

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THERMALTAKE TECHNOLOGY CO., LTD. and
THERMALTAKE INC.,
Petitioner,

v.

CHIEN-HAO CHEN,
Patent Owner.

IPR2024-01230
Patent 10,690,336 B1

Before MONICA S. ULLAGADDI, SHARON FENICK, and
ANDREAS BALTATZIS, *Administrative Patent Judges*.

BALTATZIS, *Administrative Patent Judge*.

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

I. INTRODUCTION

Thermaltake Technology Co., Ltd. and Thermaltake Inc. (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–5 (the “challenged claims”) of U.S. Patent No. 10,690,336 B1 (Ex. 1001, “the ’336 patent”). Paper 1 (“Pet.”). Chien-Hao Chen (“Patent Owner”) together with exclusive licensee Lian Li Industrial Co., Ltd. filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

Under 35 U.S.C. § 314(a), the Board “may not authorize an *inter partes* review to be instituted unless . . . the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” After considering the Petition, the Preliminary Response, and the evidence of record, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one claim challenged in the Petition. Accordingly, we institute an *inter partes* review of claims 1–5 of the ’336 patent, based on all of the grounds identified in the Petition.

The following findings of fact and conclusions of law are not final, but are made for the sole purpose of determining whether Petitioner meets the threshold for initiating review. Any final decision shall be based on the full trial record, including any response timely filed by Patent Owner. Any arguments not raised by Patent Owner in a timely-filed Response may be deemed forfeited, even if they were presented in the Preliminary Response.

II. BACKGROUND

A. Real Parties in Interest

Petitioner identifies Thermaltake Technology Co., Ltd. and Thermaltake Inc. (a.k.a. Thermaltake USA) as the real parties in interest. *See* Pet. 1. Patent Owner identifies Chien-Hao Chen and exclusive licensee Lian Li Industrial Co., Ltd. as the real parties in interest. Paper 3, 2 (Patent Owner’s Mandatory Notice).

B. Related Matters

The parties indicate that the ’336 patent is the subject of a co-pending civil litigation, *Lian Li Industrial Co., Ltd., and, Chen, Chien-Hao v. Thermaltake Technology Co., Ltd. and Thermaltake Inc. (a.k.a. Thermaltake USA)*, No. 2:23-cv-07470-HDV-MAR (C.D. Cal.). Pet. 1 (citing Ex. 1015); Paper 3, 2.

The parties also indicate that the ’336 patent is the subject of a co-pending *ex parte* reexamination, No. 90/019,565, requested by Axpertec, Inc. on July 2, 2024. Pet. 2 (citing Exs. 1020, 1021); Paper 3, 3.

C. The ’336 Patent (Ex. 1001)

The ’336 patent relates to connectable illumination fans for a computer. Ex. 1001, 1:50–52. The illumination fans, which include a fan in the center and an illumination area on at least two sides, are housed in fan bodies that may be electrically connected. *Id.* at 1:53–65. The computer power supply may then power two connected fan bodies “to simultaneously drive the fans of the two bodies into rotation and the illumination areas into illumination.” *Id.* at 3:29–34. “This solves the issue of insufficient power cables provided by the power supply and eliminates cumbersome routing due to large number of wires.” *Id.* at 3:34–36.

Figure 1 illustrates an illumination fan with a connectable fan body and is reproduced below.

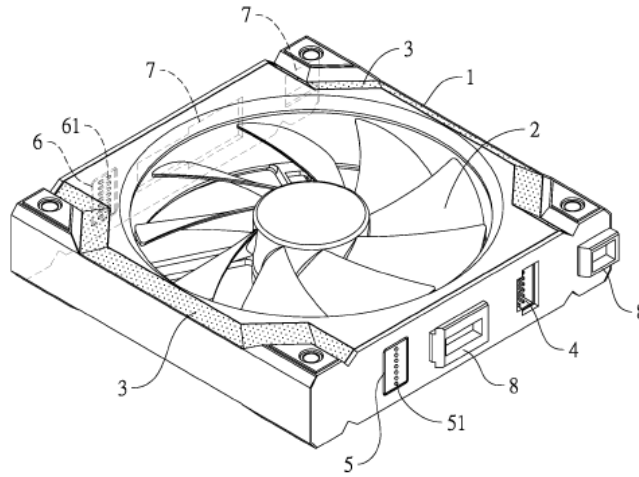


Figure 1 shows a schematic diagram depicting an illumination fan. *Id.* at 2:58–60.

Figure 1 illustrates body 1 as a three-dimensional box with a square top surface and rectangular sides descending therefrom. *See* Fig. 1. Body 1 includes fan 2 disposed in the center of the top of body 1. *Id.* at 2:61–64. The top of body 1 further includes “illumination area 3 disposed on at least two sides of the fan.” *Id.* at 2:64–65. One rectangular side of body 1 includes power socket 4 and first connector 5. *Id.* at 2:65–66. The opposite side of body 1 includes second connector 6 shown in dashed lines. *Id.* at 2:66–67. “[P]ower socket 4 is electrically connected with the first connector 5, the second connector 6, the fan 2 and the illumination area 3.” *Id.* at 2:67–3:3. First connector 5 is provided with electrically conductive terminal 51 and second connector 6 is provided with electrically conductive face 61. *Id.* at 3:7–11.

Figure 2 illustrates two connectable fan bodies and is reproduced below.

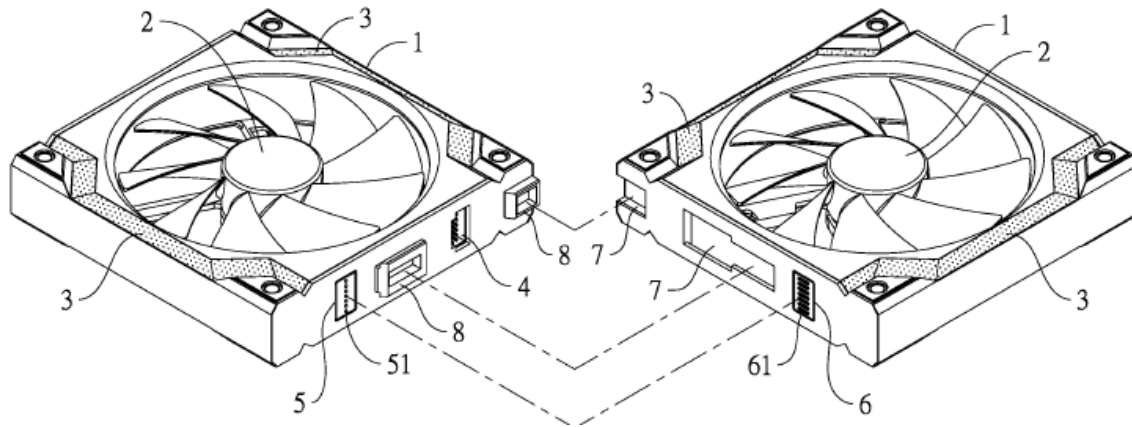


Figure 2 shows a schematic diagram depicting two fan bodies before being assembled together. *Id.* at 2:41–42.

The two fan bodies are assembled together by joining first connector 5 to second connector 6 so that electrically conductive terminal 51 is electrically connected to electrically conductive face 61. *Id.* at 3:7–12.

“[W]hen the first connector 5 of a body 1 is connected to the second connector 6 of another body 1, the fan 2 of the another body 1 can be driven into rotation and the illumination area 3 can be illuminated.” *Id.* at 3:13–16.

D. Illustrative Claims

Petitioner challenges claims 1–5 of the ’336 patent. Pet. 5–6. Claim 1, the challenged independent claim of the ’336 patent, is illustrative of the challenged claims, and is reproduced below.¹ Claims 2–5 depend from claim 1.

1. [preamble] An illumination fan connectable with at least one illumination fan for a computer, comprising:

[a] a body, provided with a fan in center of the body,

[b] an illumination area on at least two sides of the fan at top of the body,

¹ We adopt Petitioner’s bracketed identifiers.

[c] a power socket and a first connector on one side of the body, and a second connector on another side of the body,

[d] wherein the power socket is electrically connected with the first connector, the second connector, the fan and the illumination area, such that when the power socket on the one side of the body is supplied with power, the fan and the illumination area of the body are respectively driven into rotation and illumination, and when the first connector of the body is connected with a second connector of a body of another illumination fan, a fan and an illumination area of the body of another illumination fan are respectively driven into rotation and illumination.

Ex. 1001, 4:2–19.

E. Asserted Evidence

Petitioner relies on the following references in its asserted grounds of unpatentability:

Name	Reference	Ex. No.
Huang	US 10,082,286 B1	1008
Echazarreta	US 2008/0124234 A1	1009
Chou	US 2008/0279694 A1	1010
Liu	US 2015/0233391 A1	1011
Lai	US 2017/0314777 A1	1012
Hasegawa	JP 2005051085 A	1013 ²
Tsuji	JP 2018041147 A	1006 ³

² Hasegawa is a Japanese language document. We rely on Petitioner's submitted English translation (Ex. 1014) for the purposes of institution. We note that the affidavit attesting to the accuracy of the translation, *see* 37 C.F.R. § 42.63(b), does not comply with the requirements for an affidavit, *see* 37 C.F.R. § 1.68. Petitioner is required to re-submit the translation with a corrected affidavit.

³ Tsuji is a Japanese language document. We rely on Petitioner's submitted English translation (Ex. 1007) for the purposes of institution. The translation

A. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–5 of the ’336 patent are unpatentable in view of the following grounds. Pet. 5–6.

Claim(s) Challenged	35 U.S.C. §⁴	Reference(s)/Basis
1–3	103	Tsuji, Huang
4	103	Tsuji, Huang, Echazarreta
5	103	Tsuji, Huang, Chou
5	103	Tsuji, Huang, Liu
1–2	103	Lai, Hasegawa
3	103	Lai, Hasegawa, Huang
4	103	Lai, Hasegawa, Echazarreta
5	103	Lai, Hasegawa, Chou
5	103	Lai, Hasegawa, Liu

Petitioner relies on the Declaration of Andrew Wolfe, Ph.D. (Ex. 1004) in support of its contentions. Patent Owner relies on the Declaration of David. B. Tuckerman, Ph.D. (Ex. 2002) in support of its Preliminary Response.

III. DISCRETIONARY DENIAL

Patent Owner contends that we should exercise our discretion to deny this Petition under 35 U.S.C. § 325(d) in view of the co-pending *ex parte* reexamination (“EPR”). Prelim. Resp. 1–11. Petitioner argues that

affidavit does not comply with our rules. *See e.g.*, 37 C.F.R. §§ 1.68, 42.53(b). Petitioner is required to re-submit the translation with a corrected affidavit.

⁴ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284 (2011), amended 35 U.S.C. §§ 102 and 103, was effective on March 16, 2013. The ’336 patent claims priority to an application that has a filing date after March 16, 2013. *See* Ex. 1001, codes (22), (33). Thus, for purposes of this Decision, we apply the AIA versions of §§ 102 and 103.

discretionary denial is not warranted in view of the EPR. Pet. 91–93. For the reasons discussed below, we do not exercise our discretion to deny under § 325(d).

A. Legal Standards

The Director may deny institution of *inter partes* review when “the same or substantially the same prior art or arguments previously were presented to the Office.” 35 U.S.C. § 325(d). We apply a two-part test when evaluating whether to exercise discretion under § 325(d). *See Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (Feb. 13, 2020) (precedential) (“*Advanced Bionics*”). Specifically, we consider:

- (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office;
- and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Id. The *Advanced Bionics* framework “reflects a commitment to defer to previous Office evaluations of the evidence of record unless material error is shown.” *Id.* at 9.

Advanced Bionics further explains that “[u]nder § 325(d), the art and arguments must have been previously presented to the Office during proceedings pertaining to the challenged patent.” *Id.* at 7. “The proceedings in which the art was previously presented include, for example: examination of the underlying patent application, reexamination of the challenged patent, a reissue application for the challenged patent, and AIA post-grant proceedings involving the challenged patent.” *Id.* at 8. Additionally, the

Office has advised that “[t]he Board . . . may deny institution under 35 U.S.C. [§] 325(d) of a requested AIA trial proceeding if a parallel Office proceeding, for example, is in a more advanced stage and involves overlapping issues with the proposed AIA trial proceeding.” Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding, 84 Fed. Reg. 16,654, 16,657 (Apr. 22, 2019) (“Notice Regarding Amendment Options”).

B. Patent Owner’s Arguments for Denial under 325(d)

Patent Owner contends that we should exercise our discretion to deny this Petition under 35 U.S.C. § 325 because “substantially the same prior art and arguments are presented” in the co-pending *ex parte* reexamination, and that the *ex parte* reexamination “will outpace and resolve the issues” in this *inter partes* review. Prelim. Resp. 1–11. “Specifically, in the Axpertec EPR, on October 17, 2024, the central reexamination unit issued an office action (‘the EPR Action’) rejecting all claims (1–5) of the ’336 patent based on the same primary references of Lai (US20170314777) and Tsuji (JP2018041147A; called Fujitsu in the EPR action).” *Id.* at 1 (emphasis omitted). Patent Owner argues that Petitioner does not explain how its arguments different from those in the EPR, and does not “explain how the EPR submission by *Axpertec* erred.” *Id.* at 5–6 (emphasis in original).

Patent Owner argues that the Board has previously applied its discretion to deny institution in view of co-pending reexamination proceedings. For example, Patent Owner cites *Intromedic*, in which the claim at issue “was rejected in the reexamination, prompting an amendment to that claim in the reexamination, after which prosecution in the reexamination closed.” *Id.* at 7 (citing *Intromedic Co. v. Given Imaging Ltd.*, IPR2015-00579, Paper 9 (PTAB Aug. 5, 2015)). There the Board exercised

its discretion to deny institution because “claim 1, as it is today, will no longer exist once the reexamination is concluded, and any decision as to the patentability of claim 1 . . . would be moot and purely advisory.” *Intromedic* at 8. Patent Owner also cites *Fox Factory*, in which the Board exercised its discretion to deny institution, in part, because the reference at issue had already been considered in a previously completed reexamination, in addition to a co-pending reexamination. *See* Prelim. Resp. 9 (citing *Fox Factory, Inc. v. SRAM, LLC*, IPR2017-01439, Paper 7 (PTAB Dec. 8, 2017)).

Patent Owner argues that similar facts apply here. *Id.* at 8–9. For example, “[b]oth the EPR and the IPR challenge only 5 claims (1–5), those claims have been rejected, Patent Owner will be filing new or amended claims, and the EPR prosecution will potentially be closed before an institution decision is issued here, or shortly thereafter.” *Id.* at 8. “Further, because Patent Owner is planning on filing dozens or more of amended claims in the EPR, that venue is proper,” as opposed to an IPR in which amendments are more limited in scope. *Id.* at 8–9.

C. Petitioner’s Arguments Against Denial under 325(d)

Petitioner contends that “[d]iscretionary denial is . . . not warranted in view of the pending Axpertec Reexamination initiated by a different party.” Pet. 92. Petitioner argues that the EPR “remains in its early stages at the time of this Petition,” and that section 325(d) should not apply. *Id.* at 93 (citing *Mueller Sys., LLC v. Rein Tech, Inc.*, IPR2020-00100, Paper 9 at 10–14 (PTAB May 12, 2020)). Petitioner further argues that “denying institution in view of a third-party reexamination would be unfairly prejudicial” given that the separate companies had separate interests in challenging the patent and that Petitioner could not have waited until the conclusion of the

reexamination due to the 35 U.S.C. § 315(b) statutory deadline to file an IPR. *Id.* at 92–93 (citing *Mueller* at 12–14).

D. Declining to Exercise Discretion to Deny under 325(d)

We determine that Petitioner has the better argument as to discretionary denial under § 325(d). The Notice Regarding Amendment Options explains that the Board may deny institution under § 325(d) of a requested AIA trial proceeding if a parallel Office proceeding, for example, is in a *more advanced stage* and involves overlapping issues with the proposed AIA trial proceeding. 84 Fed. Reg. at 16,657 (emphasis added). We find that the EPR is not in a more advanced stage as compared to this proceeding, and therefore does not weigh in favor of the Board exercising discretion to deny institution, despite its overlapping issues with those in the Petition.

First, we find the facts here similar to those in *Mueller* and different from those in *Intramedic* and *Fox Factory*. Specifically, the EPR is pending, and the Office has rejected claims 1–5 as obvious over Lai, or the combination of Lai and Tsuji. *See* Ex. 2001, 4–9; Ex. 3003; *see also Mueller* at 13 (“The early stage of the Reexamination Proceeding, however, weighs against denying institution.”). Unlike *Intramedic*, prosecution in the EPR has not closed, and, according to the record before us, claims 1–5 have not been amended. *Contra Intramedic* at 8 (“[C]laim 1, as it is today, will no longer exist once the reexamination is concluded”). And unlike *Fox Factory*, the art cited in the Petition has not been pending before the reexamination Examiner for almost a year, and was not previously considered in a completed reexamination. *See Fox Factory* at 8 (“The similarity of the grounds in this proceeding and the ’831 Reexamination, coupled with the fact that JP-Shimano has already been considered in the ’744 reexamination,

indicates that it would be an inefficient use the Office’s resources to consider essentially the same ground again.”).

Second, the current posture of the EPR militates against the application of *Advanced Bionics*. For example, *Advanced Bionics* part two asks whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *See above*. For this showing, Patent Owner argues that Petitioner does not “explain how the EPR submission by *Axpertec* erred.” *See Prelim. Reply 6*. But the EPR submission is not an Office evaluation of the art and need not be distinguished by Petitioner. Rather, the Office made two evaluations of the art. First, the Office determined that the art raised substantial new questions of patentability. *See Ex. 1021, 5–9*. Second, the Office made a determination that claims 1–5 are unpatentable as obvious over Lai alone, or combined with Tsuji. *See Ex. 2001, 4–9; Ex. 3003*. It would be nonsensical to require Petitioner to argue that the Office erred in its preliminary evaluation that claims are unpatentable over the same art in a third party reexamination that Petitioner applies in its unpatentability grounds in this proceeding. Accordingly, we do not agree *Advanced Bionics* applies here, where the Office has not yet considered the cited art in coming to a final conclusion that the claims are unpatentable.⁵

Finally, prejudice to the parties also weighs against denying institution. Petitioner filed its Petition within the same month as the EPR filed by *Axpertec*, an allegedly unrelated party. Pet. 2. Petitioner faced a

⁵ Although the Office has issued a final office action, *see Ex. 3003*, the EPR is not complete until the Office issues a Notice of Intent to Issue Reexamination Certificate. *See 37 C.F.R. § 1.530(k)*.

statutory bar if it waited for the Office’s evaluation of the art in the EPR. *Id.* at 93. And unlike *Intramedic*, there is no indication that Patent Owner has amended the challenged claims, and even if so, amendments in the Reexamination Proceeding are not effective until a reexamination certificate issues. *See* 37 C.F.R. § 1.530(k) (2024); *Mueller* at 13–14.

After weighing all the considerations discussed above, we decline to exercise our discretion to deny the Petition in view of the co-pending *ex parte* reexamination.

IV. PATENTABILITY ANALYSIS

A. Legal Standards

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc.*, 815 F.3d at 1363 (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–27 (Fed. Cir. 2008)) (discussing the burden of proof in *inter partes* review). Furthermore, Petitioner must explain with particularity how the prior art would have rendered the challenged claims unpatentable. 35 U.S.C. § 312(a)(3); 37 C.F.R. § 42.104(b)(4) (“The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.”).

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious to a person

having ordinary skill in the art to which said subject matter pertains. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). 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) objective evidence of nonobviousness, i.e., secondary considerations.⁶ *See Graham v. John Deere Co. of Kan. City*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

Petitioner argues that a person of ordinary skill in the art (“POSITA”) relevant to the challenged claims, as of the earliest claimed priority date, “would have a Bachelor’s degree (or equivalent) in Electrical Engineering, Mechanical Engineering, or a comparable subject, and would be generally familiar with the state of cooling and lighting technology for electronic devices.” Pet. 7 (citing Ex. 1004 ¶ 27).

Patent Owner contends

a POSITA in the field of the ’336 patent as of December 26, 2018 would have (i) earned a bachelor’s degree in electrical engineering, mechanical engineering, or computer science, or a similar engineering or science degree, and (ii) attained two or more years of experience in designing and/or implementing hardware components for computers, servers, and/or other electronic devices.

Prelim. Resp. 20 (citing Ex. 2002 ¶ 20).

⁶ In the present record, neither party presents arguments or evidence relating to secondary considerations.

We provide the following preliminary definition of the level of skill in the art.⁷ On consideration of the record, specifically the patent and cited prior art, we find Petitioner’s proposed educational levels and subject matter (bachelor’s degree in electrical or mechanical engineering) more appropriate. Specifically, Patent Owner’s reference to a degree in computer science does not appear relevant to the claimed electro-mechanical device. We find Patent Owner’s proposed hands-on experience more persuasive as Petitioner’s definition is too vague (“generally familiar”) to assist our determination.

On this record and for the purposes of institution, we find that a person of ordinary skill in the art relevant to the challenged claims, as of the earliest claimed priority date, would have a bachelor’s degree (or equivalent) in electrical engineering or mechanical engineering, and would have two years of experience in designing and/or implementing hardware components for computers, servers, and/or other electronic devices. We further determine that more experience could compensate for the absence of a bachelor’s degree. The level of skill is reflected by the testimony of the parties’ declarants and the prior art of record.

C. Claim Construction

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), i.e., as construed in a civil action under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b). Under *Phillips*, claim terms are afforded “their ordinary and customary meaning.” *Id.* at 1312. “[T]he ordinary and customary meaning of

⁷ The parties are welcome to suggest clarifications or alternatives for this preliminary definition.

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.*

Although neither party expressly seeks a specific claim construction or definition for any claim term, *see* Pet. 10; Prelim. Resp. 29, Patent Owner raises a potential claim construction issue.⁸ Specifically, Patent Owner argues that the recitation of “a power socket and a first connector on one side of the body” requires that “the ‘power socket’ and the ‘first connector’ must be located on the *same* ‘one side of the body’ of the claimed illumination fan.” Prelim. Resp. 25–26 (citing Ex. 1001, Fig. 1; Ex. 2002 ¶ 57). In doing so, Patent Owner cites to Petitioner’s proposed claim construction in the district court litigation. *Id.* at 26–27 ((citing Ex. 2003, 4) (“The phrase ‘on one side of the body’ means a power socket and a connector both directly accessible and placed on the same side of the fan housing.”)). Patent Owner further argues “in contrast to the illumination area 3 located at the top of the body, the power socket 4 and the first

⁸ We request that any claim construction arguments the parties rely upon during trial appear in a clearly designated section of briefing and note that such arguments should “point out the specific portions of the specification, prosecution history, and relevant extrinsic evidence” to be considered, with explanations of the relevancy of that evidence to the arguments presented. *See* Patent Trial and Appeal Board Consolidated Trial Practice Guide, at 46, 49 (Nov. 2019) (available at <https://www.uspto.gov/TrialPracticeGuide/Consolidated>).

connector 5 are not located at the top of the body because they are located on the side of the body.” *Id.* at 27 (citing Ex. 2002 ¶ 58) (emphasis omitted).

We determine that the plain meaning of claim 1 supports Patent Owner’s interpretation. Claim 1 recites

a body, provided with a fan in center of the body, an illumination area on at least two sides of the fan at *top of the body*, a power socket and a first connector on *one side of the body*, and a second connector on *another side of the body* . . . such that when the power socket on the one side of the body is supplied with power, the fan and the illumination area of the body are respectively driven into rotation and illumination . . .

Ex. 1001, 4:5–9 (emphasis added). Claim 1 expressly recites three body locations: “the top of the body,” “one side of the body,” and “another side of the body.” *Id.* “A power socket and a first connector” are listed together in the same clause “on one side of the body.” *Id.* The plain language of the claim further supports that “one side of the body” includes both power socket and first connector, as the limitation is repeated later in the claim: “*the* power socket on *the* one side of the body.” *See id.* at 4:12 (emphasis added). The location of the second connector is defined in relation to the one side with the first connector. *See id.* at 4:5–9. Accordingly, the plain meaning of claim 1 defines three sides of the claimed body, a top of the body (with an illumination area on two sides of the fan), one side of the body with a power socket and a first connector, and another side of the body with a second connector. *See id.*

For purposes of this Decision, we determine that no other claim terms require express construction. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly

those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”)).

D. Asserted Obviousness of Claims 1 and 2 over Lai and Hasegawa

While Petitioner orders its arguments differently in the Petition, we begin with a consideration of Petitioner’s assertions regarding the obviousness of claims 1 and 2 over a combination of Lai and Hasegawa.

Petitioner argues that claims 1 and 2 would have been obvious over Lai and Hasegawa. Pet. 55–76. Patent Owner disputes Petitioner’s contentions. Prelim. Resp. 33–48.

1. Lai (Ex. 1012)

Lai relates to a Light Emitting Diode (“LED”) fan control device, which connects multiple fans by wiring each one to a single controller device. Ex. 1012 ¶ 1. “Each addressable [Red Green Blue (“RGB”)] LED . . . is built in with an IC (‘Integrated Circuit’) control chip, which is equipped with a one-wire bus control function and can be connected in a series.” *Id.* ¶ 11.

Figure 2 is a schematic of a single fan, reproduced below.

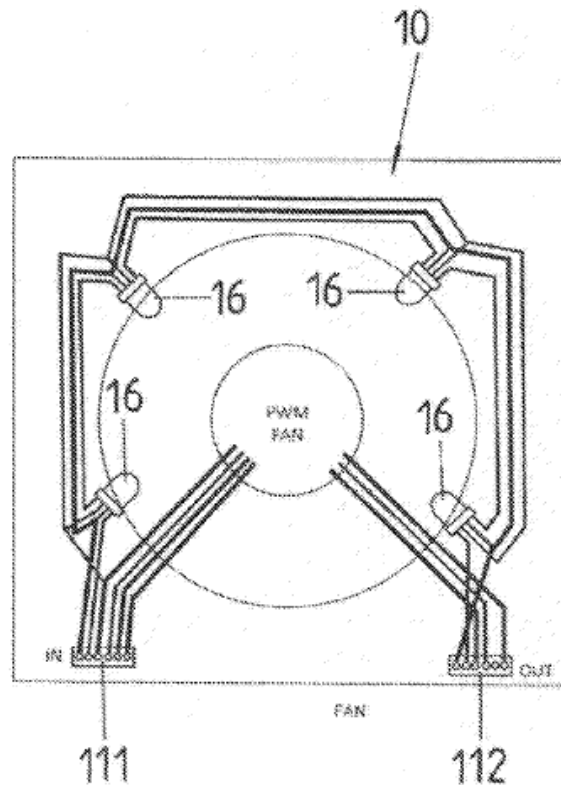


FIG. 2

Figure 2 shows LED fan 10 with four RGB LEDs 16 equally spaced around the interior perimeter of fan 10. *Id.* ¶¶ 6, 11, Fig. 2. LED fan 10 further includes single input 111 and single output 112, located on one side of fan 10. *Id.* ¶ 11, Fig. 2.

Figure 3 is a planar view of multiple fans, reproduced below.

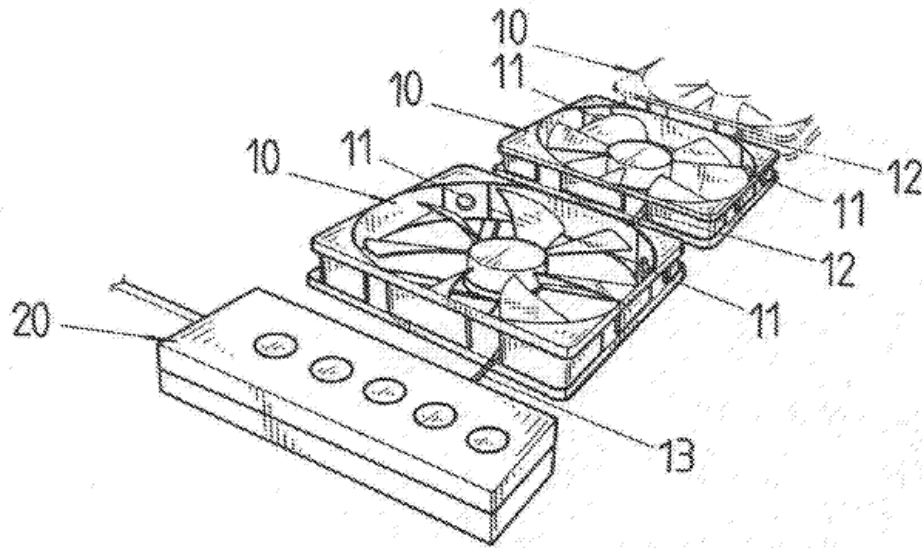


FIG.3

Figure 3 illustrates a planar view of multiple LED fans 10 linked together using single transmission line 12. *Id.* ¶ 12. LED fans 10 are further linked to controller 20 by transmission line 13. *Id.*

2. *Hasegawa (Ex. 1013)*⁹

Hasegawa relates to an air-cooling fan for cooling electronics.

Ex. 1014 ¶ 1. Plural air-cooling fan units can be coupled together to create a large air-cooling fan unit. *Id.* ¶ 114.

Figure 29 shows two fan units and is reproduced below.

⁹ We rely on Petitioner's submitted English translation (Ex. 1014).

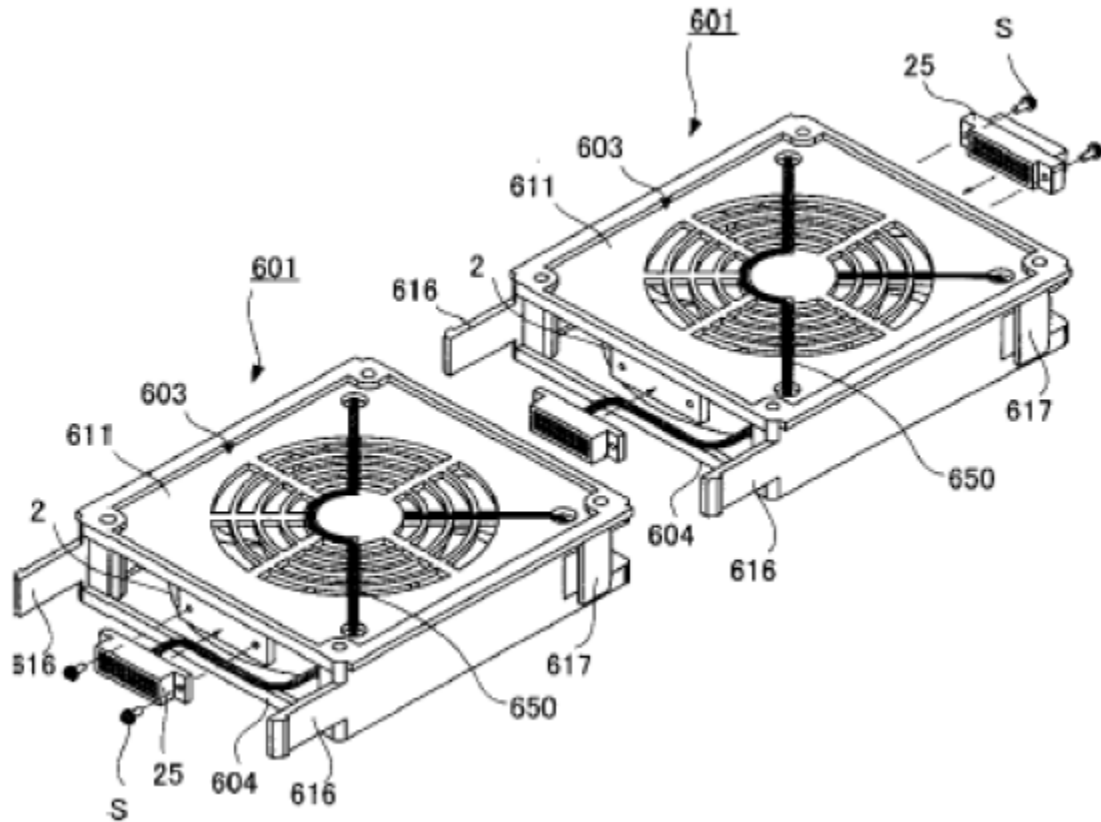


Figure 29 illustrates two air-cooling fan units 601 oriented for coupling. *Id.* ¶¶ 114, 120. Each fan unit 601 includes casing 603 that internally houses fan 2 and a cover that occludes lower opening of case 603. *Id.* ¶ 115. Each fan unit includes connector 25 on two sides of each unit. *Id.* ¶ 119, Fig. 31(b).

Figure 31(b) illustrates two coupled fan units and is reproduced below.

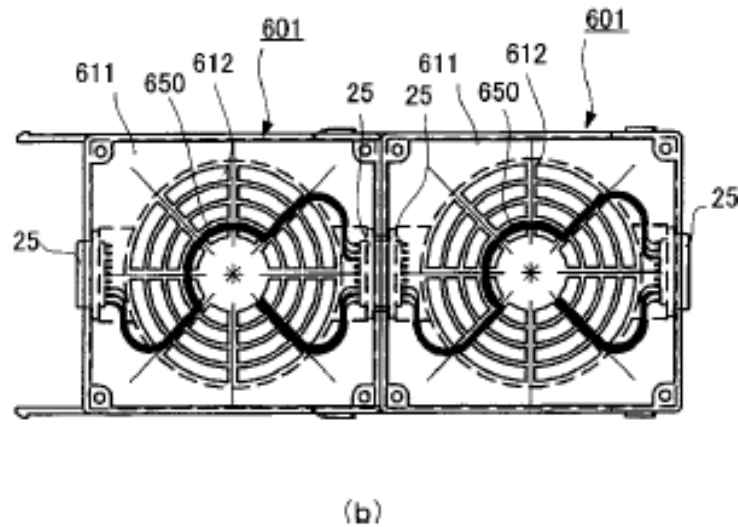


Figure 31(b) illustrates two fan units 601 from above coupled by connectors 25 located on the sides of each unit. *Id.* ¶¶ 119, 122. Power cable 650 is wired to the motor of fan 2 and to connectors 25. *Id.*

3. *Independent Claim 1*

a) *Preamble*

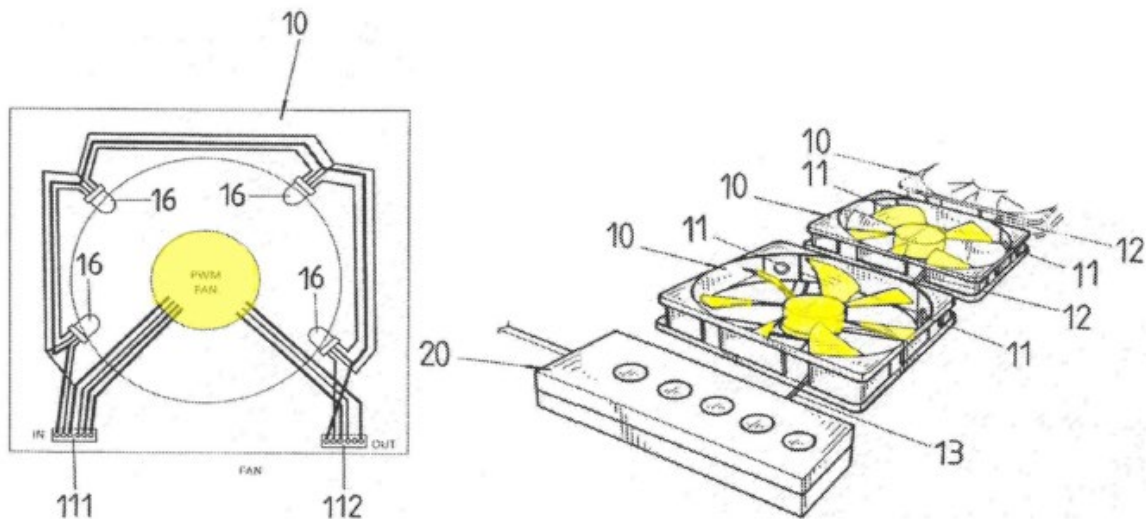
Petitioner asserts Lai teaches “[a]n illumination fan connectable with at least one illumination fan for a computer.” Pet. 55–56 (citing Ex. 1004 ¶ 111). Specifically, Petitioner asserts Lai discloses LED fan 10 including “multiple addressable RGB (Red-Green-Blue) LED lights 16, and . . . a PWM (Pulse Width Modulation) fan.” *Id.* at 56 (citing Ex. 1012 ¶¶ 11, 15, Fig. 2). Petitioner further asserts that Lai’s “LED fan 10 is connectable to another LED fan 10.” *Id.* (citing Ex. 1012, Fig. 3).

At this time, Patent Owner does not dispute that Lai teaches the preamble of claim 1. On this record and for the purposes of institution, we

are sufficiently persuaded by Petitioner’s argument and evidence that Lai teaches the preamble of claim 1.¹⁰

b) Limitation 1[a]

Petitioner asserts Lai teaches “a body, provided with a fan in center of the body.” Pet. 56–57 (Ex. 1004 ¶ 112). Petitioner refers to Lai’s Figures 2 and 3, reproduced below with Petitioner annotations.



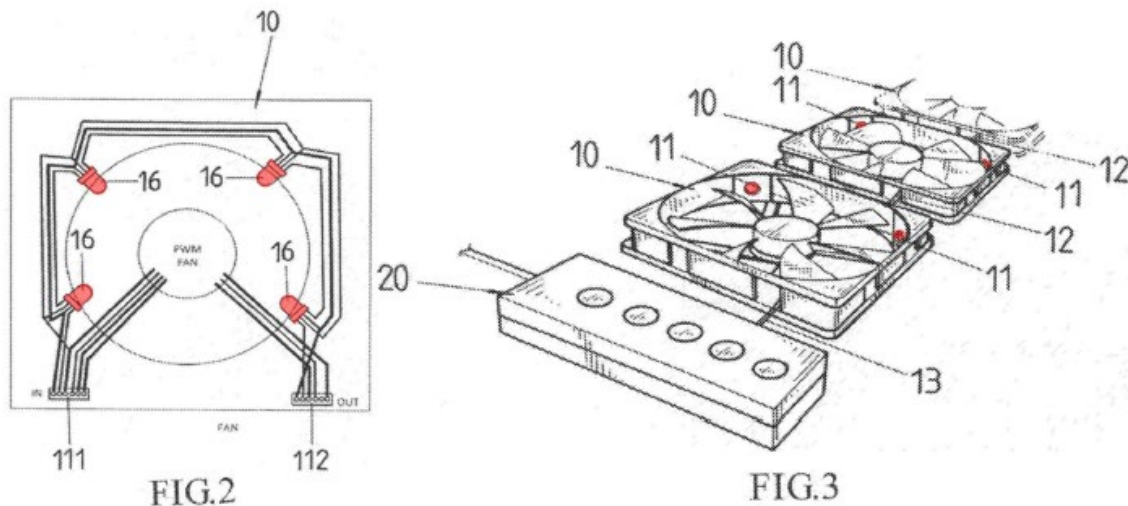
Id. at 56. Petitioner annotates Lai’s Figures 2 and 3 to show “LED fan 10 body with a fan motor and blades (highlighted in yellow) . . . located in the center of the fan body.” *Id.* (citing Ex. 1012, Figs. 2, 3) (emphasis omitted).

At this time, Patent Owner does not dispute that Lai teaches limitation 1[a]. On this record and for the purposes of institution, we are sufficiently persuaded by Petitioner’s argument and evidence that Lai teaches limitation 1[a].

¹⁰ Because Petitioner has sufficiently shown that the prior art teaches the preamble, we need not determine at this time whether the preamble is limiting. *See Nidec*, 868 F.3d at 1017.

c) Limitation 1[b]

Petitioner asserts that Lai teaches or suggests “an illumination area on at least two sides of the fan at top of the body.” Pet. 57–58 (citing Ex. 1004 ¶¶ 113–115). Again Petitioner refers to Lai’s Figures 2 and 3, reproduced below with Petitioner annotations.



Id. at 57. Petitioner annotates Lai’s Figures 2 and 3 to show “LEDs (for example, LEDs 16 in FIG. 2, and LEDs 11 in FIG. 3, highlighted in red . . .) on at least two sides of LED fan 10.” *Id.* (emphasis omitted). Petitioner further argues “[t]o the extent it is argued or found that Lai does not disclose an illumination area at top of the fan body, it would have been obvious to a PHOSITA to mount LEDs 16 on a different surface of LED fans 10 or pointing in a different direction.” *Id.* at 58 (citing Ex. 1004 ¶ 115).

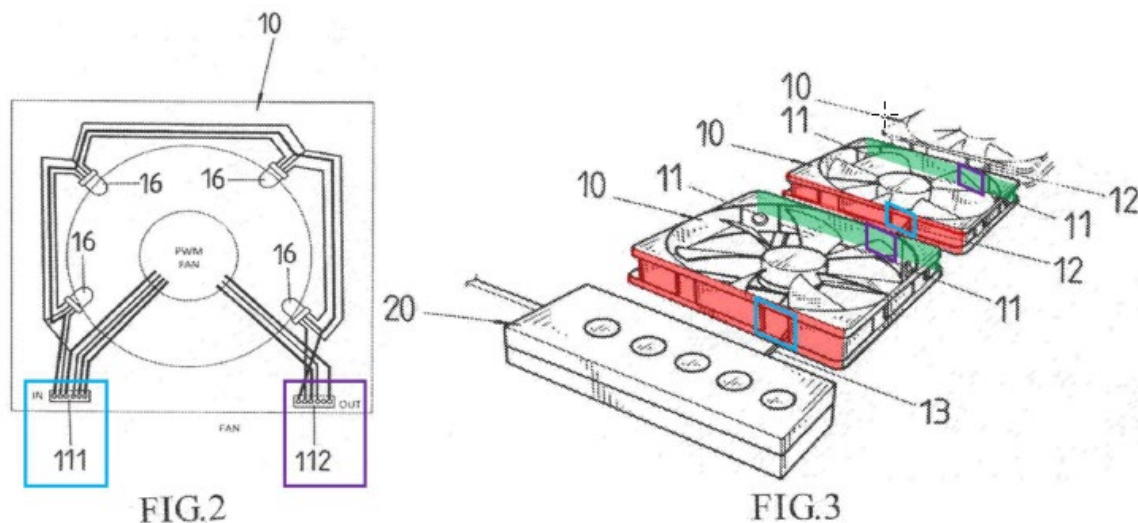
At this time, Patent Owner does not dispute that Lai teaches limitation 1[b]. On this record and for the purposes of institution, we are sufficiently persuaded by Petitioner’s argument and evidence that Lai teaches limitation 1[b].

d) Limitation I[c]

Petitioner asserts Lai alone, or combined with Hasegawa, teaches “a power socket and a first connector on one side of the body, and a second connector on another side of the body.” Pet. 58–75 (Ex. 1004 ¶¶ 116–126). Patent Owner argues that: (1) Lai does not teach a power socket and first connector, (2) Lai does not teach a second connector on another side of the body, and (3) Lai and Hasegawa together do not teach a power socket and first connector on the one side of the body and a second connector on another side of the body. Prelim. Resp. 34–46. We address each of these arguments separately below.

(1) Whether Lai alone teaches or suggests a power socket and first connector

Petitioner asserts Lai teaches or suggests a power socket and first connector on one side of the body. Pet. 58 (citing Ex. 1004 ¶¶ 116–120). Petitioner refers to Lai’s Figures 2 and 3, reproduced as annotated below.



Id. at 59. Petitioner annotates Lai’s Figures 2 and 3 to show “LED fan 10 having a single input 111 (in blue box) on a first side (highlighted in red) and a single output 112 (in purple box) on a second side (highlighted in

green).” *Id.* at 58 (citing Ex. 1012, Abstr., ¶¶ 3, 11–13, Figs. 2, 3) (emphasis omitted).

As to the power socket, Petitioner asserts “single input 111 comprises 6 connectors, including a ground connector that is connected to both the PWM fan and LEDs, and two VCC connectors that are connected to the LEDs . . . and control motors 15 that are electrically linked to the PWM fan via controller 20, respectively.” *Id.* at 59 (citing Ex. 1012 ¶¶ 11, 13, 14, Figs. 2, 4, 5). Although Lai does not expressly refer to a “socket,” Petitioner asserts that “it would have been obvious to a PHOSITA to use a socket-type power connector, which was common in the art and often used for fans.” *Id.* at 60–61 (citing Ex. 1004 ¶ 116). Dr. Wolfe cites Tsuji as support for using a socket-style power input for a fan, further stating that “[b]oth male and female connectors are commonly available and for low-voltage applications can be interchangeable as to which is on the cable, and which is on the device.” Ex. 1004 ¶ 116.

As to the first connector, Petitioner asserts “[s]ingle input 111 of one LED fan 10 is used in conjunction with a transmission line 12 to connect or link the LED fan 10 to another LED fan 10.” *Id.* at 61 (citing Ex. 1012 ¶¶ 11–12, Fig. 3). Accordingly, Petitioner asserts “[t]he first connector of Lai comprises the remaining connectors (the LED data signal, the PWM signal, and the sense signal) out of the six connectors of single input 111.” *Id.* at 61–62 (citing Ex. 1004 ¶ 116).

Alternatively, Petitioner argues that it would have been obvious to a person of ordinary skill in the art to provide separate structures for a power socket and first connector, as “[a] plurality of signals can be combined onto a single connector housing or split between two as a matter of simple design

choice.” *Id.* at 62 (citing Ex. 1004 ¶ 116); *see also* Ex. 1012, Figs. 4–6 (showing two sets of connections on one side); Ex. 1007.

Patent Owner argues that Lai does not teach a power socket and first connector. Prelim. Resp. 34–40. First, Patent Owner argues that “a POSITA would not have recognized Lai’s ‘single input 111’ or ‘single output 112’ as having any ‘socket’ nor ‘connector’ structures.” *Id.* at 35. Instead, Patent Owner argues that Lai’s single input 111 is shown as fixed solder points on a printed circuit board. *Id.* at 35–36 (citing Ex. 2002 ¶¶ 89–90). Patent Owner also argues that Petitioner does not match its proposed claim construction in District Court requiring specific structural features for the connector (“conductive structure”) and power socket (“opening or hollow that forms a holder for a power plug”). *See id.* at 36–37 n.8 (citing Ex. 2003, 3–4).

Second, Patent Owner argues that Petitioner impermissibly maps Lai’s single input 111 to two claimed features, a power socket and first connector. *Id.* at 37 (citing Ex. 2002 ¶ 91). Patent Owner asserts that “when a claim recites two distinct elements, those elements cannot be met by the same structure in a prior art reference.” *Id.* at 37–38 (citing *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010)). Patent Owner further disagrees with Petitioner’s argument that it would have been obvious to use two connectors. *Id.* at 39 (citing Pet. 62). Instead, Patent Owner argues that “a POSITA would not have considered splitting the single input 111 connecting to the single transmission line 12 in Lai into two separate structures” requiring two transmission lines because “Lai expressly requires that 111 be a ‘single input’ connecting to a ‘single transmission line 12.’” *Id.* at 39–40 (citing Ex. 2002 ¶ 92) (emphasis omitted).

We agree with Patent Owner that Lai does not expressly teach a power socket. However, Petitioner provides testimonial evidence, supported by a citation to Tsuji, to sufficiently show for the purposes of institution that socket-style power connectors were known in the art to power computer fans. *See* Ex. 1004 ¶ 116.

We next address whether the power socket and connector must be different structures. Our reviewing court explains that *Becton, Dickinson v. Tyco* does not “create a *per se* rule that separately listed claim elements are distinct components, regardless of the intrinsic record.” *Google LLC v. EcoFactor, Inc.*, 92 F.4th 1049, 1058 (Fed. Cir. 2024). “Rather, . . . there is a ‘presumption’ that separately listed claim limitations may indicate separate and distinct physical structure, but that presumption may always be rebutted in the context of a particular patent.” *Id.*

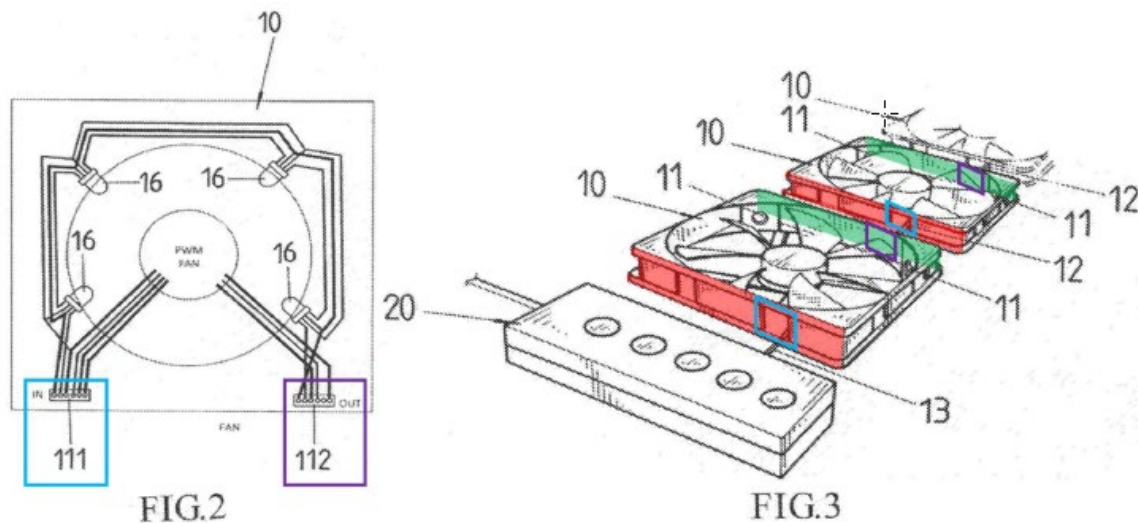
On this record, we find that the intrinsic record of the ’336 patent does not limit the structural features of the first connector and only requires “an electrically conductive terminal.” *See* Ex. 1001, 2:3–5, 3:8–10. On this record, we do not agree that the claimed first connector, having an electrically conductive terminal, must be a separate structure from a power socket. Lai’s input 111 is an electrically conductive terminal including separate lines for power signals and control signals. *See* Ex. 1012, Figs. 4–6; Ex. 1004 ¶ 116. As discussed above, Petitioner sufficiently shows that a power socket was a known structural element for powering a fan, and would include an electrically conductive terminal. Accordingly, Petitioner sufficiently shows for the purposes of institution that Lai’s input 111 can serve as both power socket and first connector.

Moreover, we persuaded on this record that “it would be obvious to a PHOSITA to separate a set of VCC and ground terminals of Lai into a

separate housing” where “[a] plurality of signals can be combined onto a single connector housing or split between two as a matter of simple design choice.” *See* Ex. 1004 ¶ 116. Lai’s exemplary teaching of one transmission line 12 between LEDs does not preclude two structures, as Lai further teaches “another transmission line 13” between LED fans and controller 20. *See* Ex. 1012 ¶ 12.

(2) *Whether Lai alone teaches or suggests a second connector on another side of the body*

Petitioner references its annotated versions of Lai’s Figures 2 and 3, reproduced below.



Pet. 63. Petitioner asserts

Although the schematic in FIG. 2 of Lai shows both single input 111 and single output 112 on the same side, FIG. 3 of Lai shows LED fans 10 are connected or linked together with a transmission line 12 extending from single input 111 positioned (in blue box) on a first side (highlighted in red) of one LED fan 10 to single output 112 (in purple box) on a second side (highlighted in green) of another LED fan 10.

Id. at 62–63 (citing Ex. 1012 ¶¶ 11, 12, Fig. 3) (emphasis omitted).

Additionally, Petitioner argues “it would have been obvious to a PHOSITA

that the connectors can be moved to opposite edges of the fan body without any substantial impact to the structure or operation of the fan of Lai.” *Id.* at 63 (citing Ex. 1004 ¶ 118). Petitioner supports this modification with Dr. Wolfe’s testimony, who explains, e.g., that “[s]ide-mounted connectors would reduce or eliminate the cabling required to connect adjacent fans as suggested in Lai figure 3.” Ex. 1004 ¶ 118.

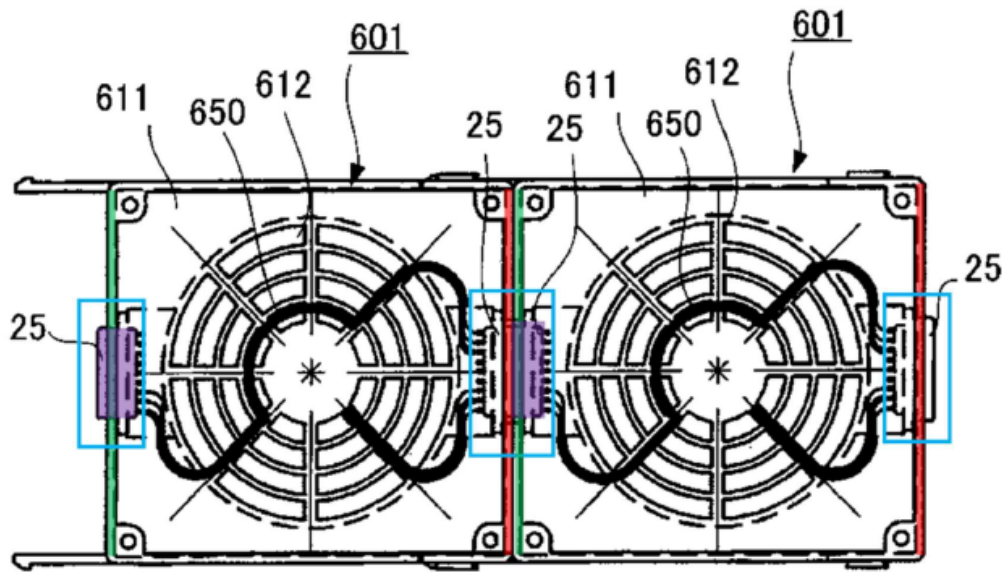
Patent Owner argues that Lai’s input 111 and output 112 “are on the same side of the fan body, so Petitioner fails to show that Lai teaches ‘a power socket and a first connector on one side of the body, and a second connector on another side of the body’” as claimed. Prelim. Resp. 41 (Ex. 2002 ¶¶ 94–95) (emphasis omitted).

On this record, we are persuaded that Petitioner sufficiently shows that Lai teaches or suggests a second connector on another side of the body. Although Lai’s Figure 2 shows the first and second input on the same side, Lai’s Figure 3 shows LED fans 10 in series where the first and second connectors would be located on opposite sides. Accordingly, at least Lai’s Figure 3 teaches or suggests a second connector on another side of the body.

(3) Whether Lai and Hasegawa teach or suggest a second connector on another side of the body

Petitioner asserts that one skilled in the art would have been “motivated to modify Lai to have a first connector (single input 111) on one side of a fan body, and a second connector (second input 112) on the opposite side of the fan body, based on the configuration of connectors for serial connection of fans as disclosed in Hasegawa.” Pet. 64 (citing Ex. 1004 ¶ 119). Specifically, Petitioner cites to Hasegawa’s fan units 601 “having Connectors 25 on opposite sides of the Fan Unit 601 body.” *Id.* (citing

Ex. 1014, Figs. 29, 31(b)). An annotated version of Hasegawa's Figure 31(b) is reproduced below.

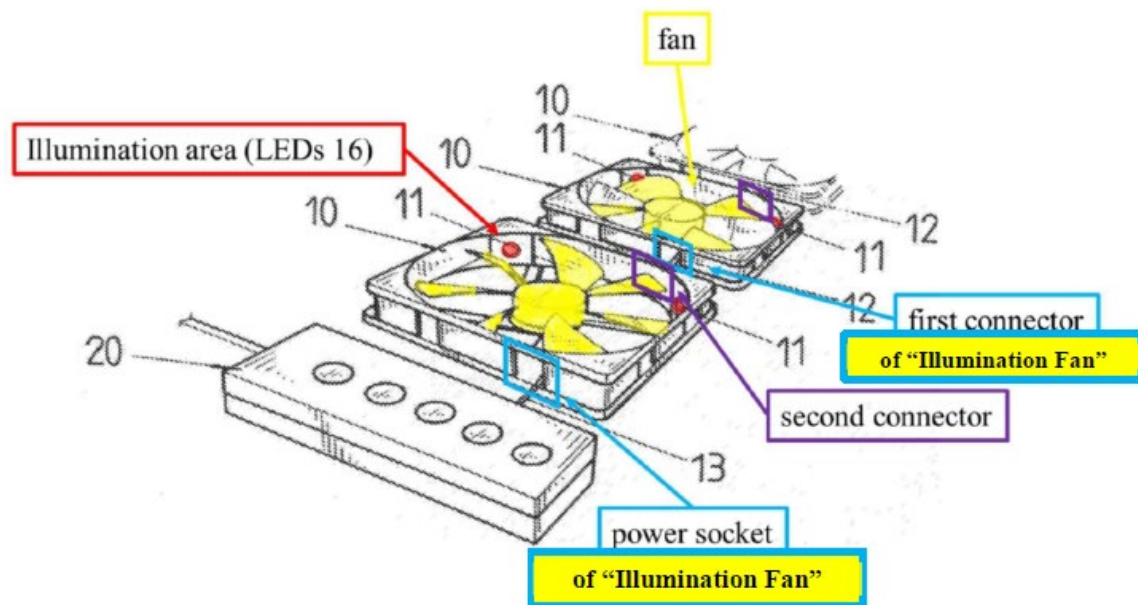


Id. at 65. Petitioner annotates Hasegawa's Figure 31(b) to show two connected fan units 601 "with a first side highlighted in red, a second side highlighted in green, Connector 25 in blue box, the second connector . . . highlighted in purple." *Id.* at 64–65 (citing Ex. 1014 ¶¶ 1, 114) (emphasis omitted). Petitioner argues "Connector 25 (highlighted in purple) on the second side (highlighted in green) of the Fan Unit 601 body is a 'second connector on another side of the body' as claimed." *Id.* at 66 (citing Ex. 1004 ¶ 119) (emphasis omitted).

Petitioner asserts that it would have been obvious to one of ordinary skill in the art to combine Lai and Hasegawa as both references relate to "connecting multiple cooling fans in chain that transmit power for the fan motors via single connections between the fans." *Id.* (citing Ex. 1012, Abstr., ¶¶ 1, 3, 11–12; Ex. 1014 ¶¶ 114, 119, Figs. 29–31; *see also* Ex. 1004 ¶ 119). According to Petitioner "[t]he combination would have involved applying Hasegawa's known technique of placing cooling fan connectors on opposite

sides of a fan body, to the known LED fans of Lai, to yield predictable results of connecting the fans in series.” *Id.* at 67; *see also* Ex. 1004 ¶¶ 117–120.

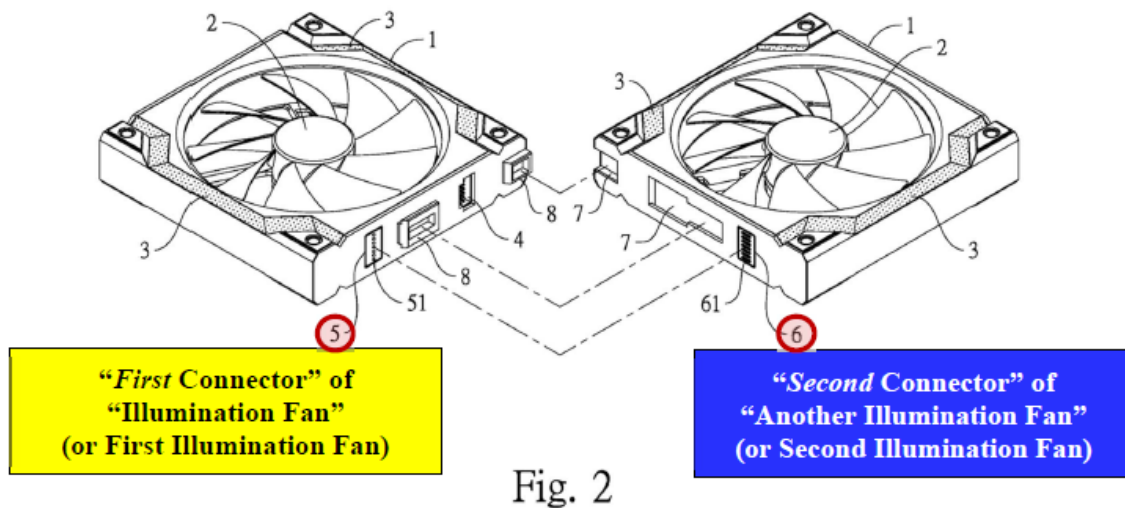
Patent Owner argues that “Petitioner fails to show that Hasegawa cures Lai’s deficiency” as to a second connector located on another side of a power socket and first connector. *See* Prelim. Resp. 42 (citing Ex. 2002 ¶¶ 96–97). First, Patent Owner argues that “Petitioner’s mappings for the alleged ‘power socket’ and the alleged ‘first connector’ show that the two structures are not on the same ‘side’ as required by claim 1.” *Id.* at 43–46 (citing Pet. 68–71); *see also* Ex. 2002 ¶¶ 99–101. Patent Owner refers to Petitioner’s mappings in Patent Owner’s annotated (yellow boxes added) version of Petitioner’s annotated Lai Figure 3, reproduced below.



Prelim. Resp. 45. The annotated figure shows multiple fans in series with Patent Owner’s adding “of ‘Illumination Fan’” to Petitioner’s labeled “power socket” on the first fan in the series and Petitioner’s labeled “first connector” on the second fan in the series. Patent Owner contends Petitioner’s mapping of the power socket and first connector “are not even

on the same illumination fan.” *Id.* at 45–46 (citing Pet. 68–69; Ex. 2002 ¶¶ 100–101).

Second, Patent Owner argues that “claim 1 of the ’336 patent instead recites the *opposite* to what Petitioner appears to demonstrate.” Prelim. Resp. 47–48. Patent Owner refers to annotated Figure 2 of the ’336 patent reproduced below.



Id. at 48. Figure 2 shows two fan bodies before being assembled, with Patent Owner’s annotations labeling first connector of first illumination fan and second connector of second illumination fan. Patent Owner contends that “claim 1 recites ‘the first connector [5] of the body [of the illumination fan, i.e., the first illumination fan on the left] is connected with a second connector [6] of a body of another illumination fan [i.e., the second illumination fan on the right].” *Id.* at 48 (citing Ex. 1001, claim 1, Fig. 2; Ex. 2002 ¶ 103) (emphasis omitted, alterations in original).

On this record, we find Petitioner sufficiently shows that Lai and Hasegawa teach a second connector on another side of the body. Specifically, Hasegawa shows a first fan body with a first connector on one side of the fan body, and a second connector on another side of the fan body

for connecting with a first connector of a second fan body. *See* Ex. 1014 ¶¶ 1, 114, Fig. 31(b). We further find that Petitioner sufficiently shows one skilled in the art would have been motivated to combine Lai and Hasegawa as both references relate to connecting multiple cooling fans in a chain. *See* Ex. 1004 ¶¶ 117–120. The resulting combination of Lai and Hasegawa teaches or suggests a first connector and power socket on one side of the body (*see* Lai) and a second connector on the other side of the body that connects to the first connector on the adjacent body (*see* Hasegawa). Patent Owner’s argument relies on Petitioner’s labeling of Lai’s Figure 3 with a power socket only, instead of a power socket and first connector, which we do not find persuasive on this preliminary record because we find that Lai’s input 111 can serve as both power socket and first connector. *See supra*, § IV.D.3.d.(1).

e) Limitation I[d]

Petitioner asserts that Lai teaches “wherein the power socket is electrically connected with the first connector, the second connector, the fan and the illumination area.” Pet. 68–69 (citing Ex. 1004 ¶ 121). Specifically, Petitioner asserts Lai’s “ground line (GND) and VCC signal are electrically connected to the first connector with the first connector (single input 111), the second connector (single output 112), the fan and the illumination area (LEDs 16 or LEDs 11).” *Id.* at 69 (citing Ex. 1012 ¶¶ 12–15, Figs. 4–6; Ex. 1004 ¶ 121).

Petitioner further asserts that Lai teaches “such that when the power socket on the one side of the body is supplied with power, the fan and the illumination area of the body are respectively driven into rotation and illumination.” *Id.* at 69–70 (citing Ex. 1004 ¶¶ 122–126). Specifically, Petitioner asserts Lai “discloses that when the power socket of single

output 111 of the first LED fan 10 is connected (via single transmission line 13), the fan (control motor 15) and illumination area (LEDs 11) both receive power and control from controller 20.” *Id.* at 72 (citing Ex. 1012 ¶ 15, Figs. 2, 3, 6).

Finally, Petitioner asserts that Lai teaches “when the first connector of the body is connected with a second connector of a body of another illumination fan, a fan and an illumination area of the body of another illumination fan are respectively driven into rotation and illumination.” *Id.* at 69–70 (citing Ex. 1004 ¶¶ 122–126). Specifically, Petitioner asserts “Lai discloses serial connections of at least two LED fans 10 through single connections extending from single input 111 of one LED fan 10 to single output 112 of another LED fan 10 via a single transmission line 12.” *Id.* at 73–74; *see also id.* at 70 (citing Ex. 1012, Abstr., ¶¶ 1, 11, 12, 16, Figs. 2–5).

At this time, Patent Owner does not dispute that Lai teaches limitation 1[d], apart from its previous arguments that Lai does not teach a power socket. On this record and for the purposes of institution, we are sufficiently persuaded by Petitioner’s argument and evidence that Lai teaches limitation 1[d].

f) Conclusion as to Claim 1

Based on the current record, there is a reasonable likelihood that Petitioner will prevail in demonstrating that claim 1 is unpatentable as obvious over Lai and Hasegawa.

4. Dependent Claim 2

Petitioner presents evidence that the combination of Lai and Hasegawa teaches or suggests the limitations of claim 2. Pet. 76 (Ex. 1004 ¶¶ 128–130). Patent Owner does not separately argue claim 2 at this stage of

the proceeding. Patent Owner may raise any arguments regarding this claim in its Patent Owner Response after institution. *See* Prelim. Resp. On this record, Petitioner shows sufficiently that the combination of Lai and Hasegawa teaches the limitations of claim 2.

E. Asserted Obviousness of Claim 3 over Lai, Hasegawa, and Huang

Petitioner argues that claim 3 would have been obvious over Lai, Hasegawa, and Huang. Pet. 76–78. Petitioner identifies evidence and argues that the Lai, Hasegawa, and Huang¹¹ combination teaches the limitations of claim 3 and that a person of ordinary skill in the art would have had reason to combine these references. *Id.* (citing Ex. 1004 ¶¶ 136–140; Ex. 1008, 3:20–29, 8:4–15). Patent Owner does not raise any arguments relating to this ground. On this record, Petitioner demonstrates a reasonable likelihood of prevailing in showing that claim 3 would have been obvious over Lai, Hasegawa, and Huang.

F. Asserted Obviousness of Claim 4 over Lai, Hasegawa, and Echazarreta

Petitioner argues that claim 4 would have been obvious over Lai, Hasegawa, and Echazarreta. Pet. 78–80. Petitioner identifies evidence indicating that the Lai, Hasegawa, and Echazarreta combination teaches the limitations of claim 4 and that a person of ordinary skill in the art would have had reason to combine these references. *Id.* (citing Ex. 1004 ¶¶ 143, 144; Ex. 1009, Abstr., Fig. 12, ¶ 70). Patent Owner does not raise any arguments relating to this ground. On this record, Petitioner demonstrates a reasonable likelihood of prevailing in showing that claim 4 would have been obvious over Lai, Hasegawa, and Echazarreta.

¹¹ Huang is discussed in detail in combination with Tsuji below.

G. Asserted Obviousness of Claim 5 over Lai, Hasegawa, and Chou or Liu

Petitioner argues that claim 5 would have been obvious over Lai, Hasegawa, and Chou. Pet. 81–84. Petitioner identifies evidence indicating that the Lai, Hasegawa, and Chou combination teaches the limitations of claim 5 and that a person of ordinary skill in the art would have had reason to combine these references. *Id.* (citing Ex. 1004 ¶¶ 133, 147–149; Ex. 1010 ¶¶ 22, 25–26, Figs. 2, 4). Alternatively, Petitioner argues that claim 5 would have been obvious over Lai, Hasegawa, and Liu. *Id.* at 84–88. Petitioner identifies evidence indicating that the Lai, Hasegawa, and Liu combination teaches the limitations of claim 5 and that a person of ordinary skill in the art would have had reason to combine these references. *Id.* (citing Ex. 1004 ¶¶ 150–152; Ex. 1011 ¶¶ 33, 35, Figs. 4A, 4B).

Patent Owner does not raise any arguments relating to these grounds. On this record, Petitioner demonstrates a reasonable likelihood of prevailing in showing that claim 5 would have been obvious over Lai, Hasegawa, and Chou or Liu.

H. Asserted Obviousness of Claims 1–3 over Tsuji and Huang

Petitioner argues that claims 1–3 would have been obvious over Tsuji and Huang. Pet. 23–44. Patent Owner disputes Petitioner’s contentions. Prelim. Resp. 20–33.

*1. Tsuji (Ex. 1006)*¹²

Tsuji relates to an electronic device including a plurality of serially-connected fan units that cool the electronic device. Ex. 1007 ¶ 10. The plurality of fans may be connected using a serial interface. *Id.* ¶ 20.

¹² We rely on Petitioner’s submitted English translation (Ex. 1007).

Figure 5 is reproduced below.

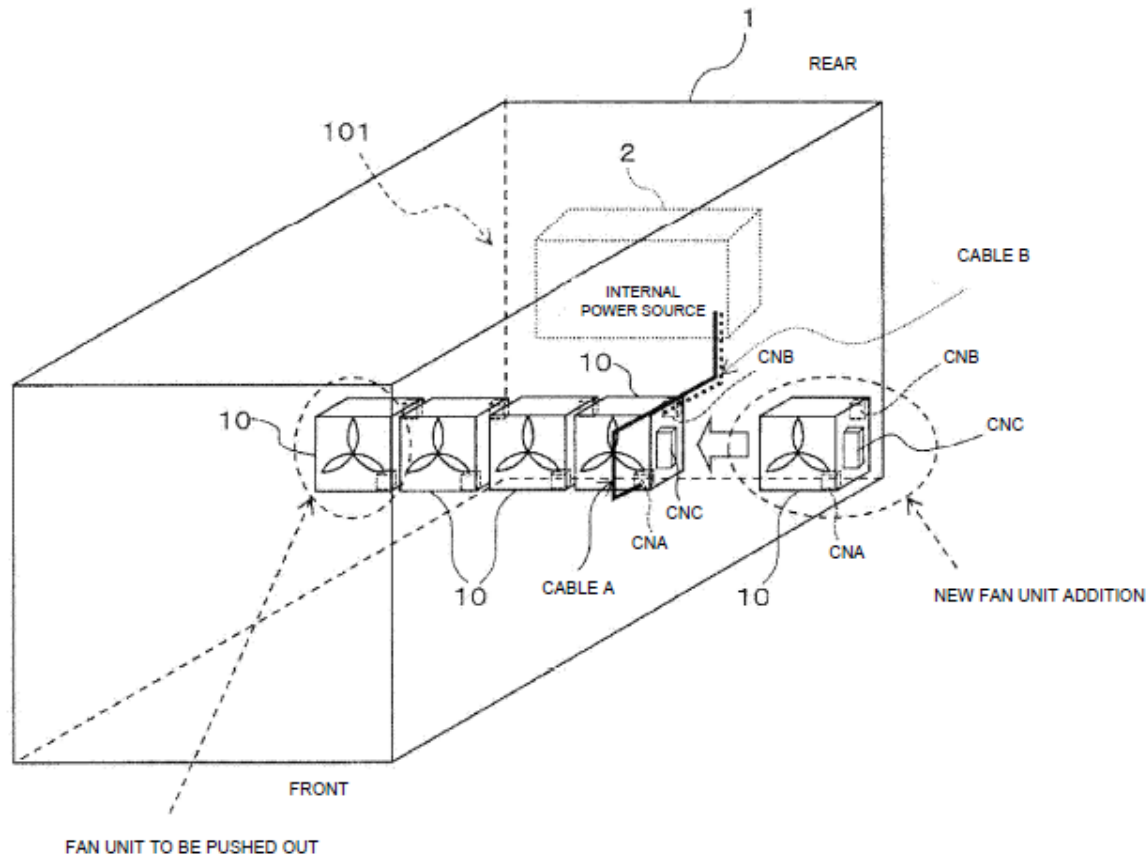


Figure 5 shows a schematic perspective view of an electronic device, e.g., a server, that includes an electronic apparatus cooled by a fan unit. *Id.* ¶¶ 12, 25. Server 1 “includes electronic apparatus 101 and a plurality of serially connected fan units 10 that cools the electronic apparatus 101.” *Id.* ¶ 26. “Each fan unit 10 includes a cooling fan 11 that is driven rotationally by a motor (not-shown), and a controlling unit (not-shown).” *Id.* ¶ 27. “[T]wo adjacent fan units 10 among the plurality of fan units 10 are connected via inter-fan connectors CNC and CND that transmit the pulse signal from one end side to the other end side, and supplies power from one end side to the other end side.” *Id.* ¶ 31. “Moreover, each fan unit 10 includes power connectors CNA and CNB to which two or more power cables capable of

supplying power to its own fan unit are connected when its own fan unit is arranged on one end side of the plurality of fan units 10.” *Id.*

Figure 7 illustrates an individual fan unit and is reproduced below.

FIGURE 7

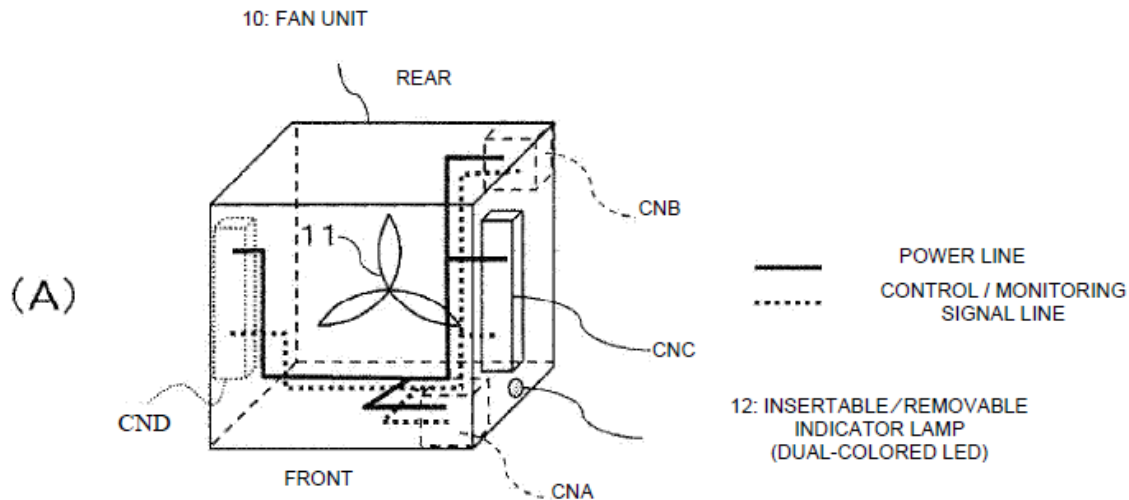


Figure 7(a) shows a schematic perspective view of fan unit 10 with cooling fan 11. *Id.* ¶ 12.

Fan unit 10 includes “insertable/removable indicator lamp 12 . . . provided on the right side surface when viewed from the front surface of each fan unit 10.” *Id.* ¶ 40. “The insertable / removable indicator lamp 12 is, for example, a dual-colored [light emitting diode (LED)]. The lighting color (luminescent color) of the insertable / removable indicator lamp 12 is controlled by . . . LED lighting circuit 20 [not shown].” *Id.*

2. Huang (Ex. 1008)

Huang relates to a computer cooling fan that provides a light-emitting effect. Ex. 1008, 1:6–8, 1:12–22. More specifically, Huang describes a cooling fan with a plurality of light guide strips and light diffusion portions that provide a uniform light-emitting effect. *Id.* at 1:51–2:13.

Figure 2 illustrates the cooling fan and is reproduced below.

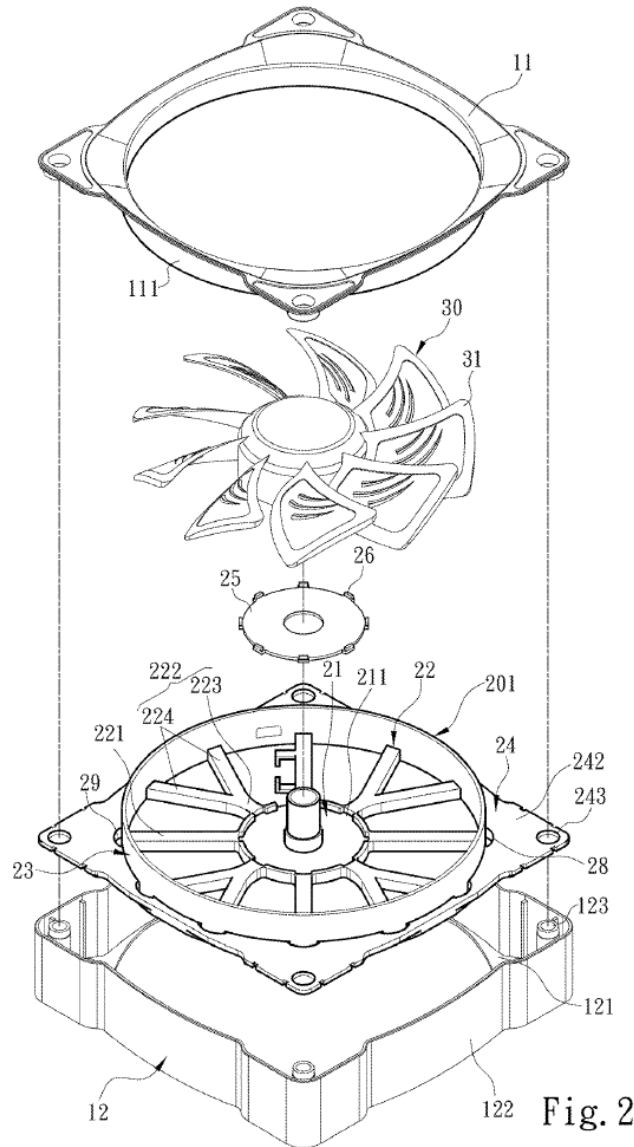


Fig. 2

Figure 2 shows an exploded schematic of a cooling fan. *Id.* at 3:35–36.

Huang’s cooling fan includes frame body 10 with light-permeable upper cover 11 attached to light-tight base 12. *Id.* at 4:3–28. Within the frame body, light-emitting assembly 20 is mounted on base 12. *Id.* at 4:29. Fan assembly 30 is arranged on light-emitting assembly 20. *Id.* at 5:29–63. “Finally, the upper cover 11 is assembled on the base 12, i.e., the cooling fan having a light-emitting effect can be assembled.” *Id.* at 5:61–63.

The light-emitting assembly includes “light guide plate 201 which is made from a light-permeable material, a circuit board 25 arranged on the central light-emitting portion 21, and a plurality of light-emitting elements 26 which are electrically connected with the circuit board 25 to emit a light 27 respectively.” *Id.* at 4:30–36. Light guide plate 201 includes central light-emitting portion 21, light guide strips 22 which extend outward from the central light-emitting portion 21, and light diffusion portion 23 which surrounds the central light-emitting portion 21 and is connected with light guide strips 22. *Id.* at 4:36–48. Light 27 travels from light-emitting portion 21 through light guide strips 22 to light diffusion portion 23. *See id.* at 5:64–6:6. Light diffusion portion 23 eventually diffuses and guides light 27 to upper cover 11 that produces a uniform light-emitting effect. *See id.* at 6:6–47.

3. *Independent Claim 1*

Because we have found that Petitioner has sufficiently shown, for the purposes of institution, a reasonable likelihood that it would prevail in showing that claims 1–2 are unpatentable as obvious over Lai and Hasegawa, as discussed above (section IV.E.), we will institute, and our institution is necessarily on all claims and all grounds. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018); 37 C.F.R. § 42.108(a) (“When instituting . . . review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”). We do not reach a determination regarding the likelihood of success for Petitioner in showing obviousness of claims 1–3 over Tsuji and Huang. However, as Huang is used in other asserted grounds and for the benefit of the parties in the proceeding going forward, we provide these

initial views on Tsuji and Huang, for the purposes of institution and on the current record.

a) Preamble

Petitioner asserts that Tsuji teaches “[a]n illumination fan connectable with at least one illumination fan for a computer.” Pet. 24–29 (citing Ex. 1004 ¶ 64). Specifically, Petitioner asserts Tsuji discloses fan unit 10 including a cooling fan for a computer with indicator lamp 12, “which is an LED that lights up in green or yellow to indicate a state of the fan unit.” *Id.* at 24–25 (citing Ex. 1007, ¶¶ 40, 46, 50, 57, 64, 66, 97, 136, Figs. 5–7B) (emphasis omitted). Petitioner further asserts that Tsuji discloses a plurality of “fan units 10 being connectable with one another, stating ‘the plurality of fan units 10 is connected in a daisy chain form by using a serial interface such as I2C.’” *Id.* at 25–26 (quoting Ex. 1007 ¶ 20; citing Ex. 1007 ¶ 26, Figs. 5–6) (emphasis omitted).

Petitioner argues that one skilled in the art “would have been motivated to combine Tsuji with Huang,” thereby combining Tsuji’s fan unit with Huan’s “light emitting arrangement.” *Id.* at 27–29 (citing Ex. 1008, Abstr., 1:6–9, 1:12–22, Figs. 1, 2; Ex. 1004 ¶ 70). Petitioner asserts that the skilled artisan “would have a good reason (e.g., larger, more uniform illumination) to pursue [Huang’s] known option and it would lead to anticipated success.” *Id.* at 29 (citing Ex. 1004 ¶ 70).

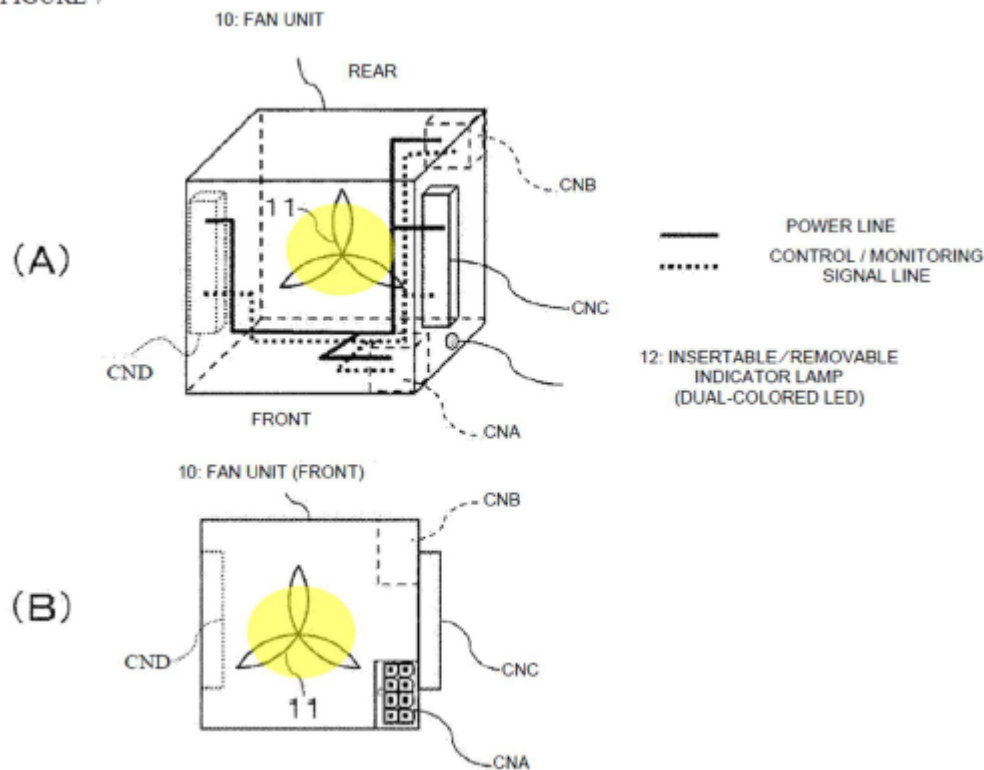
At this time, Patent Owner does not dispute that Tsuji, alone or combined with Huang, teaches the preamble of claim 1. On this record and for the purposes of institution, we are sufficiently persuaded by Petitioner’s

argument and evidence that Tsuji, alone or combined with Huang, teaches the preamble of claim 1.¹³

b) Limitation 1[a]

Petitioner asserts that Tsuji teaches “a body, provided with a fan in center of the body.” Pet. 30 (citing Ex. 1004 ¶¶ 66–67). Specifically, Petitioner asserts that Tsuji, in Figures 7A and 7B, discloses fan unit 10 including fan 11 “located substantially in the center of the body.” *Id.* (citing Ex. 1007 ¶ 27, Figs. 7A, 7B; Ex. 1004 ¶¶ 66–67). Petitioner’s annotated Figures 7A and 7B are reproduced below.

FIGURE 7



Id. Tsuji Figures 7A and 7B show fan unit 10 including fan 11 colored yellow by Petitioner. *See id.*

¹³ Because Petitioner has sufficiently shown that the prior art teaches the preamble, we need not determine at this time whether the preamble is limiting. *See Nidec*, 868 F.3d at 1017.

At this time, Patent Owner does not dispute that Tsuji teaches limitation 1[a]. On this record and for the purposes of institution, we are sufficiently persuaded by Petitioner’s argument and evidence that Tsuji teaches limitation 1[a].

c) Limitation 1[b]

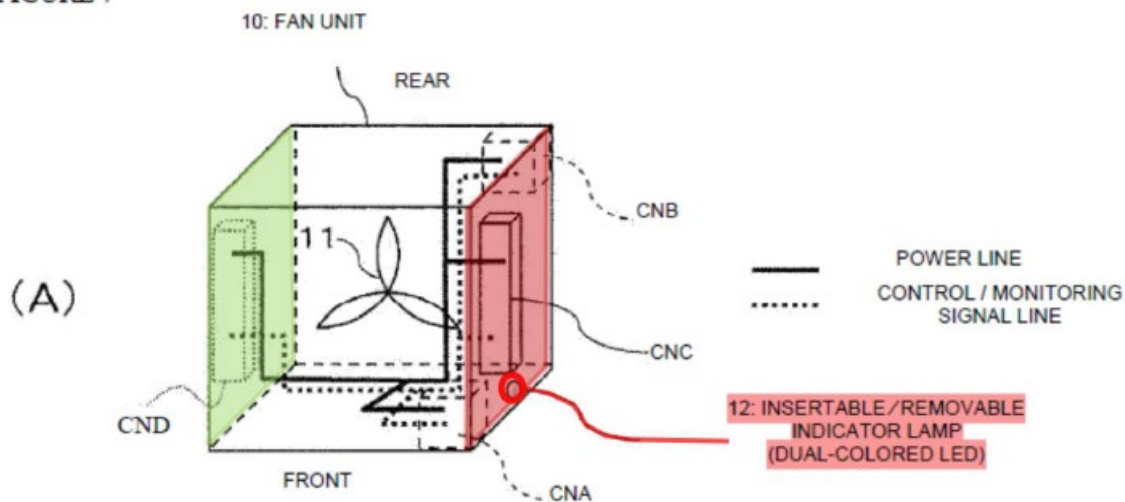
Petitioner asserts “an illumination area on at least two sides of the fan at top of the body” would have been obvious in view of Tsuji alone, or over Tsuji in view of Huang. Pet. 31–32 (citing Ex. 1004 ¶¶ 68–72). First, as to Tsuji alone, Petitioner asserts “Tsuji teaches an indicator lamp 12 on the side surface of the fan at the top of the body” and that “it would have been obvious to place an additional indicator lamp on a second side.” *Id.* (citing Ex. 1004 ¶ 68). Petitioner further asserts “Tsuji already teaches that it may be beneficial to have the indicator lamp visible from an additional location as the fans are connected during hot-swaps.” *Id.* at 32 (citing Ex. 1007 ¶¶ 135–136, Figs. 8–12). Petitioner relies on Dr. Wolfe’s testimony in asserting that “[i]t would have been obvious to a PHOSITA to include additional indicator lights on different sides (‘at least two sides’) of the fan body so that they can be viewed from multiple perspectives,” and “to place these indicators on the top of each of the two sides, for improved visibility, without requiring any technical adaptation.” *Id.* (citing Ex. 1004 ¶ 69).

Second, as to combining Tsuji and Huang, Petitioner asserts “it would have been obvious to modify Tsuji to incorporate the teachings of Huang with respect to the light emitting assembly 20, light emitting elements 21, and light diffusing elements 22, 23, 24.” *Id.* at 32 (citing Ex. 1004 ¶ 70). As previously discussed, Petitioner asserts that one skilled in the art would have been motivated to combine Tsuji with Huang. *See id.* at 29 (citing Ex. 1004 ¶ 70). Petitioner asserts that “[a]dditionally, the positioning of the light on

the top of the fan, visible from two sides, is one of a finite number of identified, predictable solutions to placing the light.” *Id.*

Patent Owner argues that “Tsuji only discloses a single indicator lamp located on one side of the fan body, not on ‘at least two sides of the fan at top’ of the body as required by claim 1.” Prelim. Resp. 32 (citing Ex. 2002 ¶¶ 68–69) (emphasis omitted). In doing so, Patent Owner refers to the annotated version of Tsuji’s Figure 7 reproduced below.

FIGURE 7



Id. Tsuji’s Figure 7, showing a schematic perspective view of fan unit 10 with cooling fan 11, is annotated by Patent Owner to show that “indicator lamp 12 is not located at the ‘front,’ or at the equivalent ‘top’ in the ’336 patent, of the fan body.” *Id.* (emphasis omitted). Patent Owner further argues that one skilled in the art would not have been motivated to modify Tsuji “to include additional indicator lights on different sides (‘at least two sides’) of the fan body.” *Id.* at 33. Instead, one skilled in the art “would have been discouraged to modify the Tsuji fan unit in the manner suggested, as the inclusion of more lamps (or any other lighting or illumination, such as Huang) would have conveyed no benefit and would only have added costs

and energy consumption as well as heat generation.” *Id.* (citing Ex. 2002 ¶ 70).

We find that Patent Owner has the better reading of Tsuji, which teaches a single LED light located on the side of the fan body, not the top. Even if we credit Petitioner’s expert that one skilled in the art would have been motivated to add lights on different sides to be viewed from multiple perspectives, Tsuji alone does not teach or suggest “at least two sides of the fan *at the top* of the body.”

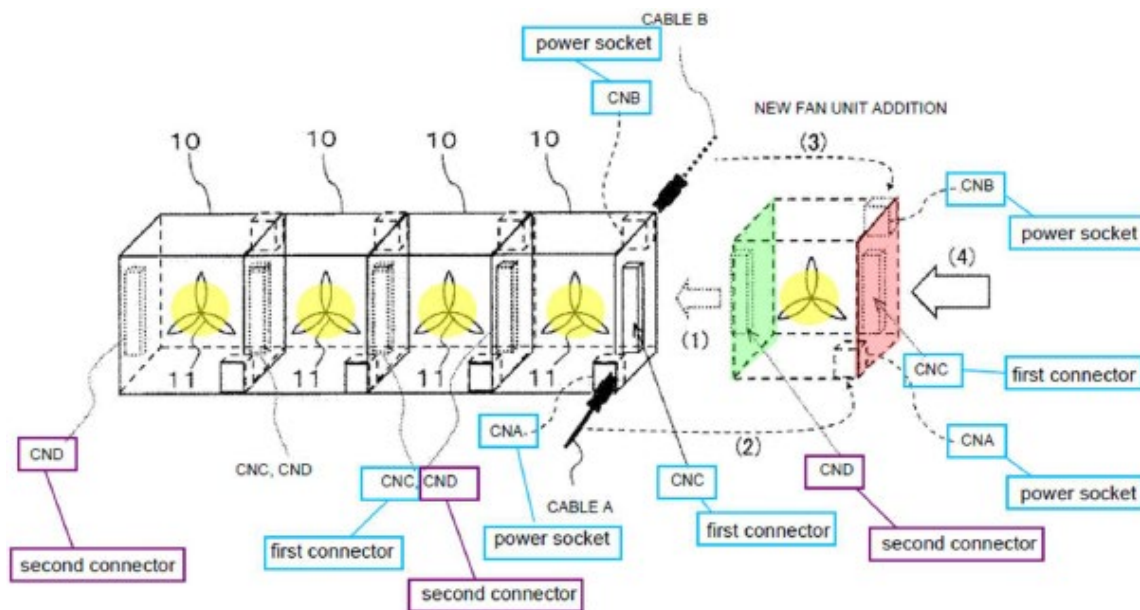
But, we are persuaded on this preliminary record by Petitioner’s second argument, that the combination of Tsuji and Huang teaches or suggests limitation 1[b]. Specifically, we are persuaded that Petitioner shows a reasonable likelihood that it would have been obvious to modify Tsuji to incorporate Huang’s light emitting assembly, light emitting elements, and light diffusing elements, to provide larger more uniform illumination. *See* Pet. 29, 32 (citing Ex. 1004 ¶ 70). The resulting combination would provide LED lights on at least two sides of the fan at the top of the body.

We consider Patent Owner’s arguments that one skilled in the art would have been discouraged to modify Tsuji with additional lights. *See* Ex. 2002 ¶ 70. But on this preliminary record we find Petitioner establishes a reasonable likelihood of combining the references, even with the potential disadvantages Patent Owner identifies. *See Medichem, S.A. v. Rolabo S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (“[A] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.”).

d) Limitation 1[c]

Petitioner asserts Tsuji teaches “a power socket and a first connector on one side of the body, and a second connector on another side of the

body.” Pet. 32–35 (citing Ex. 1004 ¶¶ 73–75). Specifically, Petitioner asserts that Tsuji teaches connectors CNA and CNB that are power sockets, first connector CNC on one side of a fan body, and second connector CND on another side of a fan body “as shown in at least Figures 5–7 and Figure 14.” *Id.* at 35 (citing Ex. 1004 ¶¶ 73–75). Petitioner’s annotated Figure 6 is reproduced below.

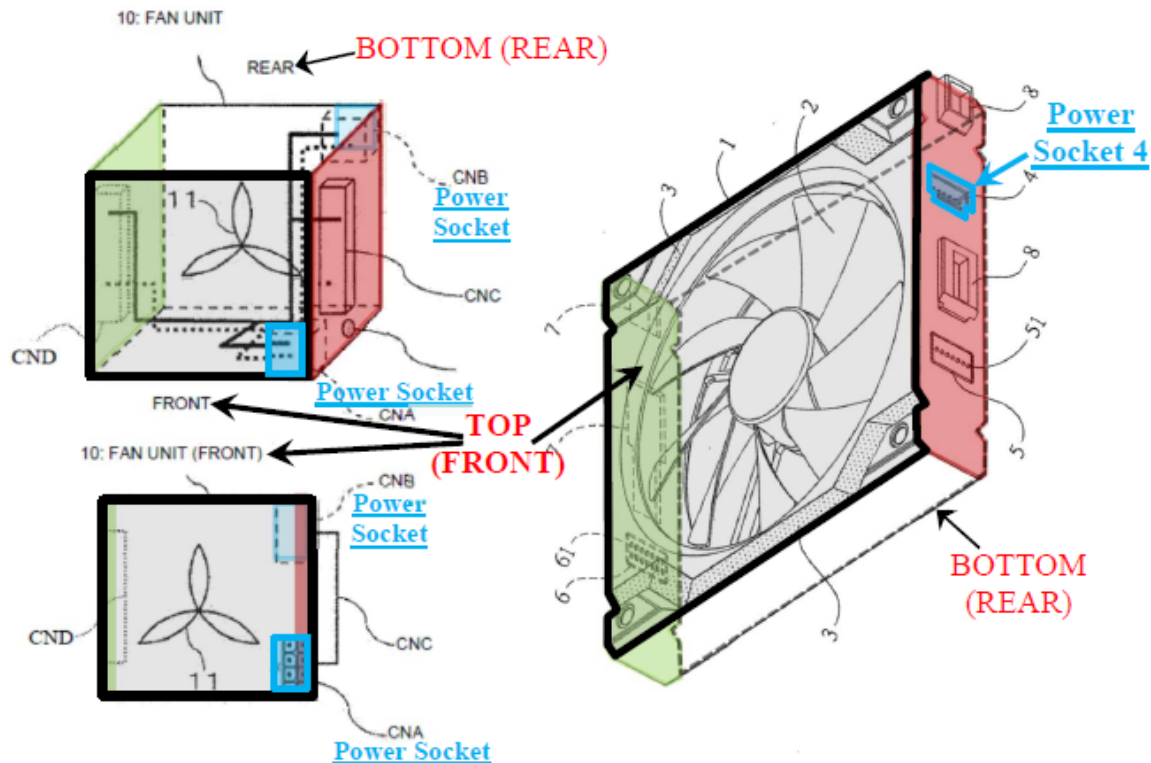


Id. at 34. Tsuji’s Figure 6 illustrates adding one new fan unit to four connected fan units. Ex. 1007 ¶ 36. Petitioner annotates the new fan unit to highlight power sockets CNA and CNB, a first side (red) with first connector CNC and a second side (green) with second connector CND. Pet. 34–35 (citing Ex. 1007 ¶ 39; Ex. 1004 ¶¶ 73–75) (emphasis omitted). According to Petitioner, “Tsuji teaches that ‘two adjacent fan units among the plurality of the fan units transmit the pulse signal from one side to the other side, and are connected via an inter-fan unit connector that supplies power from one end to the other end.’” *Id.* at 33 (quoting Ex. 1007, claim 5).

Patent Owner argues that claim 1 requires “that the ‘power socket’ and the ‘first connector’ must be located on the same ‘one side of the body’

of the claimed illumination fan.” Prelim. Resp. 25–26. To support this interpretation, Patent Owner first cites Figure 1 of the ’336 patent, showing power socket 4 and first connector 5 “located on the *same* side” of the illumination fan body. *Id.* at 26 (citing Ex. 1001, Fig. 1; Ex. 2002 ¶ 57). Patent Owner further argues that “[t]his requirement is consistent with Petitioner’s own claim construction position taken in the district court litigation.” *Id.* at 26–27 (citing Ex. 2003, 4 (“The phrase ‘on one side of the body’ means a power socket and a connector both directly accessible and placed on the same side of the fan housing.”)). Patent Owner distinguishes the power socket and connector located on the side of the body from the illumination area located on the top of the body. *See id.* (citing Ex. 2002 ¶ 58).

Applying this “same side” interpretation, Patent Owner argues that Tsuji’s fan unit with power socket CNA and first connector CNC “does not read on the structure required by claim 1.” *Id.* at 27. According to Patent Owner “Petitioner’s own figures and analysis demonstrate that the CNA or CNB connector (the alleged ‘power socket’) is, respectively, located on the ‘front’ or the ‘rear’ of the fan unit, while CNC connector (the alleged ‘first connector’) is positioned on a separate side of the fan unit.” *Id.* at 27–28 (citing Pet. 35; Ex. 1007, Figs. 6–7; Ex. 2002 ¶ 59) (emphasis omitted). Patent Owner compares Tsuji’s teachings with Figure 1 of the ’336 patent in the annotated Figure reproduced below.



Id. at 29. Patent Owner’s annotated Figure shows Tsuji’s Figure 7 with power sockets on the “top (front)” and “bottom (rear)” as compared to the ’336 patent Figure 1 with power socket 4 on a side of the fan body. *Id.* at 29. Patent Owner asserts that “[b]ecause neither CNA nor CNB is located on the same side of the fan unit as where CNC is, Tsuji fails to disclose ‘a power socket and a first connector on one side of the body,’ as recited in claim 1.” *Id.* at 30 (citing Ex. 2002 ¶¶ 61–62) (emphasis omitted).

We agree with Patent Owner that on this preliminary record, Tsuji does not teach or suggest “a power socket and a first connector on one side of the body.” Tsuji’s Figures illustrate a power socket located on the front of the fan unit and the first connector (and second connector) located on the side(s) of the fan unit. *See* Ex. 1007, Figs. 5–7. According to these Figures relied on by Petitioner, the power socket is not located on the same side as the first connector. Petitioner does not appear to argue that it would have

been obvious in view of Tsuji place the power socket on the same side as the first connector. *See* Pet. 32–35.

Dr. Wolfe refers to additional disclosures in Tsuji to support his testimony as to limitation 1[c], but without further explanation. *See* Ex. 1004 ¶¶ 73–75 (citing Ex. 1007 ¶¶ 31, 37, 39, 41–44, 69, 76, 84, 91–93, 115). Tsuji’s paragraph 39 provides further description for locating the alleged power socket. For example:

two connectors CNA and CNB (both female) that enable power supply and live connection of the control signal / monitoring signal are provided on one end of each fan unit 10 (right side when viewed from the front surface). The connector CNA on one side is arranged on a lower part of the *front surface* of each fan unit 10 such that an end part plug (male) of a cable A is inserted from the *front surface side* so as to be live-connected. The connector CNB on the other side is arranged on an upper part of the *rear surface* of each fan unit 10 such that an end part plug (male) of a cable B is inserted from the *rear surface side* so as to be live-connected.

Ex. 1007 ¶ 39 (emphasis added). Tsuji refers to the connector CNA (alleged power socket) arranged on the front surface side. *See id.* Here the term “side” appears to refer to the front surface, not the side surfaces of the fan body, where connectors CNC and CND are located. Accordingly, this example does not appear to teach “a power socket and a first connector on one side of the body” as required by limitation 1[c]. Neither Petitioner nor Dr. Wolfe identify any other express description for the alleged power socket on the same side of the first connector.

On this preliminary record, Petitioner has not sufficiently shown that Tsuji teaches or suggests limitation 1[c].

e) Limitation 1[d]

Petitioner asserts that Tsuji discloses

wherein the power socket is electrically connected with the first connector, the second connector, the fan and the illumination area such that when the power socket on the one side of the body is supplied with power, the fan and the illumination area of the body are respectively driven into rotation and illumination and when the first connector of the body is connected with a second connector of a body of another illumination fan, a fan and an illumination area of the body of another illumination fan are respectively driven into rotation and illumination.

Pet. 35–39 (citing Ex. 1004 ¶¶ 76–83). Specifically, Petitioner asserts that Tsuji’s Figure 14 “illustrates that the power socket is electrically connected with the first connector, the second connector, the fan, and the illumination area.” *Id.* at 35–36 (citing Ex. 1007, Figs. 14–15; Ex. 1004 ¶¶ 76, 77).

Petitioner asserts one skilled in the art “would have understood that when power is supplied to the LEDs and the fan 11, they will be driven respectively into illumination and rotation.” *Id.* at 37 (citing Ex. 1004 ¶¶ 78–81).

Petitioner further asserts that “[t]he signals controlling each fan are passed from one fan unit to the next when the first connector of the body is connected with a second connector of a body of another illumination fan.” *Id.* at 38 (citing Ex. 1004 ¶ 79; Ex. 1007 ¶ 41). Likewise, Petitioner asserts that power supplied to the power socket will illuminate the LEDs, either green or yellow depending on the proper power cable connection. *Id.* at 39 (citing Ex. 1004 ¶ 80; Ex. 1007 ¶ 98).

At this time, Patent Owner does not dispute that Tsuji teaches limitation 1[d]. On this record and for the purposes of institution, we are

sufficiently persuaded by Petitioner's argument and evidence that Tsuji teaches limitation 1[d], with the exclusion of "the power socket on the one side of the body" for the reasons discussed as to limitation 1[c], above.

f) Conclusion as to Claim 1

Based on the current record, questions remain as to whether Petitioner has established a reasonable likelihood that claim 1 is obvious over Tsuji and Huang as Petitioner does not sufficiently show where the combination teaches a power socket and a first connector on one side of the body.

V. CONCLUSION

For the foregoing reasons, Petitioner has demonstrated a reasonable likelihood that at least one challenged claim of the '336 patent is unpatentable over the prior art of record. Accordingly, we institute an *inter partes* review on claims 1–5 for all grounds set forth in the Petition.

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314, an *inter partes* review is instituted on claims 1–5 for all grounds set forth in the Petition; and

FURTHER ORDERED that Petitioner shall re-submit Exhibits 1006 and 1013 with affidavits complying with the requirements of 37 C.F.R. § 1.68;

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, *inter partes* review of the '336 patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

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