

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THERMALTAKE TECHNOLOGY CO., LTD. and
THERMALTAKE INC. (a.k.a. THERMALTAKE USA)
Petitioners,

v.

LIAN LI INDUSTRIAL CO., LTD., and CHEN, CHIEN-HAO,
Patent Owners.

IPR2024-01230
U.S. Patent No. 10,690,336

PATENT OWNER PRELIMINARY RESPONSE

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EXHIBIT LIST

Exhibit	Description
2001	October 17, 2024 Office Action from <i>Ex Parte</i> Reexamination No. 90/019,565
2002	Declaration of Dr. David Tuckerman in Support of Patent Owner Preliminary Response
2003	Joint Claim Construction and Prehearing Statement, Lian Li Industrial Co., Ltd. et al. v. Thermaltake Technology Co., Ltd. et al., N.D. Cal., Case No. 2:23-cv-07470-HDV-MAR

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I. INTRODUCTION

Patent owner, Chien-Hao Chen, and the exclusive licensee, Lian Li Industrial Co., Ltd. (collectively, “Patentee”), hereby submit this Patent Owner Preliminary Response (“POPR”) regarding U.S. Patent No. 10,690,336 (Ex-1001, hereinafter the “’336 patent” or “’336 pat.”)) in response to the *inter partes* review (“IPR”) petition filed by Thermaltake Technology Co., Ltd. and Thermaltake Inc. (collectively, “Petitioner”). For at least the reasons set forth below, the Board should decline to institute trial.

II. THE BOARD SHOULD DISCRETIONARILY DENY THIS IPR IN VIEW OF THE CO-PENDING *EX PARTE* REEXAMINATION

As the Petition notes, another party (*Axpertec*) submitted an *ex parte* reexamination (“EPR”) against the ’336 patent prior to the filing of this IPR. (Petition at 92-93.) The Board should discretionarily deny this IPR because substantially the same prior art and arguments are presented in that EPR, and that EPR will outpace and resolve the issues in this IPR.

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) as used in this IPR. (Ex-2001.) The specific rejections of the EPR Action are:

- Claims 1-2, 4: obvious over Lai in view of Tsuji;

- Claim 3: obvious over Lai, or Lai in view of Tsuji;
- Claim 5: obvious over Lai, or Lai in view of Tsuji and Chou;
- Claims 1-4: obvious over Tsuji in view of Tsai; and
- Claim 5: obvious over Tsuji in view of Tsai and Chou.

(Ex-2001 at 4-13.) As shown, in *every* instance, the Office’s rejections are based on the references of Lai or Tsuji, yet Lai and Tsuji are the *same* primary references presented in this IPR. Indeed, Petitioner proposes seven grounds of rejection all of which are based on Lai or Tsuji—Petitioner’s first three grounds are based on Tsuji, and Petitioner’s last four grounds are based on Lai. (Petition at 5-6.) In other words, the EPR Action rejected the claims based on the same primary references presented in this IPR—there is not a single ground in this IPR that is not potentially resolved by a decision in the EPR.

Patent Owner’s response to the EPR Action is due December 17, 2024, and Patent Owner will timely file its EPR response by that date. Indeed, as of the filing of this POPR, Patent Owner has already conducted an interview with the examiners of the EPR, and Patent Owner also intends to file at least a dozen or so more claims with its response to the EPR Action. In all likelihood, the EPR will resolve the issues in this IPR, potentially even before institution, but certainly before a final written decision is due based on the current pace of progress in the EPR. Accordingly, it would be a waste of the parties’ and this tribunal’s resources to move forward with

this IPR when the EPR will almost certainly resolve the issues here.

The Board has broad discretion in determining whether to deny a parallel proceeding. *Cuozzo Speed Techs., LLC v. Lee*, 579 U.S. 261, 273 (2016) (“[T]he agency's decision to deny a petition is a matter committed to the Patent Office's discretion.”). The Director’s discretion to institute is informed by 35 U.S.C. 316(b), which requires that “the Director shall consider...the efficient administration of the Office,” and 35 U.S.C. 325(d) provides that “[i]n determining whether to institute or order a proceeding . . . , the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” *Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). Under the *Advanced Bionics* framework, this IPR should be discretionarily denied.

A. Advanced Bionics Step 1

Step 1 considers several non-exclusive factors set forth in *Becton, Dickinson & Co. v. B. Braun Melsungen AG* IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (precedential as to Section III.C.5, first paragraph) (informative) (hereinafter “*Becton*”), namely factors (a), (b), and (d).

Factors (a)-(b), (d)

The first three factors for Step 1 are:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination; and
- (d) the extent of the overlap between the arguments made during examination and the manner in which petitioner relies on the prior art.¹

These factors favor Patent Owner. As shown above, *every* ground of the IPR is based on art already used to reject the claims of the '336 patent in the EPR. There is not one ground in the IPR that would fail to be resolved by a decision in the EPR. Specifically, if Patent Owner overcomes the rejections based on Lai in the EPR, either by argument or by claim amendment, Patent Owner would also overcome Grounds 4-7 of this IPR, all of which are based on Lai. Likewise, if Patent Owner overcomes the rejections based on Tsuji in the EPR, either by argument or by claim amendment, Patent Owner would also overcome Grounds 1-3 of this IPR, all of which are based on Tsuji. The converse is also true—failure to ultimately overcome the EPR rejections would result in cancellation of original claims 1-5 of the '336 patent. Thus, these factors favor Patent Owner.

¹ *VMWare, Inc. v. Intellectual Ventures II LLC*, IPR2020-00859, Paper 13 at 18-19 (PTAB Nov. 13, 2020) (citing *Becton*).

B. Advanced Bionics Step 2

Step 2 of *Advanced Bionics*, where the remaining *Becton* factors (c), (e), and (f) are evaluated, also favor Patent Owner.

Factor (c)

Step 2, factor (c) is:

(c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection.²

This factor favors Patent Owner. As shown above, the EPR Action cites both Lai and Tsuji in rejecting the claims of the '336 patent, and those references form the basis for all proposed grounds in this IPR.

Factor (e)

Step 2, factor (e) is:

(e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art.³

This factor favors Patent Owner because Patent Owner will be the one pointing out how the Examiner has erred in its evaluation of the asserted prior art when it files its response to the EPR Action. Moreover, Petitioner had a chance to

² *VMWare*, IPR2020-00859, Paper 13 at 18-19.

³ *VMWare*, IPR2020-00859, Paper 13 at 18-19.

explain how the EPR submission by *Axpertec* erred, but Petitioner failed to do so.

Factor (f)

Step 2, factor (f) is:

(f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.⁴

This factor favors Patent Owner. Even though Petitioner knew of the *ex parte* reexamination at the time of filing (Petition at 92-93), Petitioner still chose to file its IPR with the *same* primary references cited in the EPR. Petitioner does not even try to explain how its arguments differ from those in the EPR—instead, Petitioner simply notes that it is using different *secondary* references. (Petition at 93 (“Although Tsuji and Lai were cited in the request for the Axpertec Reexamination, they were not considered in combination with Huang, Hasegawa, Echazarreta, Chou, and/or Liu.”) That is not enough. Petitioner was required to explain how its arguments “warrant reconsideration” of the EPR art and arguments made by Axpertec, and Petitioner did not do so.

In sum, all of the *Becton* factors favor Patent Owner and this Petition should be discretionarily denied in view of the EPR, which is already outpacing this IPR and will likely resolve the issues in this IPR, potentially even before institution, but

⁴ *VMWare*, IPR2020-00859, Paper 13 at 18-19.

certainly before a final written decision is due.

Petitioner makes three arguments against discretionary denial under §325(d), none of which are persuasive. Indeed, although Petitioner recognizes *Advanced Bionics* applies, it fails to apply the *Becton* factors in accordance therewith. (Petition at 92-93.)

First, Patent Owner argues that no action had issued in the EPR at the time it filed its IPR, which counsels against discretionary denial. (Petition at 93, citing *Mueller Sys., LLC v. Rein Tech, Inc.*, IPR2020-00100, Paper 9, at 12-14 (PTAB May 12, 2020) (“*Mueller*”).) Yet, an office action *has* now issued in the EPR and Patent Owner will timely file a response by December 17, 2024, so *Mueller* actually supports Patent Owner. Indeed, the present circumstances are more aligned with *Intromedic Co. v. Given Imaging Ltd.*, IPR2015-00579, Paper 9 (PTAB Aug. 5, 2015) (“*Intromedic*”) cited by the *Mueller* tribunal.

As *Mueller* explains, in *Intromedic* only a single claim was challenged in both an IPR and an *inter partes* reexamination, that claim was rejected in the reexamination, prompting an amendment to that claim in the reexamination, after which prosecution in the reexamination closed. (*Mueller* at 10-11.) The Board in *Intromedic* reasoned that, on those facts, institution should be denied because “any decision as to the patentability of claim 1 we might reach in this proceeding would be moot and purely advisory.” *Intromedic* at 8. The Board further noted that

instituting an IPR in view of the EPR would not further “the efficient administration of the Office, or the just, speedy, and inexpensive resolution of every proceeding,” but, instead, it “would be a waste of Office resources to allow two parallel proceedings on the same patent at the same time, on different versions of the claim, and the conclusion of the Reexamination with an amended claim [or no claims at all] would make an IPR proceeding moot.” *Id.* at 9. The Board also noted the prejudice to the Patent Owner in being “forced to defend a claim that it voluntarily has given up in the reexamination and where prosecution is now closed.” *Id.* at 9-10.

Similar facts exist here. Both 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. Instituting an IPR here would waste Office resources and also have the prejudicial effect of forcing Patent Owner to potentially defend claims it seeks to amend. Further, because Patent Owner is planning on filing dozens or more of amended claims in the EPR, that venue is proper. An IPR would improperly prejudice Patent Owner in relation to amended or new claims as the IPR rules generally only allow for a 1:1 relationship between cancelled and substitute claims. (37 C.F.R. 42.121(d) (“Any motion to amend may cancel a challenged claim or propose a reasonable number of substitute claims. The presumption is that only one substitute claim will be needed to replace each

challenged claim, and it may be rebutted by a demonstration of need.”).⁵

Fox Factory, Inc. v. SRAM, LLC, IPR2017-01439, Paper 7 (PTAB Dec. 8, 2017) (“*Fox Factory*”) also counsels to discretionarily deny. In *Fox Factory*, the examiners in a reexamination proceeding had already considered a near identical ground to that presented in the IPR petition, and, although the reexamination was not yet complete, “instituting a trial [] would have [the panel] reconsider the same issues with the same references that the Examiner has already been considering.”

The *Fox Factory* tribunal concluded:

“The similarity of the grounds in this proceeding and the [] Reexamination, coupled with the fact that JPShimano has already been considered in [another] Reexamination, indicates that it would be an inefficient use the Office’s resources to consider essentially the same ground again. Thus, we consider the interests of conservation of resources and finality to weigh strongly in favor of exercising our discretion of not instituting this ground.”

Fox Factory at 8. These facts strongly align with the present facts, indicating discretionary denial is appropriate.

The *Fox Factory* tribunal also noted that the Petitioner did not explain how its secondary reference (Thompson) “meaningfully differentiates” its arguments from

⁵ Patent Owner is unaware of any case in which the Board has allowed the 1:1 presumption of Rule 42.121 to be overcome.

those presented in the EPR. *Id.* at 8-9. Those facts also align with the present circumstance. Here, Petitioner merely contends that different secondary references are being applied but without explaining how those secondary references make its arguments meaningfully different than those presented in the EPR request by *Axpertec*. (Petition at 92.) Indeed, as the Fox Factory tribunal noted:

“Given the lack of any specific reason why we should redo the work already done by the Examiner in the ’831 Reexamination, we are unpersuaded that Petitioner has articulated sufficiently an interest in correcting errors.”

Fox Factory at 9.

Second, Petitioner generically argues “the Petition and the reexamination are based on materially different grounds and positions,” yet Petitioner provides no explanation as to how or why its positions are “materially different” other than it cites different secondary references. (Petition at 92.) As *Fox Factory* shows, this is not enough. Moreover, the *Oticon* case cited by Petitioner is inapposite. (*Id.* citing *Oticon Med. AB v. Cochlear Ltd.*, IPR2019-00975, Paper No. 15, at 16-18 (PTAB Oct. 16, 2019) (precedential).) Of course, the same primary reference can be used in both an IPR and the original prosecution, but there has to be some accompanying explanation as to *why* Petitioner’s arguments differ from those previously presented and considered by the Office. That required analysis is missing here. *Becton* at 21-23 (noting Petitioner did not substantively address any particular differences

between the secondary references of Rogers (cited during prosecution) and Tauschinski (cited in the IPR) as a basis for unpatentability in the Petition, that Petitioner has not articulated any substantive differences between the prior art alone or in combination” as compared to the prior arguments considered by the office, and that “Petitioner has not persuasively explained why the ‘new combination’ leads to any different argument or reasoning then that previously advanced by the Examiner”). Nowhere does Petitioner explain why its arguments differ in any material way from those presented in the *Axpertec* reexamination. This is especially egregious given Petitioner uses three out of four references cited by *Axpertec* in its reexamination request (i.e., the Lai, Tsuji and Chou references).

Finally, Petitioner argues it will be prejudiced if its IPR is discretionarily denied. (Petition at 92-93.) Of course, this is the case in every IPR that is discretionarily denied. The question is not whether Petitioner is prejudiced, but rather whether Petitioner has meaningfully differentiated its patent challenge from that of the *Axpertec* EPR. As shown above, Petitioner has not and, therefore, discretionary denial is warranted.

III. THE '336 PATENT AND CHALLENGED CLAIMS

A. General overview

The '336 patent relates to an illumination fan connectable with at least one other illumination fan for a computer. '336 pat. at 4:3-4. Computer fans are

generally used for heat dissipation inside the housings of computers. To effectively dispel heat accumulated inside a computer housing, multiple cooling fans are often needed. '336 pat. at 1:29-33. Traditionally, each computer fan had to be connected to a power supply through an independent power cable, which creates a lot of wiring inside the housing and makes cable routing and managing cumbersome. Additionally, because of the need to connect to power supply with independent power cables, the number of cooling fans that can be assembled is limited by the finite number of connections available on the power supply. '336 pat. at 1:34-40; Ex-2002 (Declaration of Dr. David Tuckerman in Support of Patent Owner Preliminary Response), ¶ 23.

In addition, computers are increasingly used for entertainment and related purposes, and hence more attention has been focused on the aesthetics of computer housings in addition to heat dissipation, especially for gaming enthusiasts. This includes integrating light sources with cooling fans such that the illuminated fans are visible from outside the housing (*e.g.*, through transparent panels). *Id.*, ¶ 23.

To serve the increasing demand for aesthetically pleasing computer housings and improve the efficiency of heat dissipation for the computer at the same time, the '336 patent contemplates an illumination fan connectable with at least one other illumination fan for a computer. *Id.*, ¶ 24.

Figure 1 of the '336 patent (reproduced and annotated below)⁶ shows an embodiment (*i.e.*, an example) of such an illumination fan, which “includes a body **1**, a fan **2** disposed in the center of the body **1**, an illumination area **3** disposed on at least two sides of the fan at the top of the body **1**, a power socket **4** and a first connector **5** disposed on one side of the body **1**, and a second connector **6** disposed on another side of the body **1**. The power socket **4** is electrically connected with the first connector **5**, the second connector **6**, the fan **2** and the illumination area **3**.” ’336 pat. at 2:61-3:3, Fig. 1 (annotated). “As such, once the power socket **4** at a side of the body is supplied with power, the fan **2** of the body **1** can be driven into rotation and the illumination area **3** can be illuminated.” ’336 pat. at 3:4-6; Ex-2002, ¶ 25.

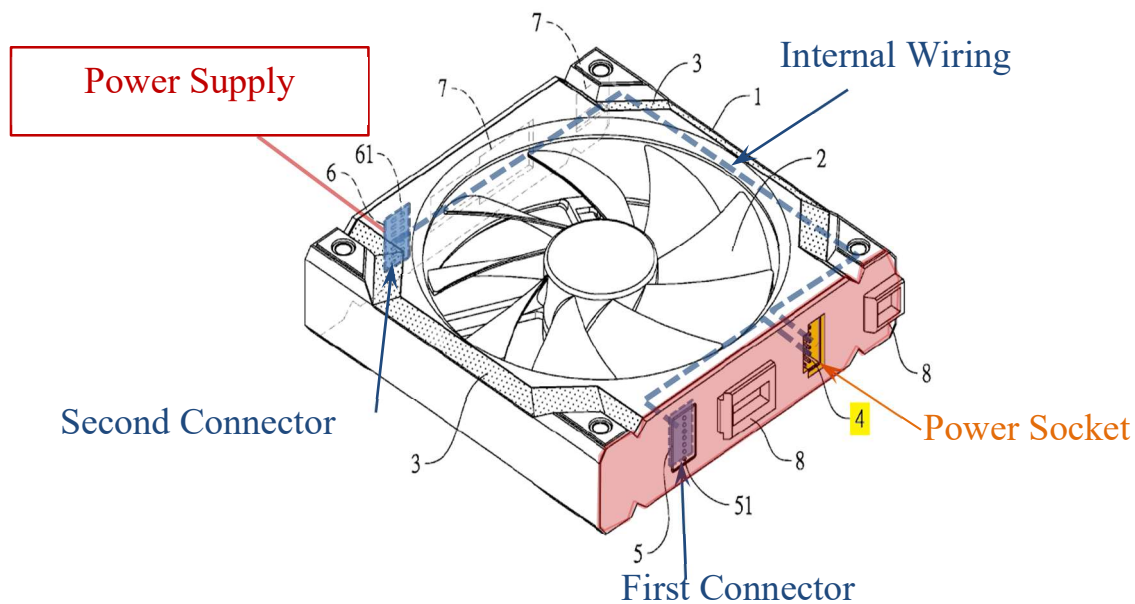
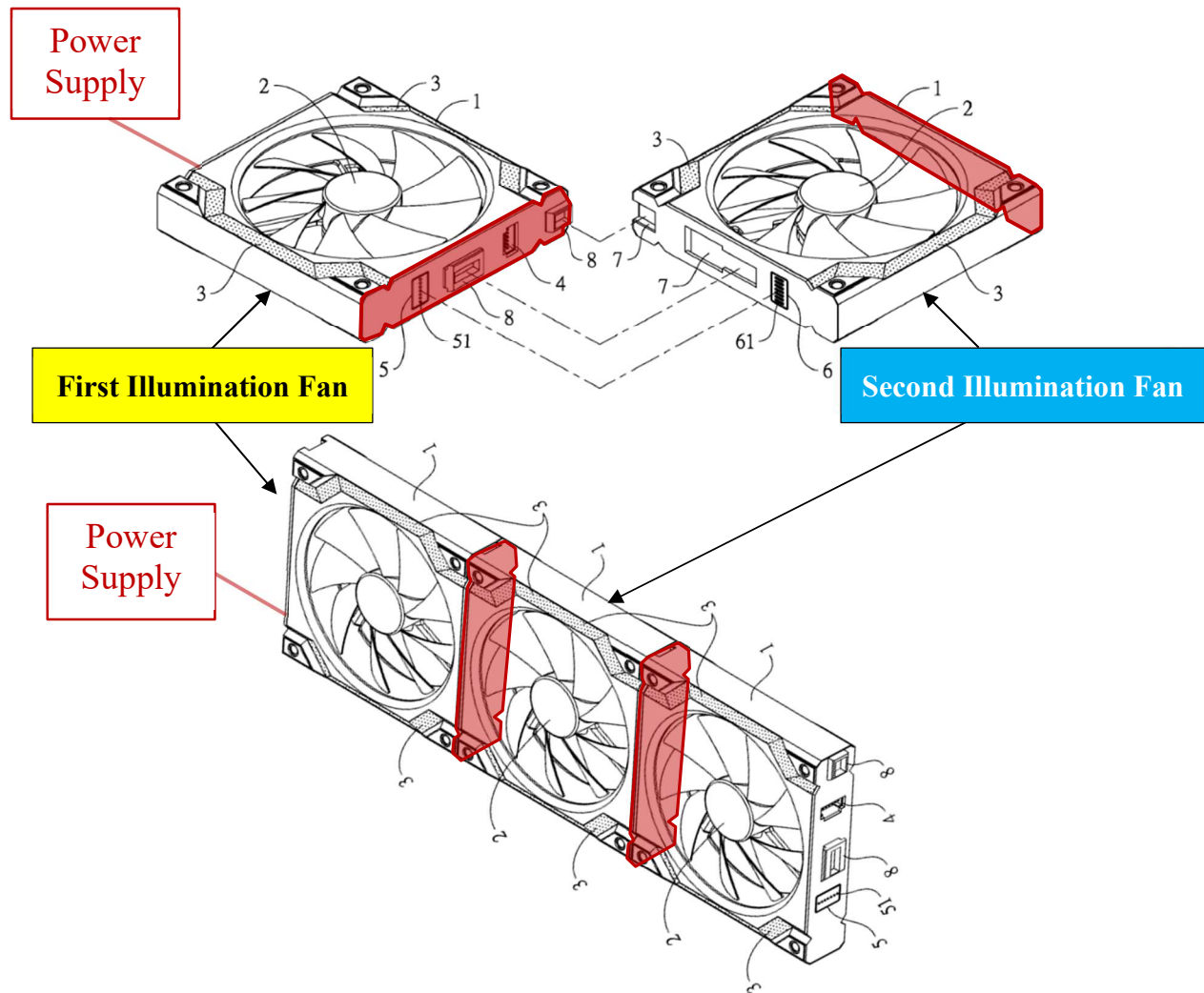


Fig. 1

⁶ All emphasis and annotations herein are Patent Owner’s, unless noted otherwise.

'336 pat., Fig. 1 (exemplary annotations and highlighting added). The power socket **4** of the embodiment shown in Figure 1 above can be supplied with power in various ways. For example, as shown above, the second connector [**6**] may receive power from a power supply, and the exemplary power socket **4** highlighted in yellow in the reproduced Figure 1 above can be supplied with power from behind by the second connector [**6**] that is electrically connected to the power socket through internal wiring of the illumination fan. Ex-2002, ¶ 27. The power socket **4** electrically connected with the first connector **5** can in turn supply power to the first connector **5** “so that when the first connector **5** of [an illumination fan’s] body **1** is connected to the second connector **6** of another [illumination fan’s] body **1**, the fan **2** of the another [illumination fan’s] body **1** can be driven into rotation and the illumination area **3** [of the another illumination fan’s body **1**] can be illuminated.” '336 pat. at 3:7-16. This non-limiting exemplary configuration of connecting at least two illumination fans is illustrated by Figs. 2 and 3 of the '336 patent below:



'336 pat., Fig. 2 (annotated) and Fig. 3 (rotated and annotated); *see also id.* at 3:7-16; Ex-2002, ¶ 27. As shown above, a first illumination fan on the left (labeled in yellow) is connectable to a second illumination fan on the right (labeled in blue) through an engaging block [8] and a groove [7]. When the first illumination fan is supplied with power, its fan [2] is driven into rotation and the illumination area [3] is illuminated; when the second illumination fan is connected to the first illumination

fan through joining the first connector [5] of the first illumination fan and the second connector [6] of the second illumination fan, the fan and illumination area of the second illumination fan are also driven into rotation and illumination, respectively.

Ex-2002, ¶ 28.

This POPR focuses on, *inter alia*, the following limitations of claim 1:

- (a) “an illumination area [3] on at least two sides of the fan at top of the body”;
- (b) “a power socket [4] and a first connector [5] on one side of the body”;
- (c) “the power socket [4] on the one side of the body” that the first connector [5] is on; and
- (d) “a second connector [6] on another side of the body.”

Items [3]-[6] of these limitations are illustrated in Fig. 1, below:

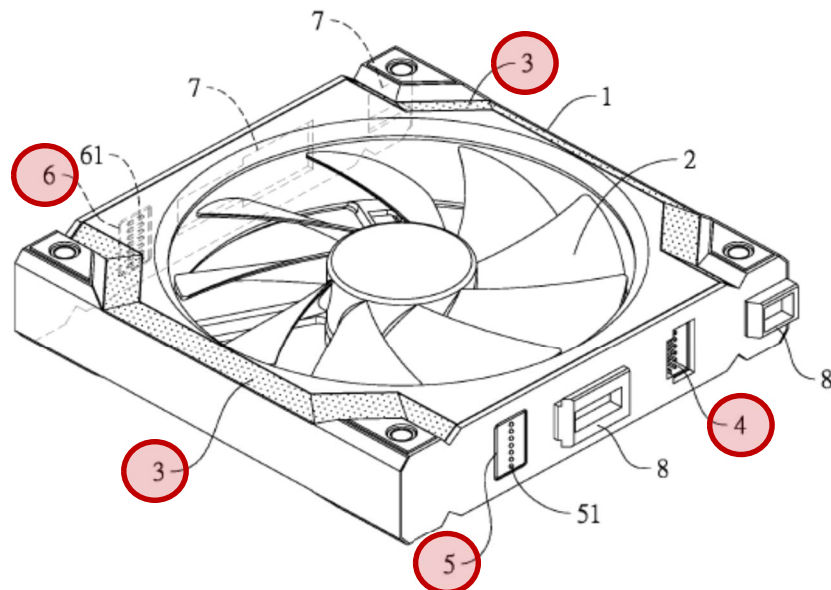


Fig. 1

This POPR also addresses the limitation (e) “the first connector [5] of the body is connected with a second connector [6] of a body of another illumination fan.” This limitation is illustrated Figs. 2 and 3 when a plurality of illumination fans are connected and assembled:

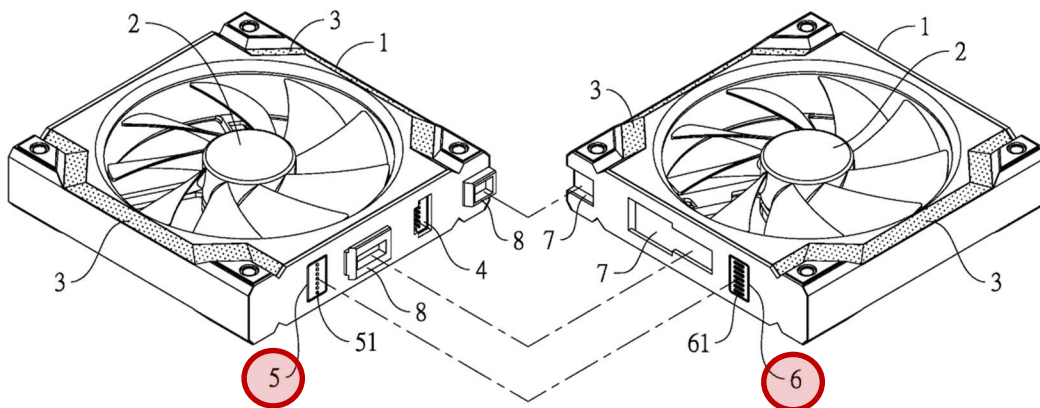


Fig. 2

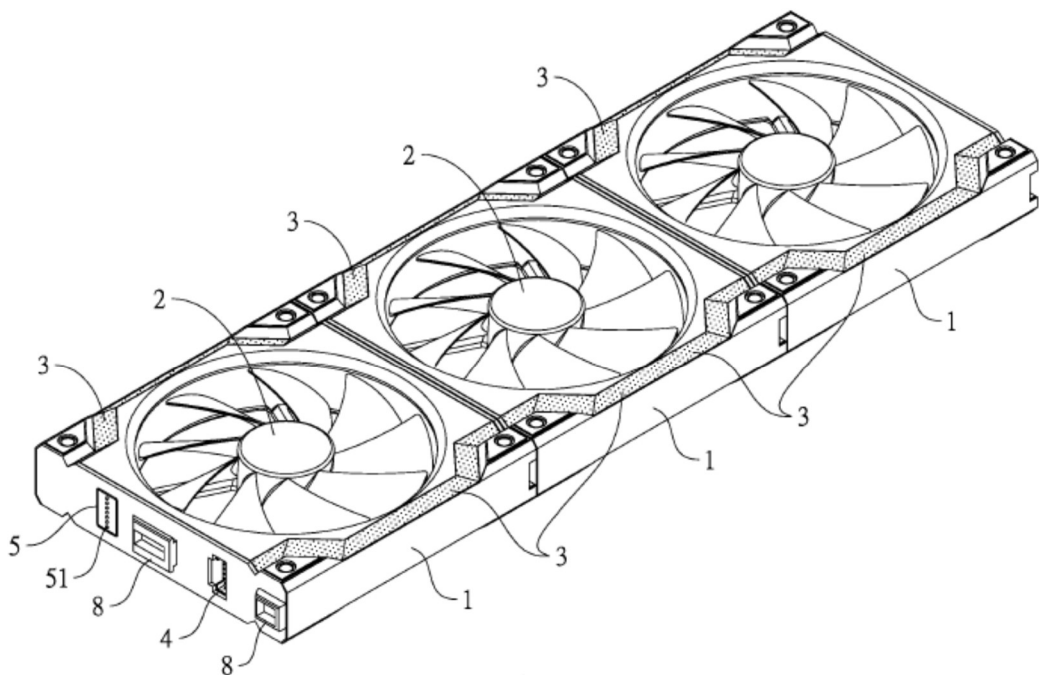


Fig. 3

For the Board's convenience, the entirety of claim 1 of the '336 patent is reproduced below, with lettering added to correspond to the limitations recited above:

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

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

(a) an illumination area on at least two sides of the fan at top of the body,

(b) a power socket and a first connector on one side of the body, and (d) a second connector on another side of the body,

wherein the power socket is electrically connected with the first connector, the second connector, the fan and the illumination area, such that when **(c) 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 **(e) 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.

'336 pat., Cl. 1 (emphasis added).⁷

⁷ The lettering added to claim 1 is for illustrative purposes only and is not intended to convey any specific order or other requirements to the claim.

B. Challenged Claims Overview

Petitioner challenges all claim (1-5) of the '336 patent, of which claim 1 is independent. This POPR, however, addresses only Grounds involving claim 1 because all other claims 2-5 depend from claim 1.

C. Claim Construction

Petitioner contends that the plain and ordinary meaning should apply to all claim terms. (Petition at 7.) For purposes of this POPR, Patent Owner applies the plain and ordinary meaning to the terms in the '336 Patent. 37 C.F.R. §41.100(b). Patent Owner reserves the right to provide any express constructions, should a trial be instituted.

D. Priority Date For '336 Patent

Petitioner contends that the claims 1-4 of the '336 patent are entitled to a priority date of December 26, 2018, but claim 5 is not so entitled. (Petition at 9-13.) The Board need not resolve the priority date of claim 5 at this preliminary stage as the Petition is defective and should be denied for the reasons stated herein.

IV. PERSON OF ORDINARY SKILL IN THE ART

Petitioner argues that a person of ordinary skill in the art (“POSITA”) would have had:

“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. ... Alternatively, a PHOSITA would possess equivalent additional formal education such as graduate studies, or work experience, to replace formal education.” (Petition at 7-8.)

Patent Owner contends that 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. Alternatively, a person with a more advanced degree in the above fields might have had less practical experience and still be deemed a POSITA. Conversely, a person with a general college background not necessarily in the above fields might have become a POSITA by acquiring more real-world experience in designing and/or implementing hardware components for computers, servers, and/or other electronic devices. Ex-2002, ¶ 20.

Despite the slight differences in Petitioner's and Patentee's POSITA definition, the Board need not resolve this issue because the Petition is defective and trial should not be instituted under any reasonable definition of a POSITA.

V. GROUND 1-3: TSUJI ALONE OR IN COMBINATION WITH HUANG FAILS TO DISCLOSE ALL CLAIM LIMITATIONS

Petitioner's Grounds 1-3 rely on combinations involving Tsuji and Huang. (Petition at 5.) However, as shown below, Tsuji and Huang fail to disclose several

claim limitations, and a POSITA would not have been motivated to combine the teachings of Tsuji and Huang to arrive at claim 1. Accordingly, Petitioner's Grounds 1-3 fail.

A. Overview of Tsuji (Ex-1007, hereinafter "Tsuji")

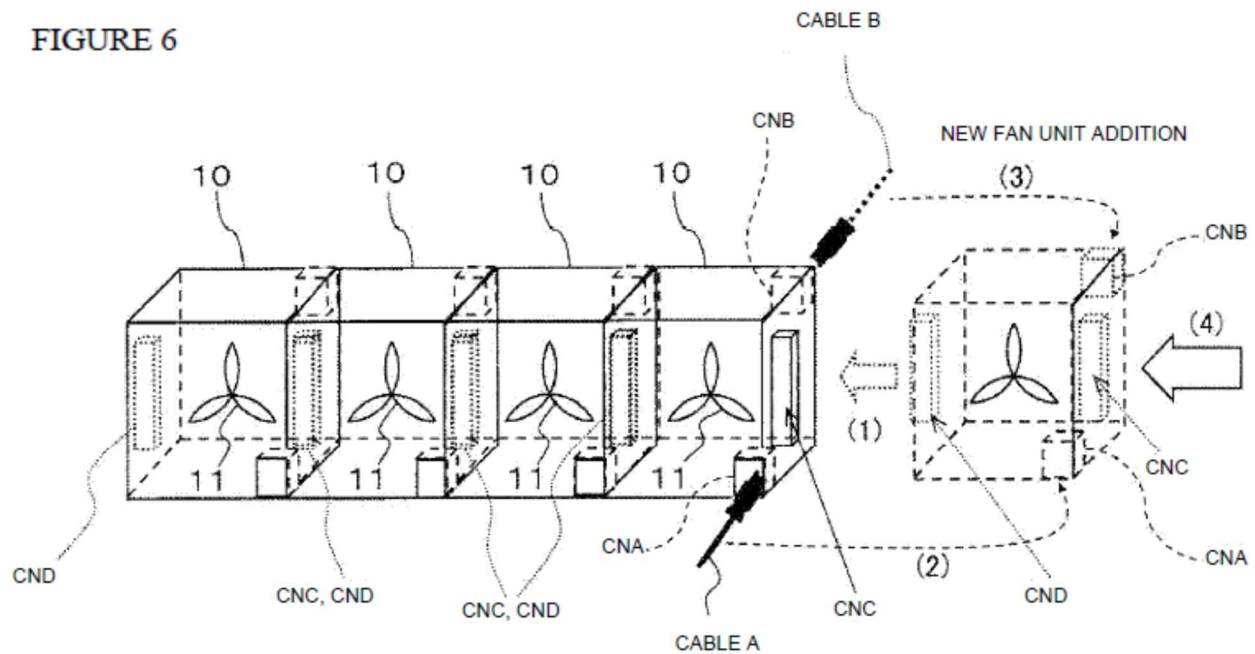
A foundational purpose of Tsuji's is to "enable hot swapping of one fan unit," a goal Tsuji reiterates numerous times. See Tsuji (Ex-1007) at Cl. 3 ("[T]he plurality of fan units is configured so as to enable hot swapping of one fan unit among the plurality of fan units ..."); [0002] ("[A]n ability to perform hot maintenance and swapping while maintaining a system operational state (energized state) is desirable."); [0008]-[0009] ("[Summary of the Invention] ... An object of the present invention is to provide an electronic device capable of assigning to each fan unit an address associated with a position of reach fan unit even when the fan unit is swapped."); [0042] ("Therefore, fan unit 10 can be hot-swapped without having to stop the system ..."). Indeed, Tsuji's emphasis on "hot swap"—mentioned no fewer than 55 times throughout the patent—underscores its central importance to Tsuji. Ex-2002, ¶ 53.

For Tsuji's hot-swapping to be effective, each fan unit must maintain at least two power sockets to ensure continuous power during a swap. This dual-socket configuration is crucial: when one power cable is disconnected from one power socket during maintenance, the second power cable connected to the second power

socket maintains interrupted power. Tsuji's procedural description further illustrates this necessity:

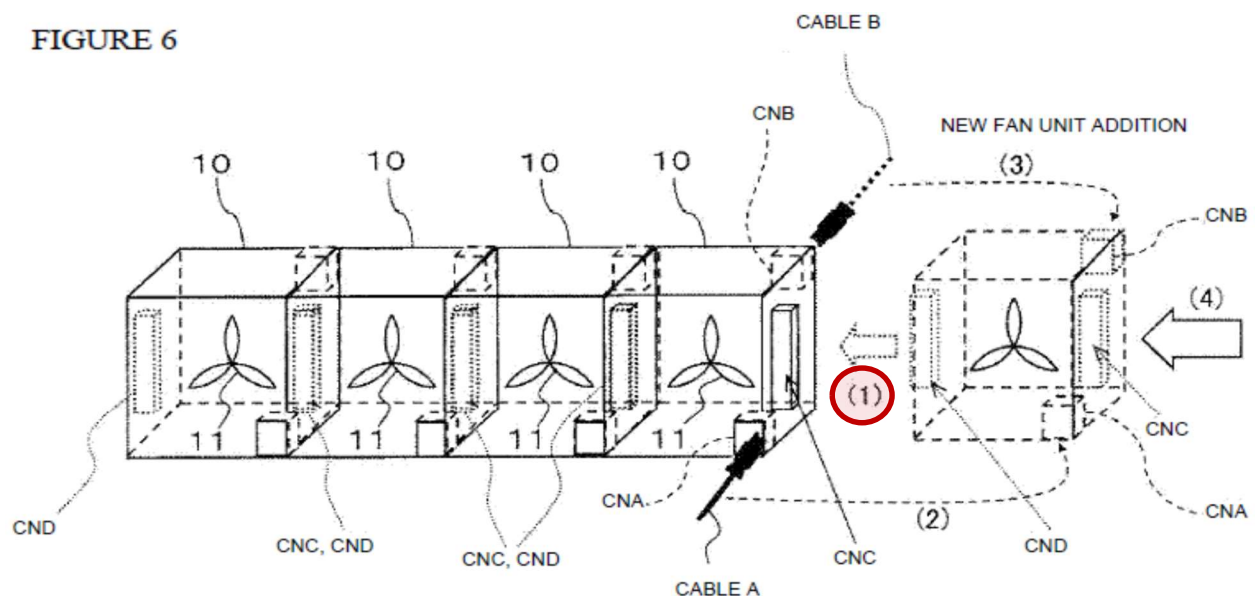
[0042] [T]he hot-swapping procedure of fan unit 10 according to the present embodiment will be explained while referring to FIG. 6 [reproduced below]. ...

FIGURE 6



[0044] [T]he maintenance person engages the connector CNC (male)

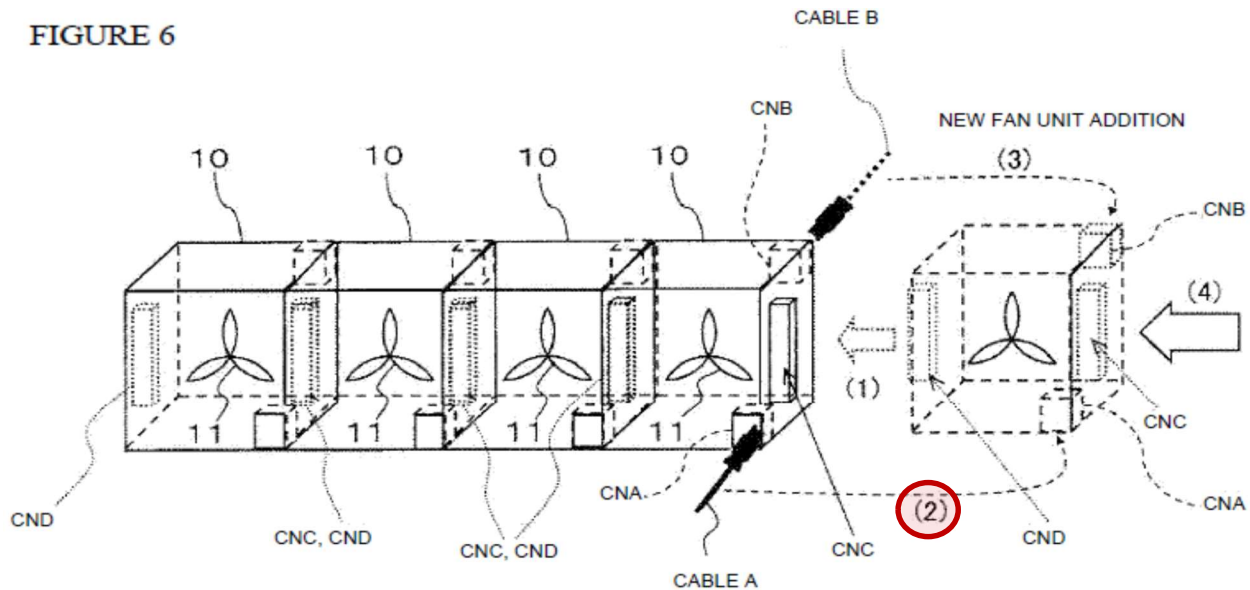
FIGURE 6



of fan unit 10 on the right-most side with the connector CND of the new fan unit 10 (refer to **Arrow (1)** shown in FIG. 6). Accordingly, the new unit 10 is connected to fan unit 10 on the right-most side as a fifth fan unit 10.

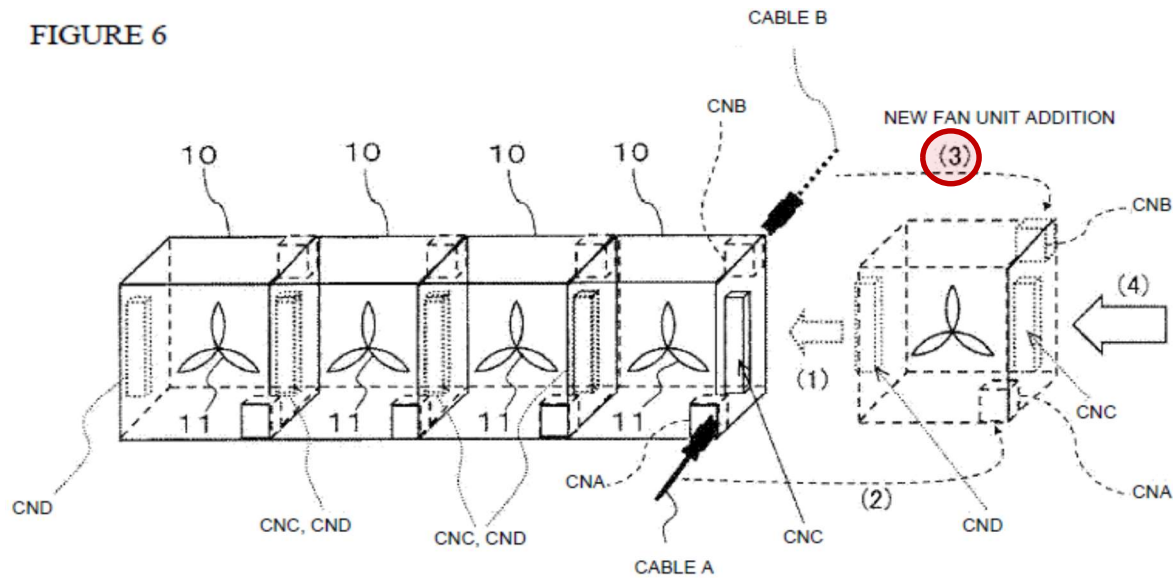
[0045] Subsequently, the maintenance person removes the cable A that is connected to the connector CNA of fan unit 10 on the right-most side, and connects the same to the connector CNA of the additionally- linked new fan unit 10, as shown by **Arrow (2)** of FIG. 6. ...

FIGURE 6



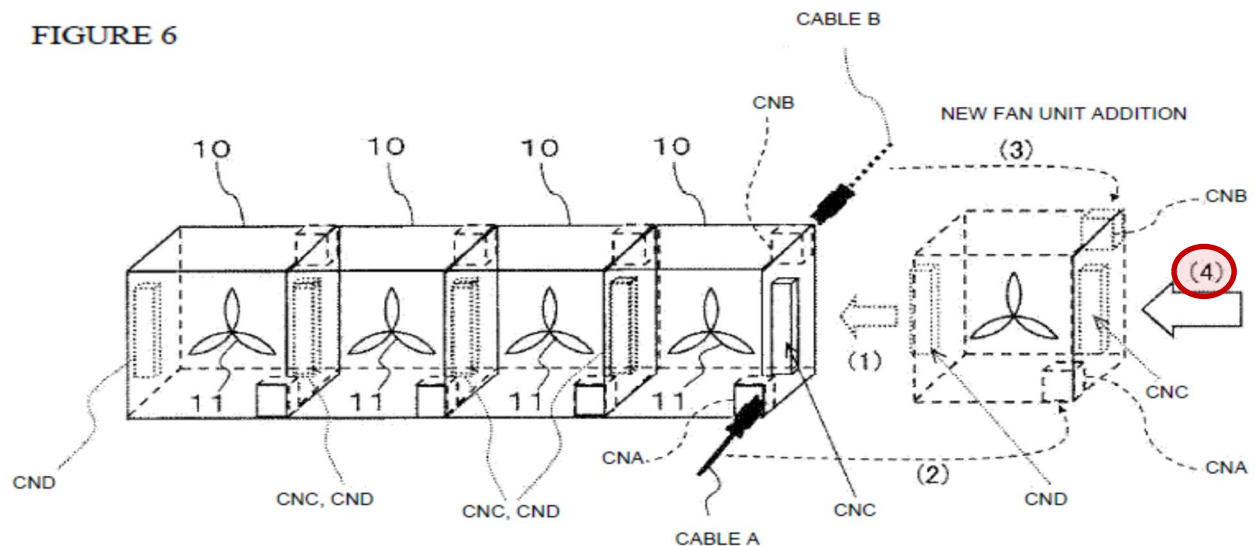
[0046] Furthermore, the maintenance person removes the cable B that is connected to the connector CNB of fan unit 10 on the right-most side, and connects the same to the connector CNB of the additionally- linked new fan unit 10, as shown by **Arrow (3)** of FIG. 6. ...

FIGURE 6



[0047] Subsequently, the maintenance person performs the sliding operation to move all five fan units 10 in which the new fan unit 10 is added on the right-most side in a direction of the **Arrow (4)** (left side) shown in FIG. 6. Accordingly, the new fan unit 10 is pushed inside server 1, and a fifth fan unit 10 from the right (left-most side) is pushed outside from server 1.

FIGURE 6



[0048] At this time, when the pushed-out fan unit 10 is a faulty fan unit to be swapped (target fan unit), the pushed out fan unit 10 is removed, and the swapping operation is completed. When the pushed-out fan unit 10 is not the target fan unit, the maintenance person adds and connects that pushed-out fan unit 10 on the right-most side and pushes thereof inside server 1 as the new fan unit 10 as explained above. The maintenance person repeats such an operation till the target fan unit is pushed out.

[0049] In such a way, a specific fan unit among the serially-connected four fan units 10 (faulty fan unit) can be swapped with a new fan unit 10 without stopping the power supply to fan unit 10. Accordingly, swapping of fan unit 10 in a state in which rotation of the cooling fan 11 provided in each fan unit 10 is maintained as is, that is, swapping of fan unit 10 in the hot state can be performed.

See Tsuji (Ex-1007) at [0043]-[0049] (emphasis added); Ex-2002, ¶ 54, ¶¶ 33-42.

B. Petitioner Fails to Show That Tsuji Teaches “a Power Socket and a First Connector on One Side of the Body” with “the Power Socket on the One Side of the Body”

Claim 1 of the '336 patent requires, *inter alia*, “a power socket and a first connector on one side of the body.” Petitioner appears to have misunderstood this limitation to mean that *only* the “first connector” need be on the “one side of the body” but not the “power socket.” But claim 1 also recites that “the power socket [is] on *the* one side of the body,” making clear that the “power socket” and the “first connector” must be located on the *same* “one side of the body” of the claimed

illumination fan. ***This misunderstanding by Petitioner is a fatal flaw throughout the entire Petition,*** based on which alone the Board should decline institution, as explained in more detail below.

Specifically, as shown in Fig. 1 of the '336 patent, the power socket **4** and the first connector **5** are located on the ***same*** side of the body of the illumination fan.

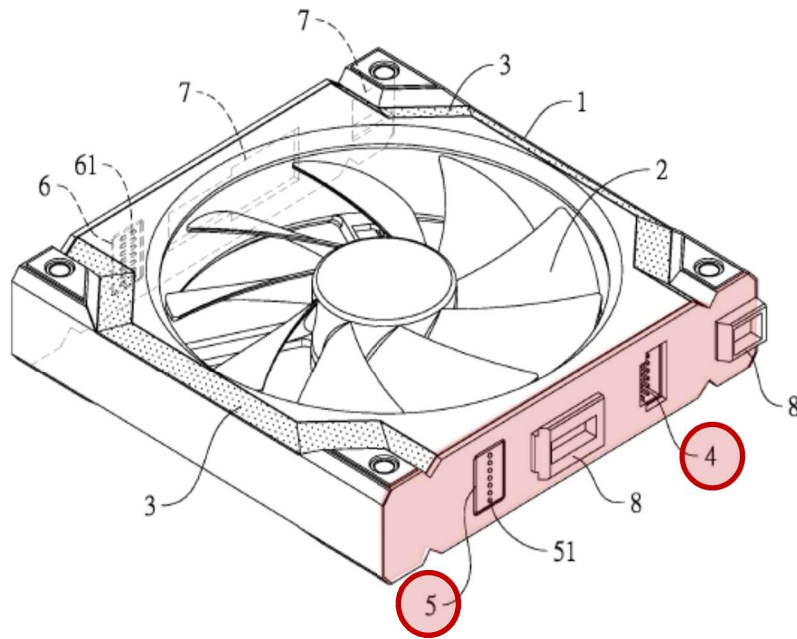


Fig. 1

(Ex-1001 at Fig. 1). Ex-2002, ¶ 57. This feature is expressly required by claim 1, which recites “**a power socket and a first connector on one side of the body,**” *i.e.*, with both being on the same side of the body. This requirement is consistent with Petitioner’s own claim construction position taken in the district court litigation, in which Petitioner proposed that this claim limitation be construed to require the “power socket” and the “first connector” to be “both directly accessible and ***placed***

on the same side of the fan housing.” Ex-2003 at 4. Further, in contrast to the illumination area **3** located at the top of the body, the power socket **4** and the first connector **5** are *not* located at the top of the body because they are located on the side of the body. Ex-2002, ¶ 58.

Petitioner has mapped Tsuji’s power connector CNA or CNB as the alleged “power socket.” However, as acknowledged by Petitioner, Figure 6 of Tsuji illustrates the alleged power socket (CNA or CNB) on the “front” (equivalent to the “top” of the illumination fan body in ’336 patent’s Fig. 1 embodiment) or the “rear” (equivalent to the bottom of the illumination fan body in ’336 patent’s Fig. 1 embodiment), while the alleged first connector (CNC) is positioned on a separate “side.” This arrangement in Tsuji does not read on the structure required by claim 1. 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:

FIGURE 6

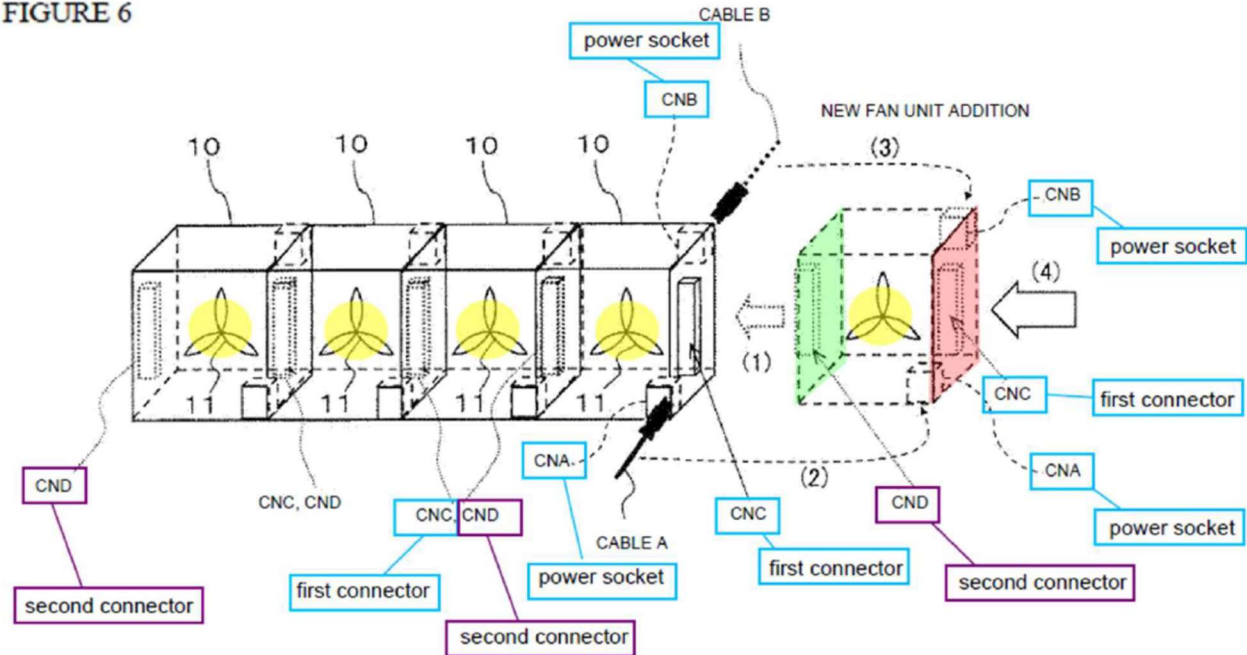
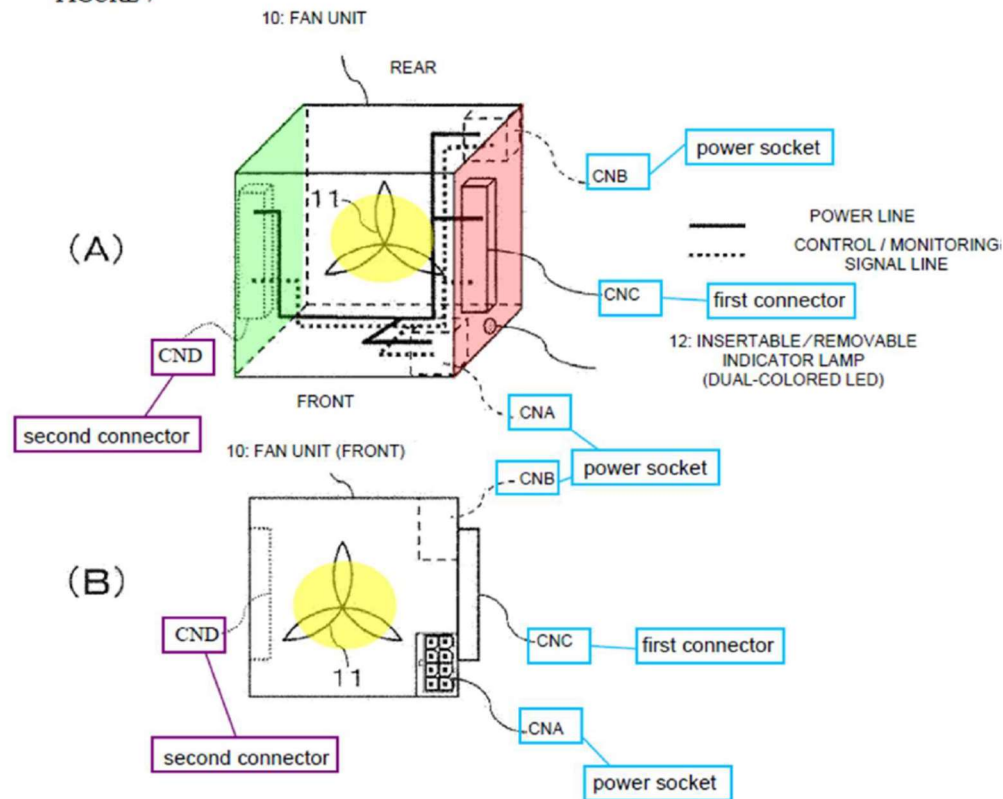


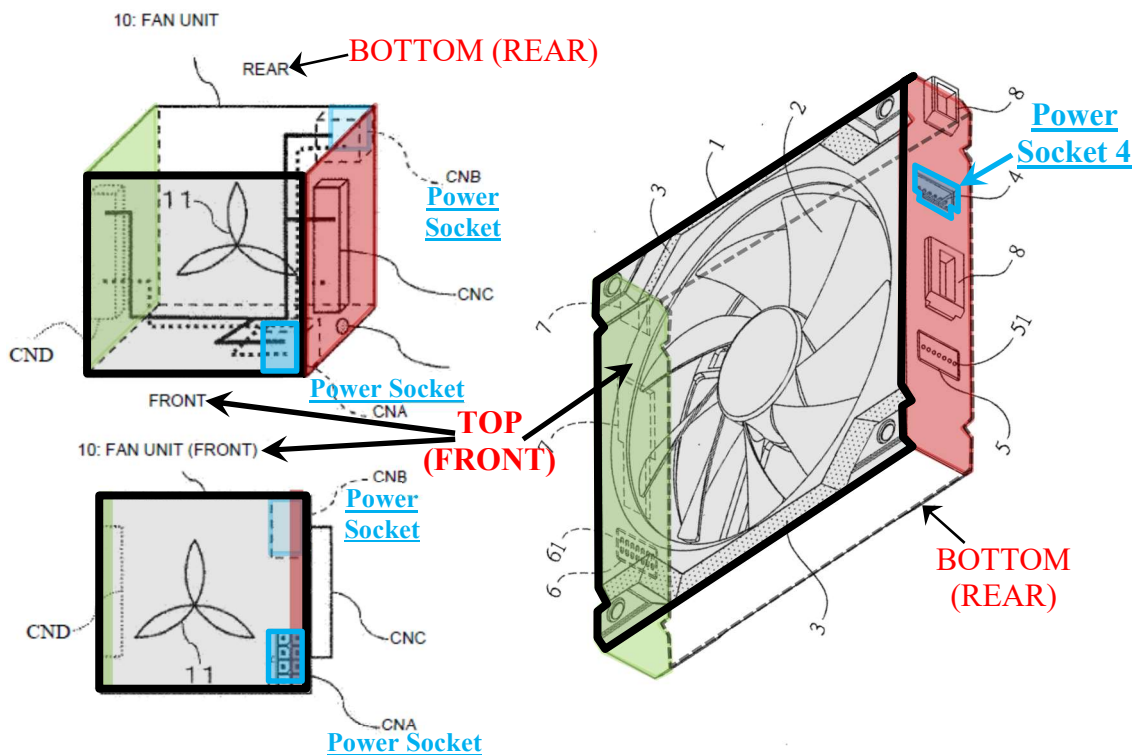
FIGURE 7



Petition at 34 (annotating Figs. 6-7 of Tsuji); Ex-2002, ¶ 59. In fact, Petitioner does not even allege – let alone attempt to demonstrate – that the CNA or CNB power

connector (the alleged “**power socket**”) is on the same side of the body as that the CNC connector (the alleged “**first connector**”). Petition, at 35. Petitioner’s analysis of the “**on one side of the body**” limitation, in fact, only mentions the CNC connector and does not say anything about CNA/CNB. *Id.*; Ex-2002, ¶ 60.

But this arrangement in Tsuji directly contradicts the structure required by the ’336 patent, as shown below:



Compare Ex-1007 (FIGURE 7 of Tsuji, alleged “Power Socket”) with ’336 pat. (FIG. 1 (rotated), “Power Socket 4”) (annotated).

The diagram above depicts a comparison between a portion of Figure 7 from Tsuji (on the left) showing the location of the connectors that Petitioner maps to the

claimed the “**power socket**” (*i.e.* CNA/CNB), and Figure 1 of the ’336 patent (on the right) depicting the location of the claimed power socket on the same side of the body as that the first connector is on. As can be seen further above in Figures 6 and 7 of Tsuji as annotated by Petitioner, the connectors that Petitioner has mapped to the claimed “**power socket**” (CNA/CNB) are not located on the same side of the body as the connector that Petitioner mapped to the claimed “**first connector**” (CNC). Instead, as shown, the CNA structure is located on the equivalent “top” (front) whereas the CNB structure is located on the equivalent bottom (rear) of the fan unit. Because 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. Ex-2002, ¶¶ 61-62.

This failure is fatal to all of Petitioner’s grounds based on Tsuji, *i.e.*, Grounds 1 through 3, because Petitioner relies solely on Tsuji for this limitation of claim 1. *See* Petition, at 32-35. Petitioner does not propose any modification of Tsuji (such as relocating the CNA/CNB connectors) in an attempt to cure the deficiency mentioned above. Petitioner also does not cite or rely on Huang for this claim limitation. *Id.*

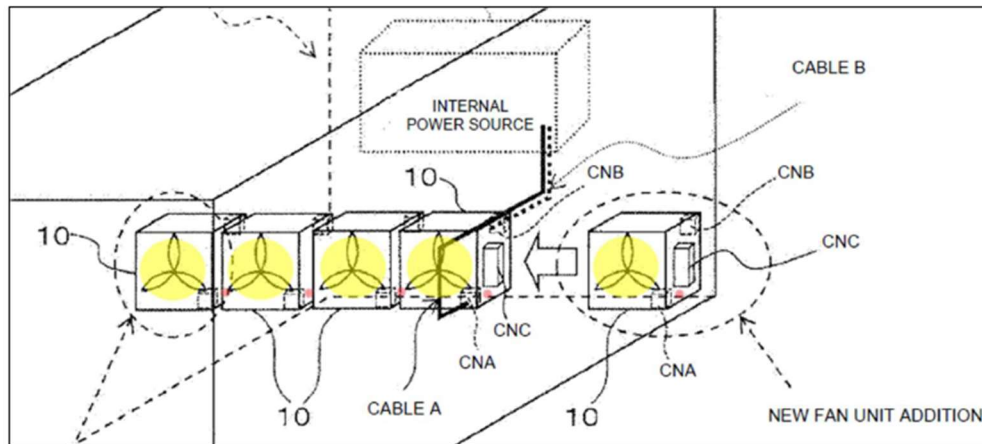
Even if Petitioner had suggested a modification of Tsuji to relocate the CNA/CNB connectors (which it did not), such a modification would make no sense in the system of Tsuji and would render it inoperable. This is because, for example,

relocating the power sockets CNA and CNB to the side of CNC would jam the power sockets between adjacent fan units, rendering them inaccessible and inoperable. Thus, the specific layout in Tsuji—placing power sockets on the front (top) and rear (bottom) of the fan body and connectors on the sides—is a deliberate requirement aimed at minimizing wiring congestion and preserving uninterrupted power—all essential for the operational integrity of Tsuji’s hot-swapping system. Ex-2002, ¶¶ 63-64. Further, Huang cannot cure Tsuji’s deficiency because Petitioner uses Huang for only the illumination area related limitations. *Id.*, ¶ 65.

In sum, it is a physical impossibility in Tsuji’s hot-swapping scheme to have the power socket located on the same “side of the body” as that the first connector is located on as required by claim 1 of the ’336 patent. *Id.*, ¶ 66.

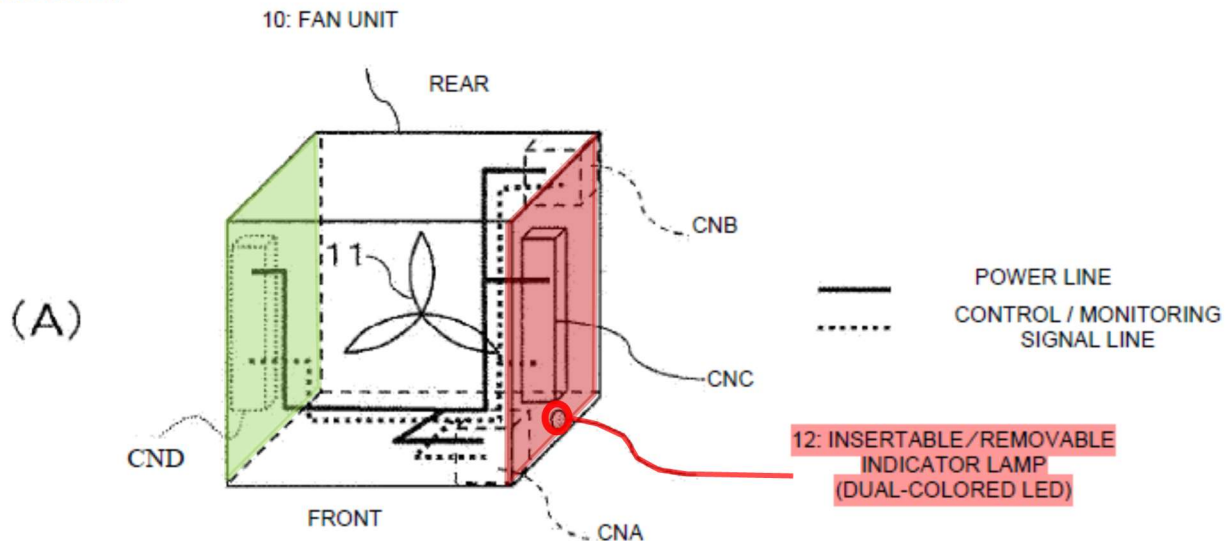
C. Petitioner Fails to Show That Tsuji Teaches “an Illumination Area on at Least Two Sides of the Fan at Top of the Body”

Claim 1 requires an “illumination area on at least two sides of the fan **at top of the body.**” (Emphasis added.) Petitioner contends that “Tsuji teaches an indicator lamp 12 on the side surface of the fan at the top of the body,” as purportedly illustrated below:



Petition, 31; Ex-2002, ¶ 67. But as can be seen above and more clearly in Figure 7(A) (reproduced and annotated below), the indicator lamp 12 is ***not*** located at the “front,” or at the equivalent “top” in the ’336 patent, of the fan body:

FIGURE 7



Thus, 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 of the ’336 patent. Ex-2002, ¶¶ 68-69.

As can also be seen, the lamp 12 is only at one side of the fan 11, contrary to what claim 1 requires. Petitioner appears to acknowledge this deficiency by arguing that “it 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.” Petition, 32. Petitioner’s obviousness overlooks the many reasons a POSITA 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 that a POSITA would have strived to avoid. Ex-2002, ¶ 70.

Thus, Tsuji alone or in view of Huang fails to disclose “illumination area on at least two sides of the fan at top of the body” in claim 1 of the ’336 patent, and Tsuji and Huang do not render claim 1 or any dependent claims of the ’336 patent obvious. *Id.*, ¶¶ 71-76.

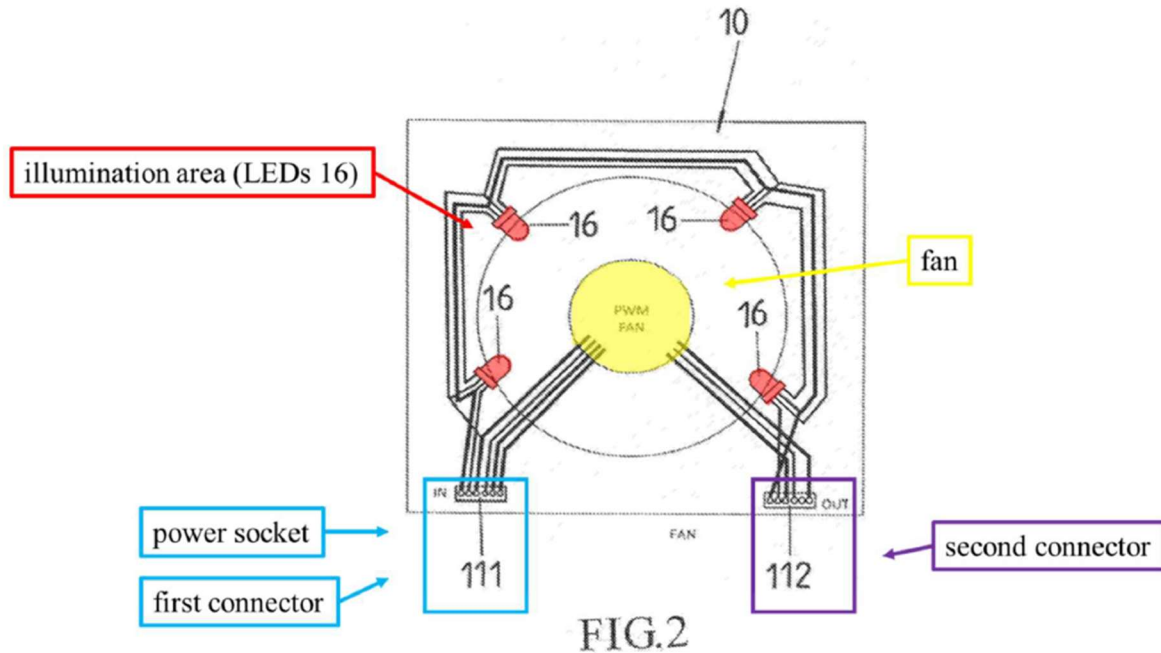
VI. GROUND 4-7: LAI ALONE OR IN VIEW OF HASEGAWA FAILS TO DISCLOSE ALL CLAIM LIMITATIONS

Petitioner’s Grounds 4-7 rely on combinations involving Lai and Hasegawa. (Petition at 6.) However, as shown below, Lai and Hasegawa fail to disclose several claim limitations, so Petitioner’s Grounds 4-7 fail.

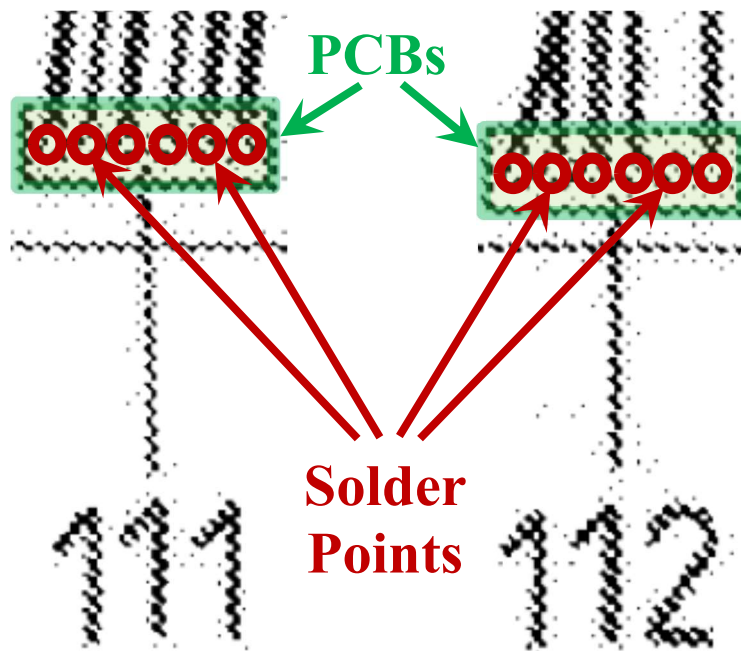
A. Lai Does Not Teach “a Power Socket and a First Connector”

As explained in §III.A, limitation (b) of claim 1 requires “a power socket [4] and a first connector [5] on one side of the body.” Lai fails to disclose or otherwise teach any “power socket” or “first connector” as required by claim 1. Critically, *neither “socket” nor “connector” of any kind is mentioned or even suggested at all throughout the entirety of Lai*. Ex-2002, ¶ 87. As explained below, Petitioner’s tortured reading of Lai is based on impermissible hindsight and thus must be rejected. *See Cheese Sys. v. Tetra Pak Cheese & Powder Sys.*, 725 F.3d 1341, 1352 (Fed. Cir. 2013) (“Among the difficult challenges of applying the doctrine of obviousness is avoidance of *even a hint of hindsight*.”) (emphasis added). This is because “[o]bviousness ‘cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention.’” *Id.* (quoting *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998)).

Petitioner attempts to characterize Lai’s single input 111 as the “first connector” and “power socket” and single input 112 as the “second connector” as shown below:



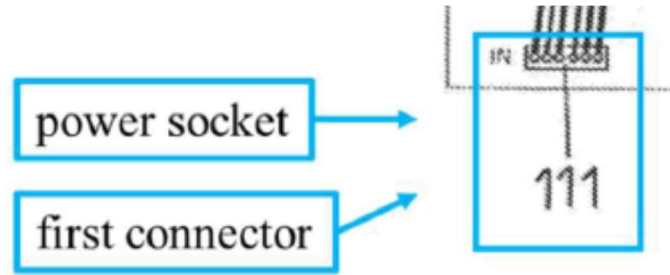
Petition, 68 (annotating Fig. 2 of Lai); Ex-2002, ¶ 88. But contrary to Petitioner’s incorrect assertion, Lai does not characterize element 111 as a “socket” or “connector.” *See generally* Ex-1012. Instead, Lai simply refers to item 111 a “*single* input 111.” *Id.* at 7 (emphasis added). Similarly, Lai does not characterize 112 as any “connector” but rather as a “*single* output 112.” *Id.* Indeed, a POSITA would not have recognized Lai’s “single input 111” or “single output 112” as having any “socket” nor “connector” structures, as Petitioner misleadingly argues. Instead, based Lai’s disclosure, a POSITA would have understood the single input 111 and single output 112 as having nothing more than fixed solder points on the printed circuit boards (or PCBs), as shown below:



Of course, solder points are neither sockets nor connectors. Ex-2002, ¶¶ 89-90. Thus, Lai’s solder points of input 111 and output 112 do not disclose or otherwise teach the claimed “socket” nor “connector” structures.⁸

⁸ Petitioner’s mappings fail to align even with its own definitions from the parallel district court proceeding. For example, on June 20, 2024 – more than a month before it filed the present IPR Petition – Petitioner submitted proposed constructions to the district court in the parallel litigation for “**connector**” and “**power socket.**” (ECF43, at 3-4, 2:23-cv-07470-HDV-MAR.) Petitioner proposed the following definitions for both of these terms in the district court litigation:

Petitioner’s mapping of the single input 111 of Tsuji to **both** the “power socket” and “first connector” limitations simultaneously is also legally impermissible. According to Petitioner, the alleged “power socket” and “first connector” are coextensive and completely overlap with each other:



Petition at 68 (Lai’s “single input 111 comprising a power socket and a first connector on one side of the fan body”). Ex-2002, ¶ 91. This mapping is improper as a matter of law. As the Federal Circuit described in the seminal *Becton, Dickinson*

Claim Term	Petitioner’s Proposed Construction in Pending Litigation
“connector”	A conductive structure for making physical contact with another conductive structure to close an electrical circuit.
“power socket”	An opening or hollow that forms a holder for a power plug that connects directly to a power supply for convenient replacement.

(ECF43, at 3-4, 2:23-cv-07470-HDV-MAR.) Despite having disclosed these claim constructions more than a month before filing the present IPR petition, Petitioner does not acknowledge let alone account for them, arguing that instead the claims should be given their plain and ordinary meaning. See Petition, at 7.

case, when a claim recites two distinct elements, those elements cannot be met by the same structure in a prior art reference. *Becton, Dickinson & Co. v. Tyco Healthcare Grp., LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010). Many Federal Circuit and PTAB decisions since *Becton, Dickinson* have reinforced the rule that the separate recitation of two elements in a claim “strongly implies that the named entities are not one and the same structure.” *HTC Corp. v. Cellular Commc’ns Equip., LLC*, 701 F. App’x 978, 982 (Fed. Cir. 2017) (citing *Becton, Dickinson*, 616 F.3d at 1254); *Willis Elec. Co. v. Polygroup Macau Ltd.*, 777 Fed. App’x. 495, 498 (Fed. Cir. 2019) (also citing *Becton, Dickinson*); *Cisco Sys., Inc. v. Egenera, Inc.*, IPR2017-01341, Paper 10, 14-15 (PTAB Nov. 13, 2017) (“[R]eliance on the same component for multiple claim elements is improper.”).

In *HTC Corp.*, for example, the Federal Circuit affirmed the PTAB’s ruling that the “diverting” and “controlling” limitations recited in claims of the challenged patent must be performed by “separate components.” 616 F.3d at 981-86. There, the Board’s claim construction analysis was based “entirely on intrinsic evidence in concluding that the patent claims require separate components for the diverting and controlling functions.” *Id.* at 981-82. In reviewing the Board’s decision, the Federal Circuit began with the words of the claims themselves. *Id.* at 982. The Federal Circuit affirmed the Board’s determination that the claim language required that the recited diverting and controlling steps must be performed by “separate components,”

and that “[t]he strongest evidence for this separation is the claim language itself, which plainly recites two different structures: a ‘diverting unit’ and a ‘controlling entity.’” *Id.* Quoting two of its prior decisions, the Federal Circuit reiterated that “[w]here a claim lists elements separately, the clear implication of the claim language is that those elements are ‘distinct component[s]’ of the patented invention.” *Id.* (some inner quotations omitted) (quoting *Becton, Dickinson*, 616 F.3d at 1254 (alteration in original) (quoting *Gaus v. Conair Corp.*, 363 F.3d 1284, 1288 (Fed. Cir. 2004))). Turning to the specification, the Federal Circuit in *HTC Corp.* found that “the specification reinforces the inference that the claimed ‘diverting unit’ and ‘controlling entity’ are separate components. The specification nowhere gives an example of a single structure performing both functions.” *Id.* at 984. The analysis and result were very similar in *Willis Elec. Co.*, 777 Fed. App’x. at 498 (citing *Becton, Dickinson* and *HTC Corp.*), and the same should be true here, where Petitioner has improperly mapped Tsuji’s single input 111 to both the claimed power socket and connector.

Apparent acknowledging this deficiency, Petitioner argues that “[t]o the extent it is argued or found that the ‘power socket’ and ‘first connector’ require separate structures, it would be obvious to a PHOSITA to separate a set of VCC and ground terminals of Lai into a separate housing for the same reasons stated above.” Petition at 62. But Petitioner is wrong because Lai expressly requires that 111 be a

“single input” connecting to a “single transmission line 12.” That is, a POSITA would not have considered splitting the *single* input 111 connecting to the *single* transmission line 12 in Lai into two separate structures, which would require two transmission lines, obviously. Ex-2002, ¶ 92.

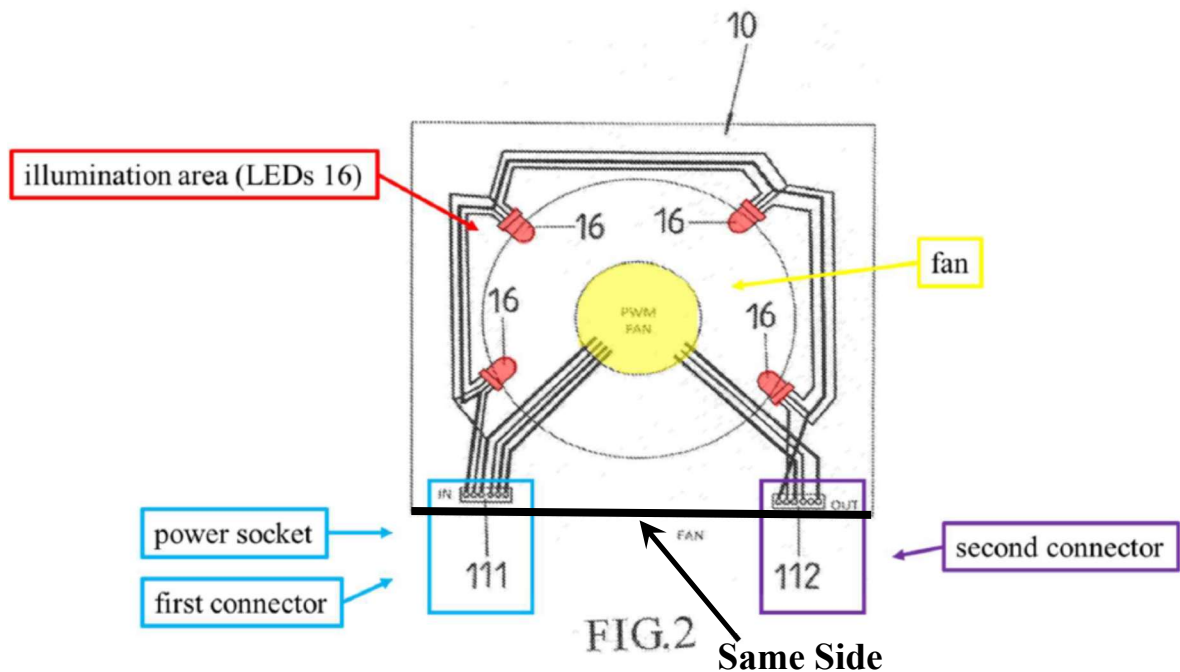
B. Petitioner Fails to Show That Lai, Alone or in View of Hasegawa, Teaches “a Power Socket and a First Connector on One Side of the Body, and a Second Connector on Another Side of the Body” with “the Power Socket on the One Side of the Body”

As explained in §III.A., claim 1 of the ’336 patent recites “a power socket and a first connector on one side of the body, and a second connector on another side of the body.” ’336 pat., Cl. 1. Claim 1 further recites “the power socket on *the* one side of the body.” *Id.* (emphasis added). That is, claim 1 requires that the “power socket” be located on the *same* “one side” as that the “first connector” is located on, and that the “second connector” be located on “another side” of the same illumination fan that is *different* from the “one side.” As explained below, Petitioner fails to show that Lai, alone or in combination with Hasegawa, teaches these limitations. Ex-2002, ¶ 93.

1. 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 discussed previously, claim 1 of the ’336 patent requires, *inter alia*, “a power socket and a first connector on *one side* of the body, and a second connector on *another side* of the body.” ’336 pat., Cl. 1 (emphasis added). Petitioner fails to

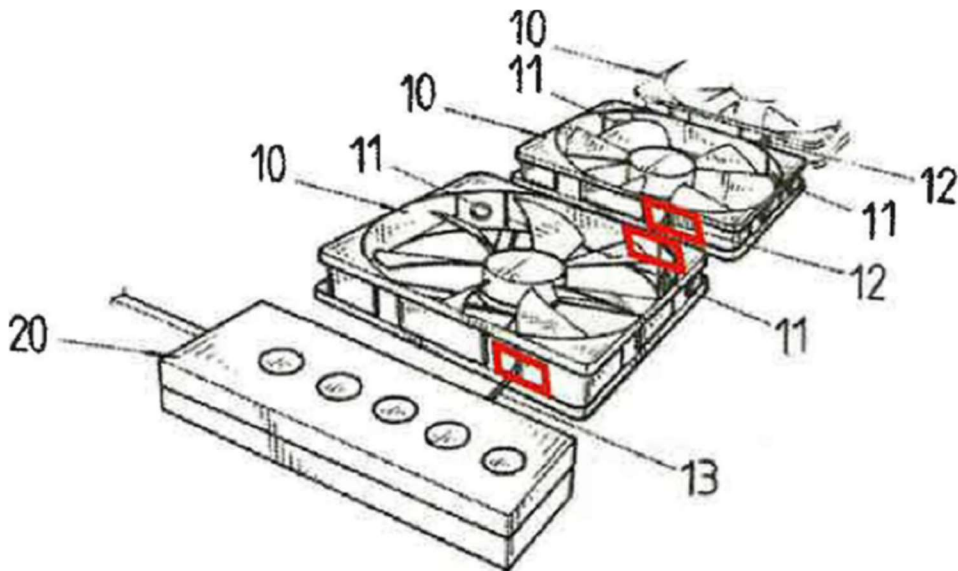
show that Lai teaches this limitation at least because the alleged “second connector” 112 is not located on “another side,” and is instead on the *same* “one side” as that the alleged “power socket” and “first connector” 111 are located on, as explained below:



Petition, 68 (black “Same Side” labeling added, other annotations original). As shown above, Petitioner maps Lai’s 111 as the “power socket” and “first connector,” and Lai’s 112 as the “second connector.” But 111 and 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 required by claim 1 of the ’336 patent. Ex-2002, ¶¶ 94-95.

Acknowledging as much, Petitioner argues that “[t]o the extent it is argued or found that Lai does not to [*sic*] disclose connectors on *two* sides of the fan body, 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.” Petition at 63 (emphasis added). Attempting to remedy this deficiency, Petitioner argues that “[i]t would have been obvious to a PHOSITA to combine Lai and Hasegawa.” *Id.* at 66. Petitioner asserts that the purported combination of Lai and Hasegawa would have appeared similar to FIG. 3 of Lai, but with visible connectors on the fan body sides” in “*red boxes*,” as shown below:

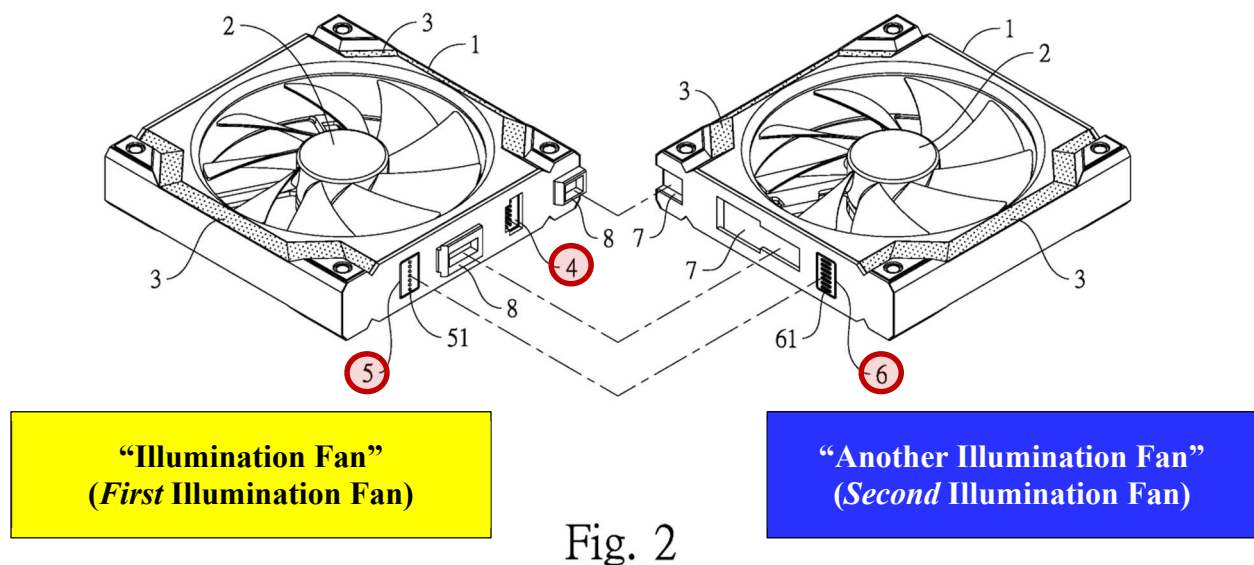


Petition at 66-67. But as further discussed below, Petitioner fails to show that Hasegawa cures Lai’s deficiency in this regard. Ex-2002, ¶¶ 96-97.

2. Petitioner Fails to Show Lai in View of 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” with “the Power Socket on the One Side of the Body” the “First Connector” Is Located on

Claim 1 recites “[a]n illumination fan” as the **first illumination fan** and

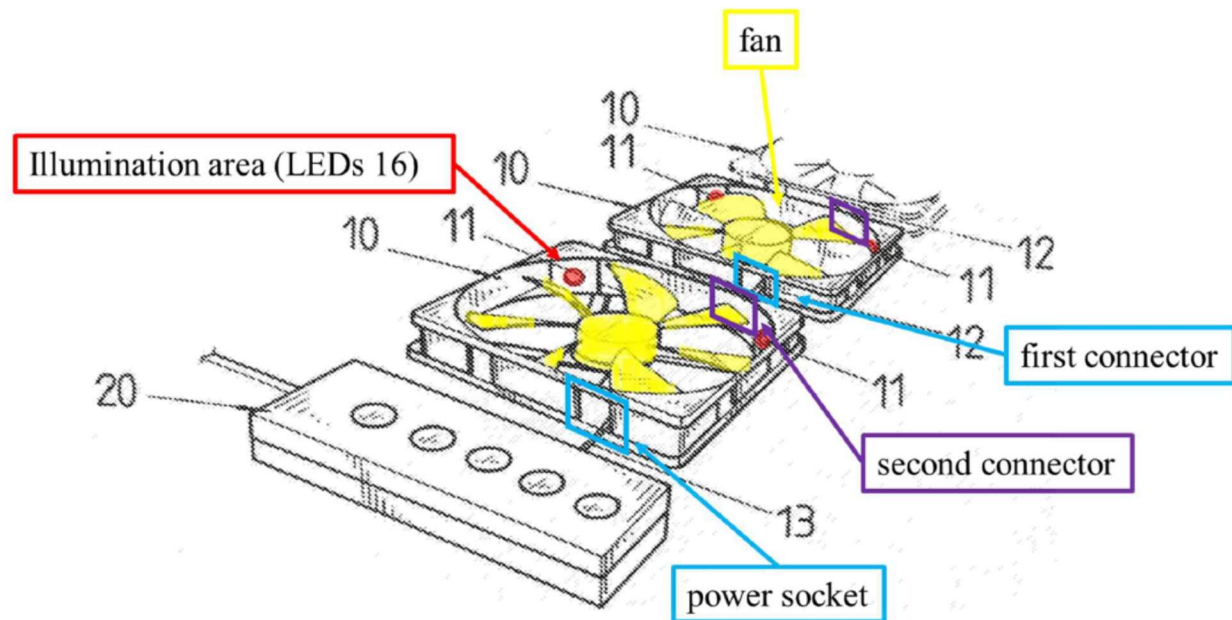
“another illumination fan” as the **second illumination fan**. This claimed arrangement is exemplarily illustrated in the annotated Fig. 2 embodiment of the '336 patent below:



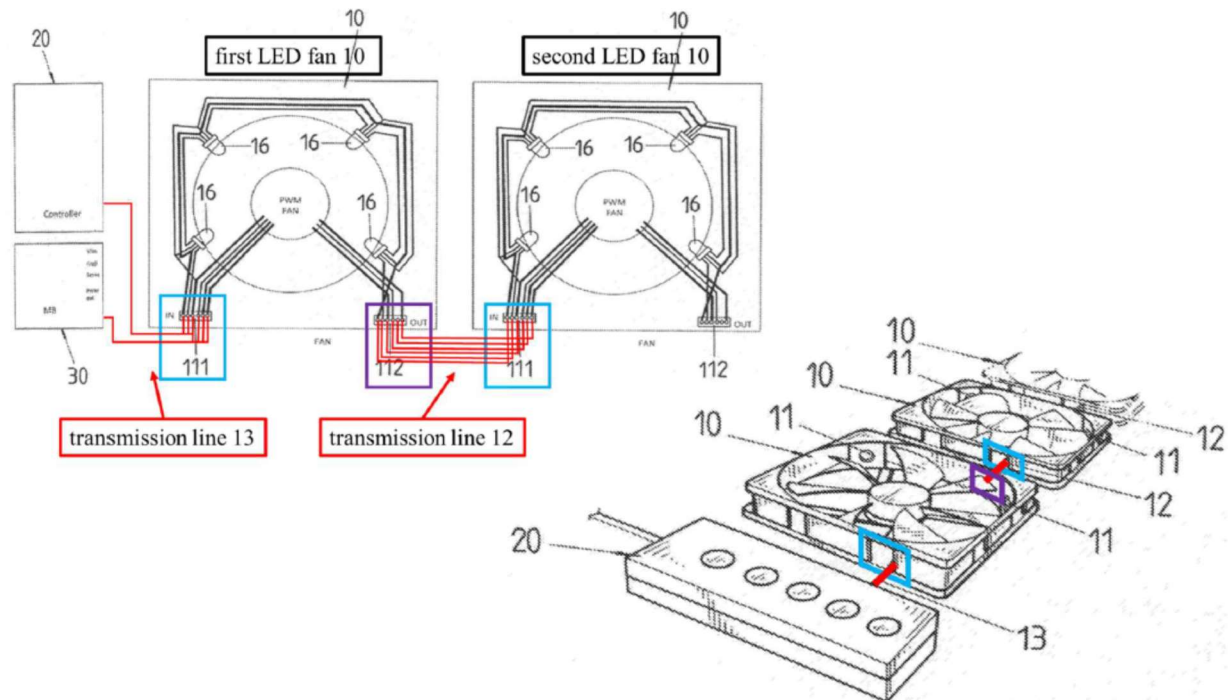
'336 pat., Fig. 2 (annotated); Ex-2002, ¶ 98. As exemplified in the annotated Fig. 2 embodiment above, claim 1 further requires that, “when the power socket [4] on the one side of the body [of the illumination fan, *i.e.*, the **first illumination fan** on the left] is supplied with power, the fan and the illumination area of the body are respectively driven into rotation and illumination, and when the first connector [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 the body of another illumination fan [*i.e.*, the **second illumination fan** on the right], a fan and an illumination area of the body of another illumination fan are respectively driven into rotation and illumination.”

'336 pat., Cl. 1. Petitioner, however, fails to show that Lai in view of Hasegawa

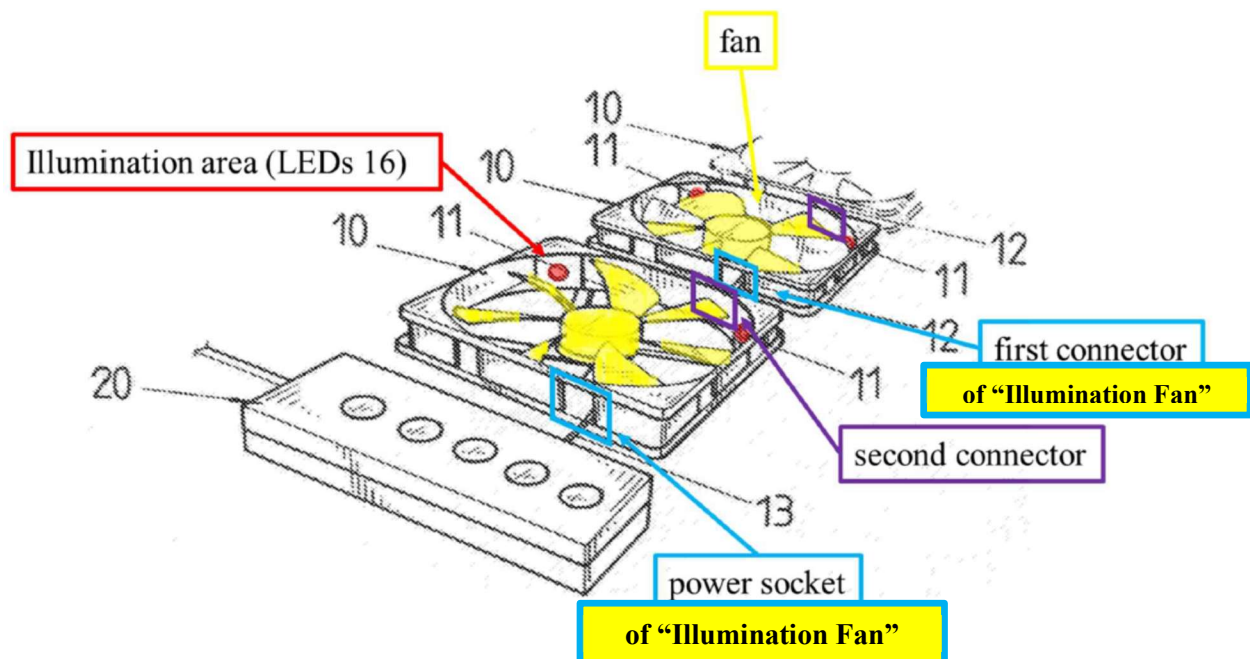
meets these requirements of claim 1. As shown below, Petitioner labels a multi-fan arrangement in Lai's Fig. 3 as purportedly modified in view of Hasegawa as follows:



Petition at 69; Ex-2002, ¶ 99. Based on the above labeling, Petitioner further asserts that “Lai discloses an LED fan controller device that links in serial at least two LED fans 10, wherein when the power socket of single output [*sic*] 111 of the first LED fan 10 is connected (via single transmission line 13), the fan (control motor 15) receives power and control from motherboard 30, and the illumination area (LEDs 16 or LEDs 11) from controller 20” as shown below:



Petition at 70-71. That is, Petitioner maps the alleged “power socket” and “first connector” of the “illumination fan” in claim 1 of the ’336 patent as follows:

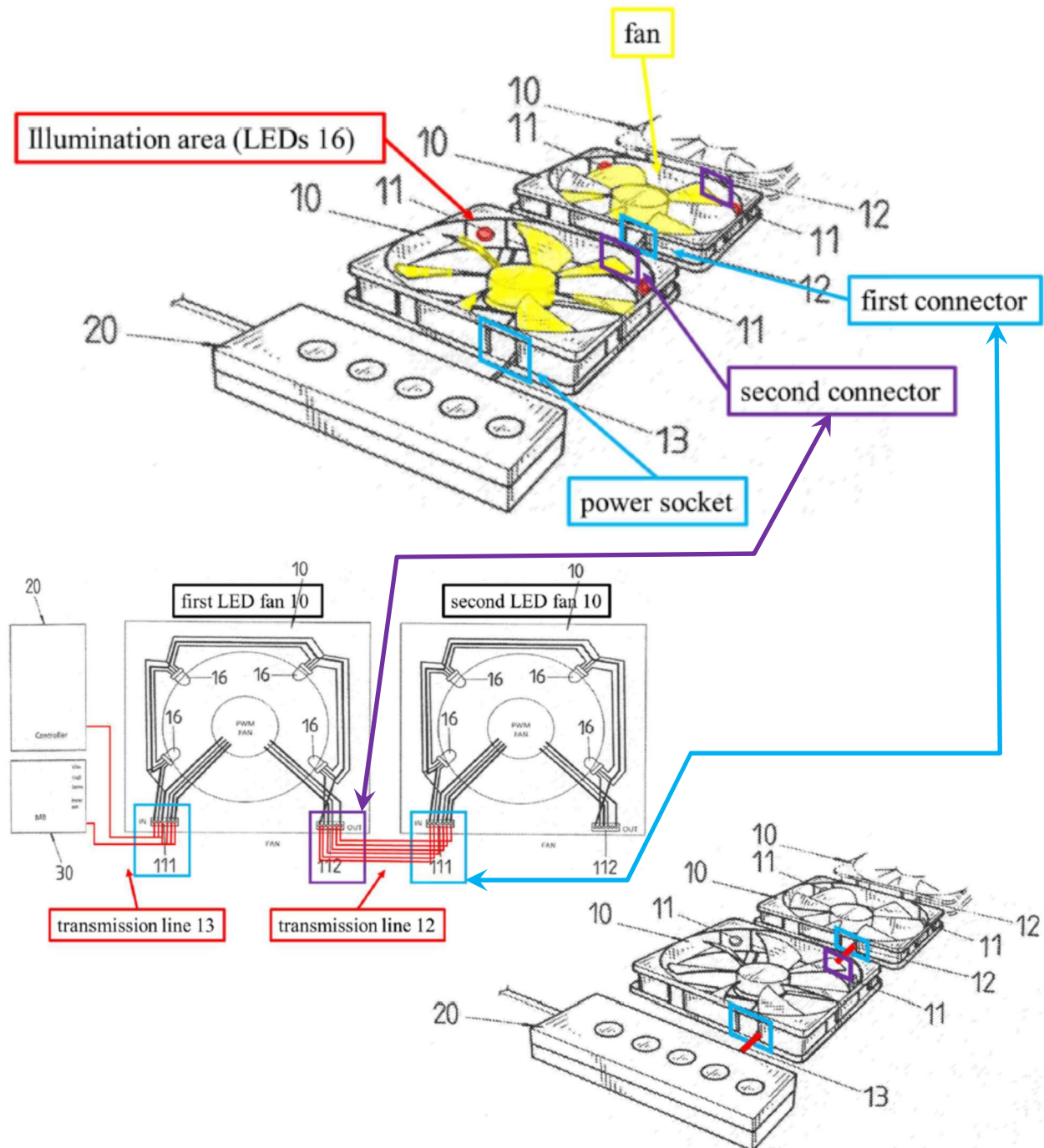


Petition at 68-69 (yellow “of ‘Illumination Fan’” boxed in cyan labeling added, other annotations original); Ex-2002, ¶ 100. As can be seen above, however, Petitioner’s

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. In fact, they are not even on the same illumination fan. That is, according to Petitioner, the alleged “power socket” is ***not*** “on the [same] one side of the body” that the alleged “first connector” is located on, contrary to the requirement of claim 1. Ex-2002, ¶ 101. Again, as noted above, ***this is a fatal flaw of the entire Petition.*** For this reason alone, Grounds 4-7 of the Petition are defective and cannot support a finding to institute trial.

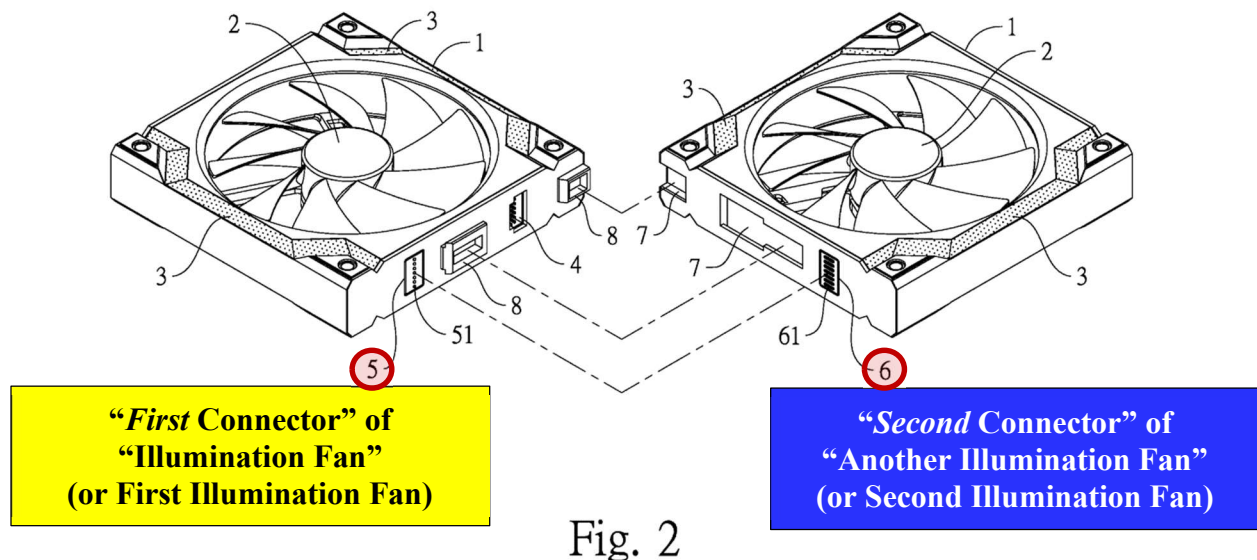
C. Petitioner Fails to Show That Lai Alone or in Combination with Hasegawa Teaches “the First Connector of the Body [of the Illumination Fan] Is Connected with a Second Connector of a Body of Another Illumination Fan”

Petitioner fails to show that Lai alone or in combination with Hasegawa teaches “the ***first*** connector of the body [of the illumination fan] is connected with a ***second*** connector of a body of another illumination fan” as required by claim 1 of the ’336 patent. As can be seen below, Petitioner instead attempts to show the ***opposite***, that the ***second*** connector 112 (in the purple box) of the “first LED fan 10” (purportedly the “illumination fan”) is connected with the ***first*** connector 111 of the “***second*** LED fan 10” (purportedly the “***another*** illumination fan”) via the “transmission line 12” (in red):



Petition at 69, 71 (purple and cyan double arrows added, other annotation original);
 Ex-2002, ¶ 102. But as exemplified by the annotated Fig. 2 of the '336 patent below,
 claim 1 of the '336 patent instead recites the *opposite* to what Petitioner appears to

demonstrate above. That is, 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]” as exemplified below:



’336 pat., Cl. 1, Fig. 2 (annotated); Ex-2002, ¶ 103. Thus, Petitioner fails to show that Lai alone or in view of Hasegawa teaches “the first connector of the body is connected with a second connector of a body of another illumination fan” as required by claim 1. Ex-2002, ¶ 104.

VII. CONCLUSION

For the above reasons, the Board should discretionarily deny the Petition and/or find that Petitioner has failed to establish unpatentability of any of the challenged claims. Accordingly, the Board should reject the Petition and decline to institute trial.

Respectfully submitted,

GREENBERG TRAURIG, LLP

Date: November 22, 2024

By: /s/ Heath J. Briggs

Heath J. Briggs (Reg. No. 54,919)

1144 15th St. Suite 3300

Denver, CO 80202

Telephone: 303-685-7418

Facsimile: 720-904-6118

BriggsH@gtlaw.com

Counsel for Patent Owner

CERTIFICATE OF WORD COUNT

The undersigned certifies that the word count in this Patent Owner Response is 8,646 words, as counted by the word-processing program Microsoft Word for Office 365 used to generate this Petition, where such word count excludes the table of contents, table of authorities, mandatory notices, certificate of service, appendix of exhibits, and this certificate of word count. This Petition is in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24(b).

GREENBERG TRAURIG, LLP

Date: November 22, 2024

By: /s/ Heath J. Briggs
Heath J. Briggs (Reg. No. 54,919)
1144 15th St. Suite 3300
Denver, CO 80202
Telephone: 303-685-7418
Facsimile: 720-904-6118
BriggsH@gtlaw.com

Counsel for Patent Owner

CERTIFICATE OF SERVICE

The undersigned certifies that a true and correct copy of this Patent Owner Response has been electronically served on Petitioner by emailing the following addresses:

- Case-ThermaltakeIPRMembers@Pillsburylaw.com
- robert.perez@pillsburylaw.com
- christopher.kao@pillsburylaw.com
- david.tsai@pillsburylaw.com
- brock.weber@pillsburylaw.com
- surui.qu@pillsburylaw.com
- jaclyn.schade@pillsburylaw.com

GREENBERG TRAURIG, LLP

Date: November 19, 2024

By: /s/ Heath J. Briggs
Heath J. Briggs (Reg. No. 54,919)
1144 15th St. Suite 3300
Denver, CO 80202
Telephone: 303-685-7418
Facsimile: 720-904-6118
BriggsH@gtlaw.com

Counsel for Patent Owner