *Id.* ¶ 361. As noted above, neither Petitioner nor Dr. Medlin relies on the hot liquid

inlet of Godefroy having any particular diameter, and Godefroy is silent as to the diameter of its inlet. Pet. 69–70; Ex. 1004 ¶¶ 144, 359–361, 381–382, 406–408; Ex. 1008, 1–15. Moreover, as Patent Owner notes, there is a wide range of sizes of radiators, including automobile radiators, available.

Prelim. Resp. 3–5; Exs. 2001–2003. In the absence of any testimony or other evidence that tends to show that radiator inlet pipes necessarily have diameters less than 20 inches, Petitioner has not shown sufficiently that the diameter of Godefroy’s inlet pipe is small enough to ensure that any portion of the anode necessarily is within 10 inches of the center axis of the inlet.

E. Challenges Based on Hanazaki ’196

Petitioner contends claims 12, 15–17, 19–21, and 24 are anticipated by, as well as unpatentable as obvious in view of, Hanazaki ’196. Pet. 8–9, 48–57. Petitioner also contends claims 22, 23, 25–29, 31–40, and 42–47 are unpatentable as obvious in view of the combination of Hanazaki ’196 and Hanazaki ’069. *Id.* at 8–9, 58–66.

1. Hanazaki ’196

Hanazaki ’196 “relates to a heat exchanger than is made from aluminum that uses a brine that comprises an aqueous solution of calcium chloride or sodium chloride, and, in particular, to a heat exchanger, made from aluminum, that is superior in resisting pitting.” Ex. 1007, 1. According to Hanazaki ’196, in aluminum heat exchangers, “typically Freon gas, ammonia gas, or the like, has been used as the coolant,” but Freon has “problems with the damage to the environment,” and ammonia poses “not only a problem with toxicity for the human body, but also problems with foul odors or soiling of the environment, and problems with explosiveness, and the like.” *Id.* Brine coolants lack these problems, but “when these brine

coolants are used, the corrosiveness in relation [to] metal is extremely high.” *Id.* at 1–2. To permit the use of an aluminum heat exchanger with brine coolants, Hanazaki ’196 discloses the use of “a sacrificial anode, formed from metal that is less noble than aluminum, . . . formed on an inner wall of a pipeline that forms a brine flow path.” *Id.* at 2.

Hanazaki ’196 discloses one embodiment in which a rectangular header pipe has “attaching groove 11” formed in it, “and a sacrificial anode 12 . . . is fitted into this attaching groove 11, followed by plug welding at welding points 13 at at least five locations for a single sacrificial anode 12 with a prescribed spacing of, for example, 30 cm.” *Id.* at 4. In a separate embodiment, Hanazaki ’196 discloses forming “attaching groove 31” in “header pipes 26a and 26b” and fitting “sacrificial anode 32” “into the attaching groove,” then “plug weld[ing], at at least two welding points for each individual sacrificial anode 32, at prescribed intervals such as, for example, with a spacing of 30 cm.” *Id.* at 5.

2. *Analysis*

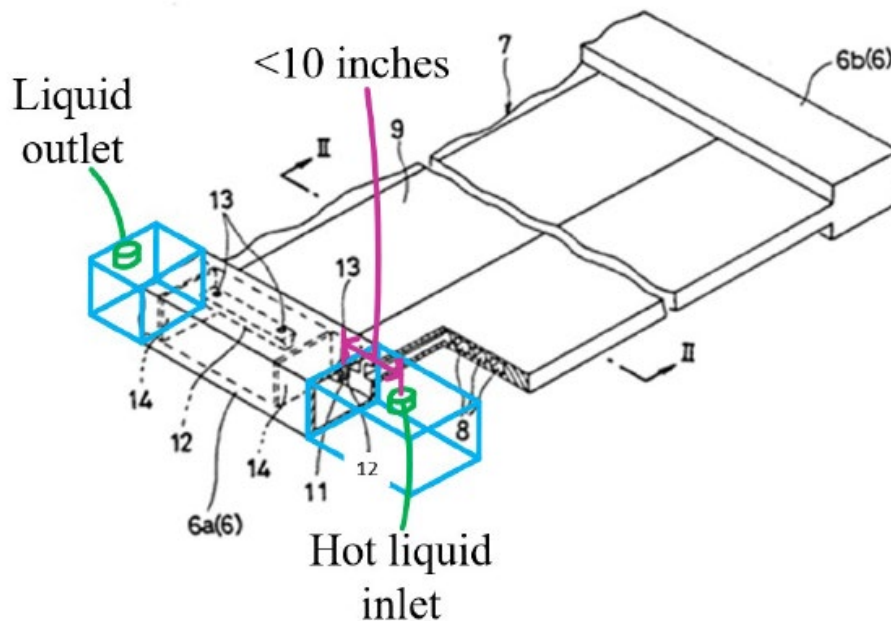
As noted above, each of the independent claims of the ’494 patent recites the placement of an anode or an anode holder “within 10 inches of a hot liquid inlet to [a] radiator.” Ex. 1001, 11:57–63; *see* Ex. 1001, 12:35–42, 12:65–13:4. In arguing that the challenged claims are unpatentable on grounds based on Hanazaki ’196, Petitioner relies on Hanazaki ’196 to teach or suggest these 10-inch limitations. Pet. 52–54, 61–62, 64–65.

Hanazaki ’196 itself does not disclose that its sacrificial anodes are placed within 10 inches of the center axis of a hot liquid inlet to a radiator. Ex. 1007, 1–7. Instead, Petitioner directs us to the testimony of Dr. Medlin to explain why a person of ordinary skill in the art would have understood

that Hanazaki '196's anodes were placed within 10 inches of the center axis of the requisite inlet. Pet. 52–54, 61–62, 64–65 (citing Ex. 1004 ¶¶ 97–100, 117–121, 171–174, 259–267, 299–301, 329–334).

With respect to the Hanazaki '196 grounds, Dr. Medlin first testifies that Figure 2A of Hanazaki '196 shows an anode 12 “with a[] portion cut away” to show the cross-section of an inlet to the radiator, “indicat[ing] to a [person of ordinary skill in the art] that this cut-away sacrificial anode 12 extends even closer to the hot liquid inlet,” meaning that a person of ordinary skill in the art “would have understood at least one of the sacrificial anodes 12 depicted in Figure 2A to be within 10 inches of a center axis of the hot liquid inlet.” Ex. 1004 ¶ 265. Dr. Medlin annotates Figure 2A of Hanazaki '196 to depict a hot liquid inlet, and we reproduce that annotated figure below:

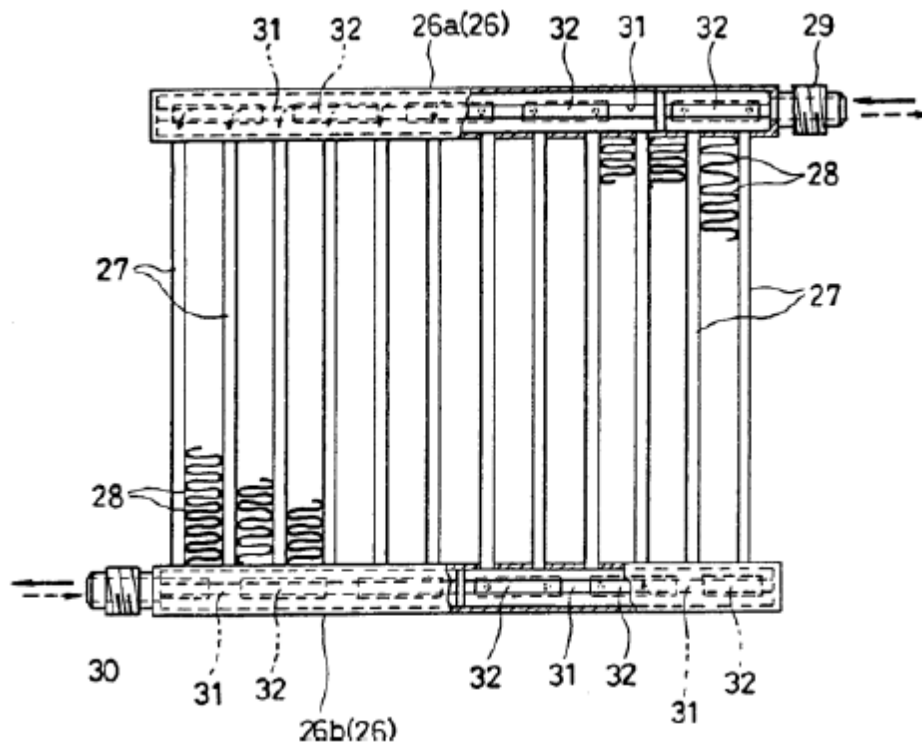
FIG. 2A



Id. ¶ 264. The annotated figure prepared by Dr. Medlin is based on Figure 2A of Hanazaki '196, which “show[s] an aluminum heat exchanger” that is “structured from a pair of header pipes 6 . . . that have a relatively large diameter, arranged in parallel with a space therebetween, and heat exchanging pipe units 7, connecting between the header pipes 6a and 6b.” Ex. 1007, 4. In Figure 2A, a portion of header 6a is cut away, and Dr. Medlin’s annotations add this portion back to the figure, along with a hot liquid inlet in the added portion of the header pipe. Ex. 1004 ¶ 264. Dr. Medlin’s annotation states that the center axis of the added hot liquid inlet is “<10 inches” from sacrificial anode 12. *Id.*

But Dr. Medlin does not explain why a person of ordinary skill in the art would have understood the distance between sacrificial anode 12 in Figure 2A of Hanazaki '196 and the center axis of the hot liquid inlet that Dr. Medlin adds to the figure would be less than 10 inches. *Id.* ¶¶ 264–266. To address the Director’s concerns, we note that Figure 2A of Hanazaki '196 is not clear on its face that this distance is less than or equal to 10 inches. First, the unannotated figure does not depict a hot liquid inlet at all. Ex. 1007, Fig. 2A. Second, to the extent that Dr. Medlin’s added header portion and hot liquid inlet reflect the understanding that a person of ordinary skill in the art would have of Figure 2A of Hanazaki '196, neither the figure nor the text of Hanazaki '196 explains the size of the heat exchanger, so the figure is not clear on its face and does not reasonably suggest that the anode is located within 10 inches of the center axis of the inlet. Accordingly, Petitioner does not show sufficiently that Figure 2A shows that Hanazaki '196’s anodes are placed within 10 inches of the center axis of Hanazaki '196’s hot liquid inlet.

Dr. Medlin also testifies that Figure 11 of Hanazaki '196 shows an “anode 32 at a supplying opening 29,” meaning that it must be “placed within 10 inches of a hot liquid inlet to the radiator.” *Id.* ¶ 266. We reproduce Figure 11 of Hanazaki '196 below:



Ex. 1007, Fig. 11. Figure 11 of Hanazaki '196 “depicts an aluminum heat exchanger” with “a pair of header pipes 26a and 26b that have a relatively large diameter, provided in parallel with a space therebetween.” *Id.* at 5. Each header pipe is “formed, through aluminum extrusion molding, with the cross-sectional shapes thereof being circular, and an attaching groove 31 is formed in a helical groove shape along the total length thereof on the inner surface side.” *Id.* “[S]acrificial anode 32 . . . is fitted into the attaching groove 31, and is plug welded, at at least two welding points for each individual sacrificial anode 32.” *Id.* “[S]upplying opening 29” is at one point along header pipe 26a and is where “coolant . . . is introduced.” *Id.*

As with Godefroy, the center axis of the hot liquid inlet is an imaginary line running down the center of header pipe 26a, and anode 32 is on the inner surface of the header pipe, meaning that the anode and the center axis of the hot liquid inlet are separated by a distance approximately equal to the radius of the header pipe. For the reasons discussed above with respect to Godefroy, this contradicts the testimony of Dr. Medlin that “sacrificial anode 32 is located at . . . a hot liquid inlet.” Ex. 1004 ¶ 267.

Dr. Medlin also testifies that “sacrificial anode 32 is located at a supplying opening 29, which a [person of ordinary skill in the art] would have understood as a hot liquid inlet.” *Id.* To the extent this testimony is intended to suggest that the correct measure of “within 10 inches” is the lateral distance between supplying opening 29 and sacrificial anode 32, it contradicts Petitioner’s argument, as well as Dr. Medlin’s testimony, that “within 10 inches of the hot liquid inlet” means “within 10 inches of the center axis of the hot liquid inlet.” Pet. 18; Ex. 1004 ¶ 20. Moreover, Figure 11 of Hanazaki ’196 does not clearly show, nor reasonably suggest, that sacrificial anode 32 is located at supplying opening 29, as Dr. Medlin testifies, because there is a clear gap in the figure between the anode and the supplying opening. Ex. 1007, Fig. 11.

Because Petitioner relies on Dr. Medlin’s testimony to show that a person of ordinary skill in the art would have understood that Figures 2A and 11 of Hanazaki ’196 suggest placing an anode within 10 inches of a center axis of a hot liquid inlet to a radiator, because those figures do not clearly show or reasonably suggest such an anode placement, and because Dr. Medlin’s testimony does not show sufficiently that a person of ordinary skill in the art would have had such an understanding, we determine that

Petitioner has not shown a reasonable likelihood of prevailing with respect to any claim challenged on the basis of Hanazaki '196.

F. Challenges Based on Tomosada

Petitioner contends claims 12, 15, 16, 19–21, 24–26, 29, 31–34, 37, 40, 42, 43, 45 are anticipated by, as well as unpatentable as obvious in view of, Tomosada. Pet. 8–9, 22–43. Petitioner also contends claims 22, 23, 27, 35, 36, 38, 39, 46, 47 are unpatentable as obvious in view of the combination of Tomosada and Hanazaki '069. *Id.* at 8–9, 43–57.

1. Tomosada

Tomosada “relates to improvements to an aluminum heat exchanger.” Ex. 1005, 1. Because “electrochemically, aluminum is a base metal relative to other structural metals typically used, anti-corrosion measures are required for heat exchanger tubes in an aluminum heat exchanger.” *Id.* According to Tomosada, these measures have included both forming heat exchanger tubes from “anti-corrosion aluminum alloys . . . such as aluminum-manganese and aluminum-magnesium” and coating “heat exchanger tubes . . . with zinc on the inner surface,” but these measures have proven unsatisfactory. *Id.*

To “solve[] the problems associated with conventional aluminum heat exchangers,” Tomosada discloses forming “heat exchanger tube[s]” “of anti-corrosion aluminum alloy” and placing therein “turbulator[s] . . . for improving heat exchange performance,” with the turbulators being “made using zinc or a zinc compound material that is an electrochemical base relative to aluminum.” *Id.* “When the heat exchanger tube . . . is filled with coolant, this turbulator . . . becomes a sacrificial anode relative to the heat exchanger tube.” *Id.* at 1–2.

2. *Analysis*

Each of the independent claims of the '494 patent recites the placement of an anode or an anode holder “within 10 inches of a hot liquid inlet to [a] radiator.” Ex. 1001, 11:57–63; *see* Ex. 1001, 12:35–42, 12:65–13:4. In arguing that the challenged claims are unpatentable on grounds based on Tomosada, Petitioner relies on Tomosada to teach or suggest these 10-inch limitations. Pet. 29–33, 37–38, 40–48. Tomosada itself does not disclose that its sacrificial anodes are placed within 10 inches of a center axis of a hot liquid inlet to a radiator. Ex. 1005, 1–3. Instead, Petitioner directs us to the testimony of Dr. Medlin to explain why a person of ordinary skill in the art would have understood that Tomosada’s anodes were placed within 10 inches of the requisite inlet. Pet. 29–33, 37–38, 40–48 (citing Ex. 1004 ¶¶ 82, 83, 91, 94–99, 155–174, 201–204, 207–210, 224–226). Our analysis in our original decision of the grounds based on Tomosada and the supporting testimony of Dr. Medlin did not rely on the application of *Hockerson-Halberstadt* with which the Director’s decision was concerned. Inst. Dec. 9–13. Accordingly, we do not reconsider that analysis here. For the reasons explained in our original decision, we determine that Petitioner has not shown a reasonable likelihood of prevailing with respect to any claim challenged on the basis of Tomosada.

III. CONCLUSION

Upon consideration of the Petition, the Preliminary Response, our original decision, the Director’s decision, and the evidence currently of record, we determine that Petitioner has not shown a reasonable likelihood that it will prevail in showing that at least one of the challenged claims is

unpatentable. Accordingly, we do not institute an *inter partes* review of any challenged claim based on any ground asserted in the Petition.

IV. ORDER

For the reasons given, it is:

ORDERED that, pursuant to 35 U.S.C. § 314, the Petition is denied, and no *inter partes* review is instituted.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MAHLE BEHR CHARLESTON INC.,
Petitioner,

v.

FRANK AMIDIO CATALANO,
Patent Owner.

IPR2023-00861
Patent RE47,494 E

Concurring Opinion, filed by *Administrative Patent Judge* TORNQUIST.

Given the unique circumstances of this case, I write separately to explain why denial is appropriate.

Figure 1 of Godefroy depicts manifold 10 that is part of a radiator for a motor vehicle engine and includes pipe, or inlet, 12 with sacrificial resist 14 placed around the inner circumference of the pipe. Ex. 1008, 8. Dr. Medlin testifies that one of ordinary skill in the art “would understand from Figure 1 that the sacrificial anode 14 is within 10 inches of a center axis of a hot liquid inlet because the sacrificial anode 14 is disposed on the inside of the connector 12.” Ex. 1004 ¶ 144. Acknowledging that Godefroy does not provide exact dimensions with Figure 1, Dr. Medlin still concludes

that one of ordinary skill in the art would have understood that Figure 1 shows the sacrificial anode within 10 inches of a center axis of the inlet. *Id.*

For the sacrificial anode to be more than 10 inches from the center axis of the inlet of Godefroy, the inlet would need to be greater than 20 inches in diameter. I find it highly improbable that Figure 1 of Godefroy depicts an inlet for a motor vehicle radiator that has a diameter of greater than 20 inches. Such an enormous inlet appears to find no support in the record or in the disclosures of Godefroy. But Petitioner and Dr. Medlin provide nothing beyond conclusory statements to support their conclusion that the sacrificial anode of Godefroy is within 10 inches of *the center axis* of the inlet. Petitioner, bearing the burden of proof, was required to provide at least some reasoning to support its conclusion that Figure 1 of Godefroy depicts, or reasonably suggests, placing the sacrificial anode within 10 inches of the center axis of the inlet. It did not do so. Moreover, in its Request for Director Review, Petitioner made clear that the Petition was not even applying Petitioner's own construction of the relevant claim term. *Compare* Pet. 18 (construing “within 10 inches of the hot liquid inlet” to mean “within 10 inches of the center axis of the [hot liquid inlet]”), *with* Paper 14, 5–6 (asserting that sacrificial anode 14 of Godefroy is “0 inches” from the hot liquid inlet and therefore “within 10 inches”).

Petitioner's analysis of Hanazaki-196 suffers from the same general lack of analysis. For example, although Petitioner presents evidence that one of ordinary skill in the art would have sought to place sacrificial anode 32 as close as possible to opening 29, it fails to explain why such an ordinarily skilled artisan would have placed the anode within 10 inches of the *center axis* of the inlet. Ex. 1004 ¶ 267; Paper 14, 13 (analyzing whether

the Petition demonstrated that the sacrificial anode was within “10 inches” of the liquid inlet, but not within 10 inches of the center axis of the inlet). Again, I find it highly improbable that opening 29 and header pipe 26a have a diameter so large as to place the welded sacrificial anodes more than 10 inches from the center axis of opening 29. But it was Petitioner’s burden to present some non-conclusory testimony or evidence as to the distance of sacrificial anode 32 from the *center axis* of the inlet (as opposed to the distance of the anode from opening 29) and for the reasons discussed in the majority opinion it did not do so.

In view of the foregoing, I concur with the majority’s determination that Petitioner has not demonstrated a reasonable likelihood that the challenged claims are unpatentable.

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