

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THERMALTAKE TECHNOLOGY CO., LTD. and

THERMALTAKE INC.,

Petitioner,

v.

CHEN, CHIEN-HAO,

Patent Owner.

IPR2024-01230

U.S. Patent No. 10,690,336 B1

PATENT OWNER RESPONSE

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	THE '336 PATENT AND CHALLENGED CLAIMS	1
	A. General Overview.....	1
	B. Challenged Claims Overview.....	9
	C. Claim Construction	10
	D. Priority Date For '336 Patent	13
III.	PERSON OF ORDINARY SKILL IN THE ART	13
IV.	GROUND 4: LAI ALONE OR IN VIEW OF HASEGAWA FAILS TO DISCLOSE CLAIM LIMITATIONS 1[b], 1[c], AND 1[d]	14
	A. Petitioner Fails To Show Lai Alone or in View of Hasegawa Teaches Limitation 1[b], “an Illumination Area on at Least Two Sides of the Fan at Top of the Body”	14
	B. Petitioner Fails To Show That Lai Teaches Limitation 1[c]: “a Power Socket and a First Connector on <i>One Side</i> of the Body, and a Second Connector on <i>Another Side</i> of the Body”	22
	C. Petitioner Fails to Establish Lai Alone or in View of Hasegawa Teaches “the Power Socket [Is] on the [Same] One Side of the Body” as the “First Connector”	29
	D. Petitioner Fails to Establish That Lai Alone or in View of 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”	32
V.	GROUND 1: TSUJI ALONE OR IN VIEW OF HUANG FAILS TO TEACH LIMITATIONS 1[B], 1[C], AND 1[D]	34
	A. Overview of Tsuji (Ex-1007)	35
	B. Petitioner Fails To Show That Tsuji in View of Huang Teaches the Same Side limitation	39
	C. Petitioner Fails To Show Tsuji in View of Huang Teaches Limitation 1[d]’s Requirement that “the First Connector of the Body [of the First Illumination Fan] Is Connected with a Second Connector of a Body of Another [<i>i.e.</i> , a Second] Illumination Fan.”	45
	D. Petitioner Fails To Show That Tsuji in View of Huang Teaches	

	Limitation 1[b], “an Illumination Area on at Least Two Sides of the Fan at Top of the Body”	47
VI.	GROUNDS 2 & 6: PETITIONER FAILS TO SHOW ECHAZARRETA IS COMBINABLE WITH TSUJI/HUANG OR LAI/HASEGAWA.....	49
	A. The Limitations of Claim 4	49
	B. Petitioner Fails To Show Echazarreta Is Combinable with Tsuji/Huang or Lai/Hasegawa.....	52
VII.	GROUNDS 3 & 7: PETITIONER FAILS TO SHOW CHOU OR LIU TEACHES LIMITATIONS IN CLAIM 5 AND IS COMBINABLE WITH TSUJI/HUANG OR LAI/HASEGAWA	56
VIII.	CONCLUSION.....	69

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
2004	Declaration of Kyle D. Chen in Support of Motion for <i>Pro Hac Vice</i> Admission
2005	Deposition Transcript of Dr. Andrew Wolfe (April 25, 2025)
2006	Declaration of Dr. David Tuckerman in Support of Patent Owner Response and Contingent Motion To Amend
2007	Ex Parte Reexamination Filing Data, September 30, 2023
2008	U.S. Patent No. 10,082,286 B1 (“Huang”) (Cited in Ex-2005) [Thermaltake Ex-1008]
2009	Not Used
2010	Not Used
2011	Not Used
2012	U.S. Patent Application No. 2017/031477 A1 (“Lai”) (Cited in Ex-2005) [Thermaltake Ex-1012]
2013	Note Used
2014	Verified Certification and Translation of JP2005051085A (Cited in Ex-2005) [Thermaltake Ex-2014]
2015	Not Used

Exhibit	Description
2016	Not Used
2017	Certified Translation of TW107217695U

TABLE OF AUTHORITIES**Page(s)****Cases**

<i>Arendi S.A.R.L. v. Apple Inc.</i> , 832 F.3d 1355 (Fed. Cir. 2016)	21, 25, 28
<i>ATD Corp. v. Lydall, Inc.</i> , 159 F.3d 534 (Fed. Cir. 1998)	23
<i>Cheese Sys. v. Tetra Pak Cheese & Powder Sys.</i> , 725 F.3d 1341 (Fed. Cir. 2013)	22, 23, 24, 28
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005) (<i>en banc</i>)	10

Statutes

35 U.S.C. § 103	9
-----------------------	---

Other Authorities

37 C.F.R. §42.100(b)	10
37 C.F.R. §42.24(b)	70

I. INTRODUCTION

Patent Owner hereby submits this Patent Owner Response (“POR”) regarding U.S. Patent No. 10,690,336 (Ex-1001, hereinafter the “’336 patent”) in response to the *inter partes* review (“IPR”) petition (“Petition”) filed by Petitioner challenging claims 1-5 (“Challenged Claims”) and the Institution Decision (Paper 12) (hereinafter “Decision”). For at least the reasons set forth below, the Board should find Petitioner has not shown by preponderance of evidence that any of the Challenged Claims are unpatentable.

II. 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 patent 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 patent 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 management cumbersome. Additionally, because independent power cables must be used for each fan, the number of cooling fans that can be assembled is limited by the finite number of connections available on the power supply. ’336 patent at 1:34-40;

Ex-2006 (Declaration of Dr. David Tuckerman in Support of Patent Owner Response and Motion to Amend), ¶ 24.

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.*, ¶ 25.

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.*, ¶ 26.

Figure 1 of the '336 patent (reproduced and annotated below)¹ 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**.”

¹ All emphasis and annotations herein are Patent Owner's, unless noted otherwise.

'336 patent 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 patent at 3:4-6; Ex-2006, ¶ 27.

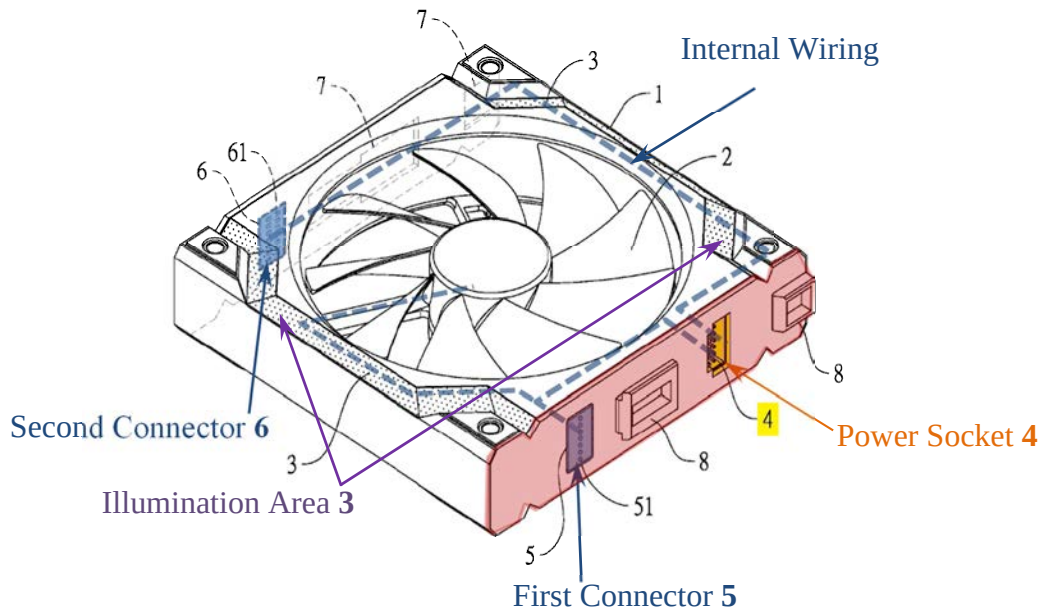
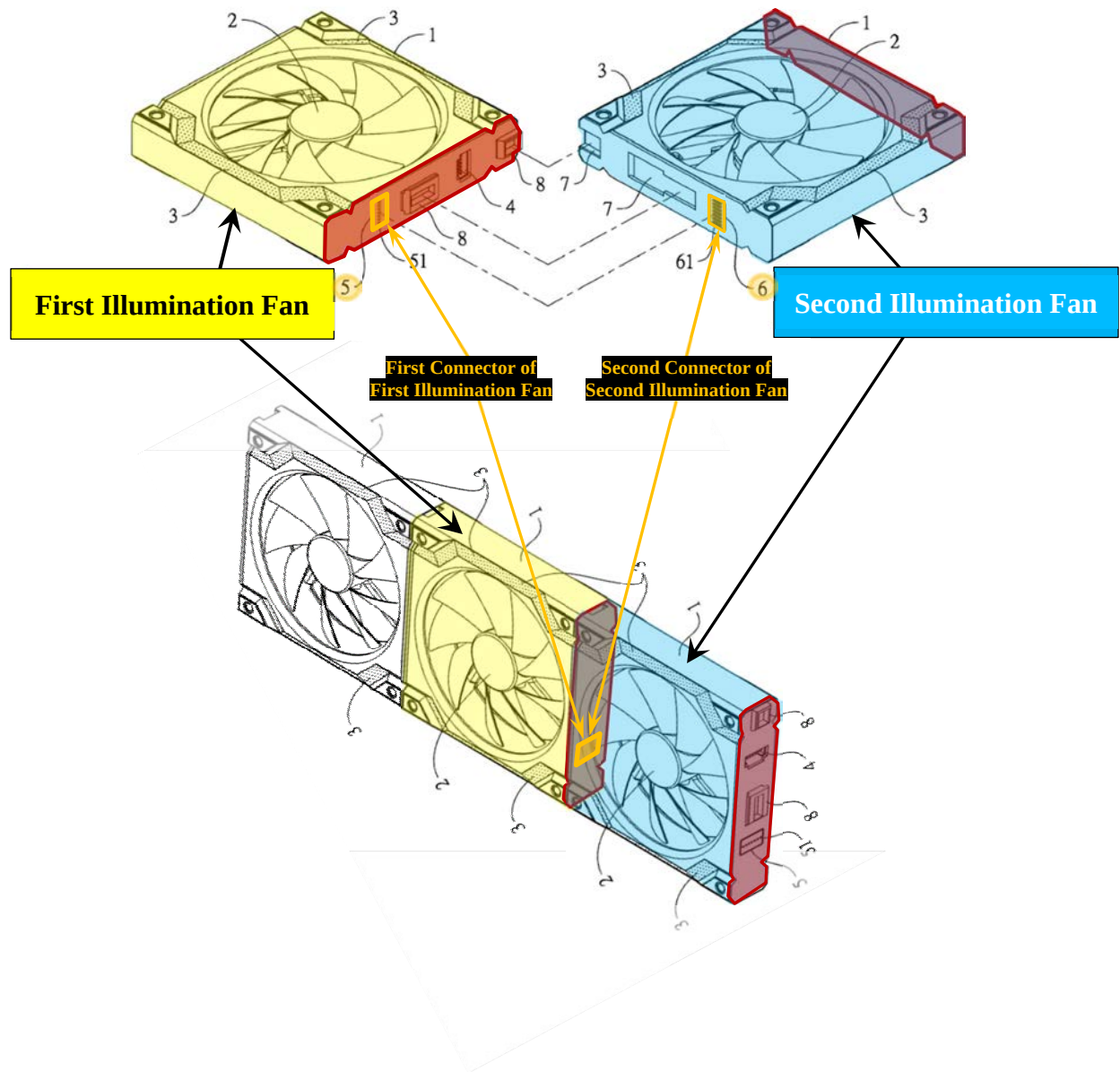


Fig. 1

'336 patent, 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, in a non-limiting configuration, the power socket **4** (highlighted in yellow above) can be supplied with power via internal wiring from the second connector **6**, which can receive power from a prior illumination fan's first connector **5** in the manner as shown in Figure 2 (which illustrates the exemplary connections between any two adjacent illumination fans). As such, once the power socket **4** on the same side of the body **1** as the first connector **5** is supplied with

power, the fan **2** of the body **1** can be driven into rotation and the illumination area **3** into illumination. '336 patent at 3:4-6, Fig. 1. Further, the power socket **4**, which is electrically connected with the first connector **5** of a first illumination fan's body **1**, can also supply power to the first connector **5** of the first illumination fan's body **1** "so that when the first connector **5** of [the first illumination fan's] body **1** is connected to the second connector **6** of another [or a second illumination fan's] body **1**, the fan **2** of the another [or second illumination fan's] body **1** can be driven into rotation and the illumination area **3** [of the another or second illumination fan's body **1**] can be illuminated." '336 patent at 3:7-16. This non-limiting configuration of connecting a first illumination fan and a second illumination fan is illustrated by Figures 2 and 3 (annotated) of the '336 patent below:



'336 patent, 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) (e.g., using 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, ¶ 27.

For the Board's convenience, the entirety of claim 1 of the '336 patent is reproduced below, with lettering added as per the Petition and in the Decision:

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,

[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.

'336 patent, Cl. 1.²

² 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.

This POR focuses on, *inter alia*, the following limitations of claim 1 corresponding to the numbered elements above:

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

As shown above, limitation 1[d] has two requirements: (i) “the power socket [4] [is] on the [same] one side of the body” of the “*first* illumination fan” as the “first connector;” and (ii) “the first connector of the body [of the *first* illumination fan] is connected with a second connector of a body of another [*i.e.*, the *second*] illumination fan.” These two requirements (*i.e.*, items (i) and (ii), above) of limitation 1[d] are related and discussed in more detail in Sections IV.B, IV.C, V.B, and V.C *infra*.

Elements [3]-[6] in the embodiments corresponding to the above limitations are illustrated in Figure 1 below:

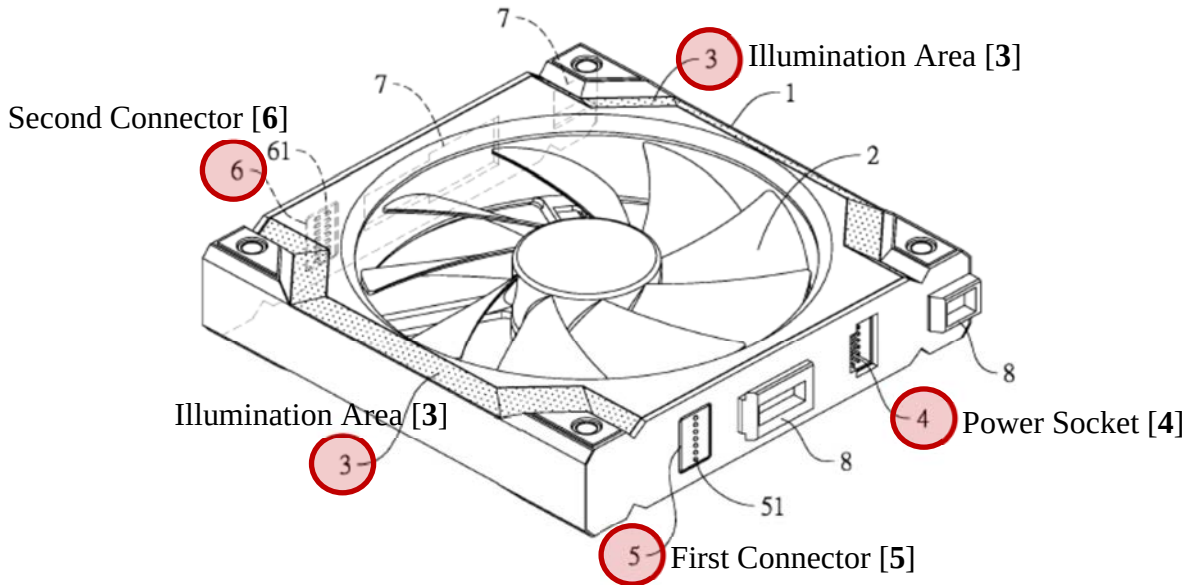


Fig. 1

This POR also addresses the limitation “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 in Figures 2-3 when a plurality of illumination fans are connected and assembled as shown below:

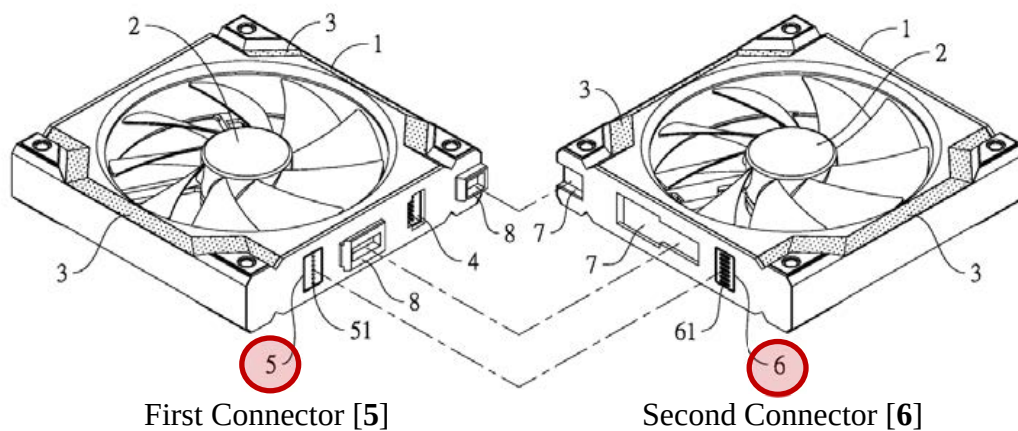


Fig. 2

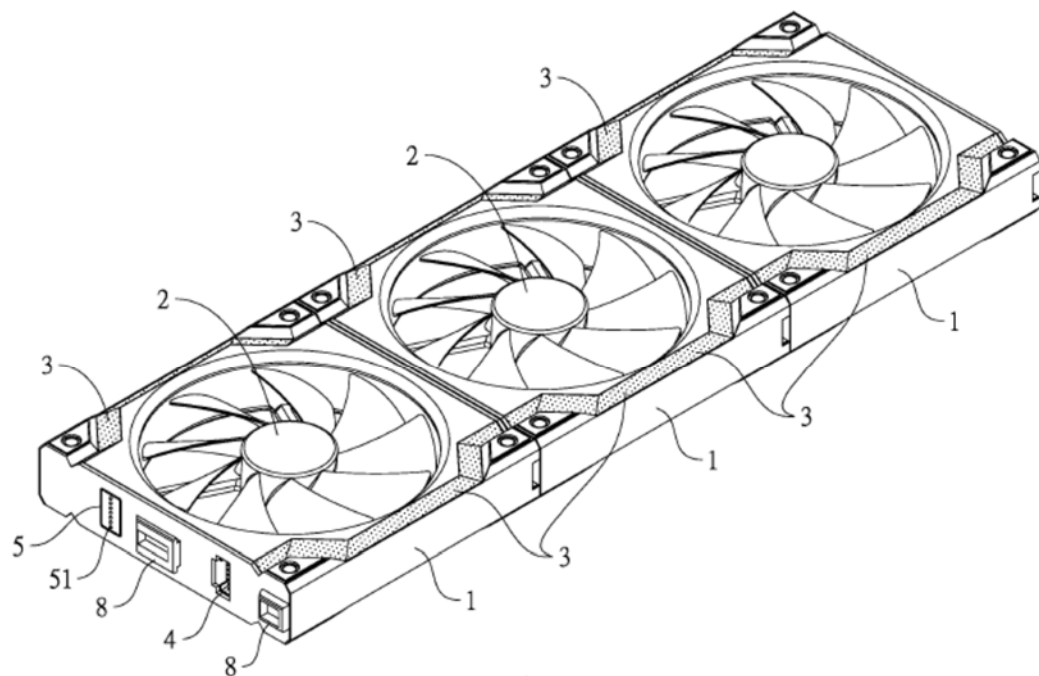


Fig. 3

Further, this POR addresses the limitations in claims 4-5.

B. Challenged Claims Overview

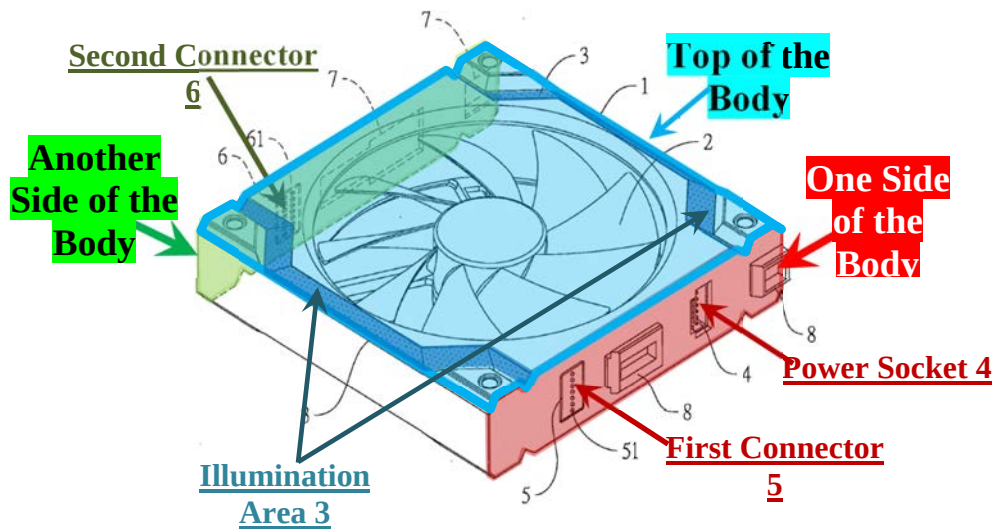
Petitioner challenged all claims (1-5) of the '336 patent. Claim 1 is the only independent claim. Petitioner's Grounds and prior-art references are shown below:

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1	1-3	103	Tsuji, Huang
2	4	103	Tsuji, Huang, Echazarreta
3	5	103	Tsuji, Huang, Chou / Liu
4	1-2	103	Lai, Hasegawa
5	3	103	Lai, Hasegawa, Huang
6	4	103	Lai, Hasegawa, Echazarreta
7	5	103	Lai, Hasegawa, Chou / Liu

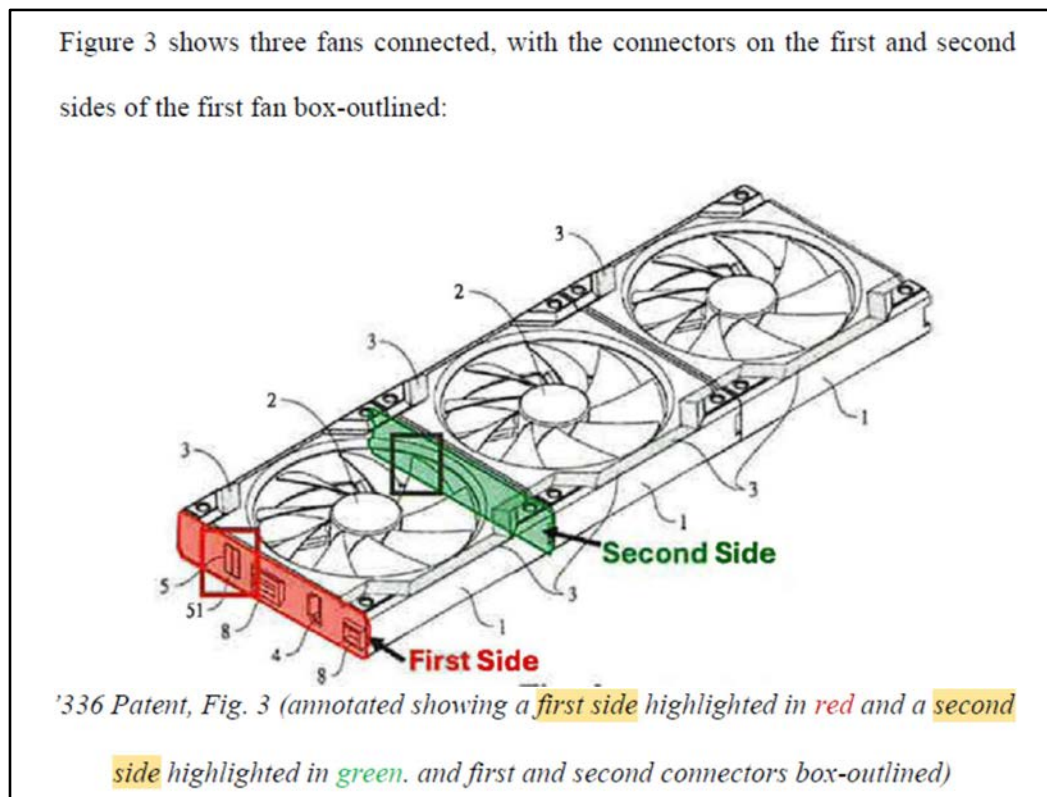
C. Claim Construction

Petitioner contends that the plain and ordinary meaning should apply to all claim terms. (Petition at 7.) Patent Owner applies the plain and ordinary meaning to the terms in the '336 Patent in this POR. 37 C.F.R. §42.100(b). Patent Owner agrees with the Board's construction that the "power socket" and the "first connector" recited in claim 1 must be located on the same "one side of the body" of the claimed illumination fan. Decision at 15-17. Patent Owner further agrees with the Board that the claimed illumination fan body has three separately recited locations: "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" (*id.*) under the plain meaning standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (*en banc*).

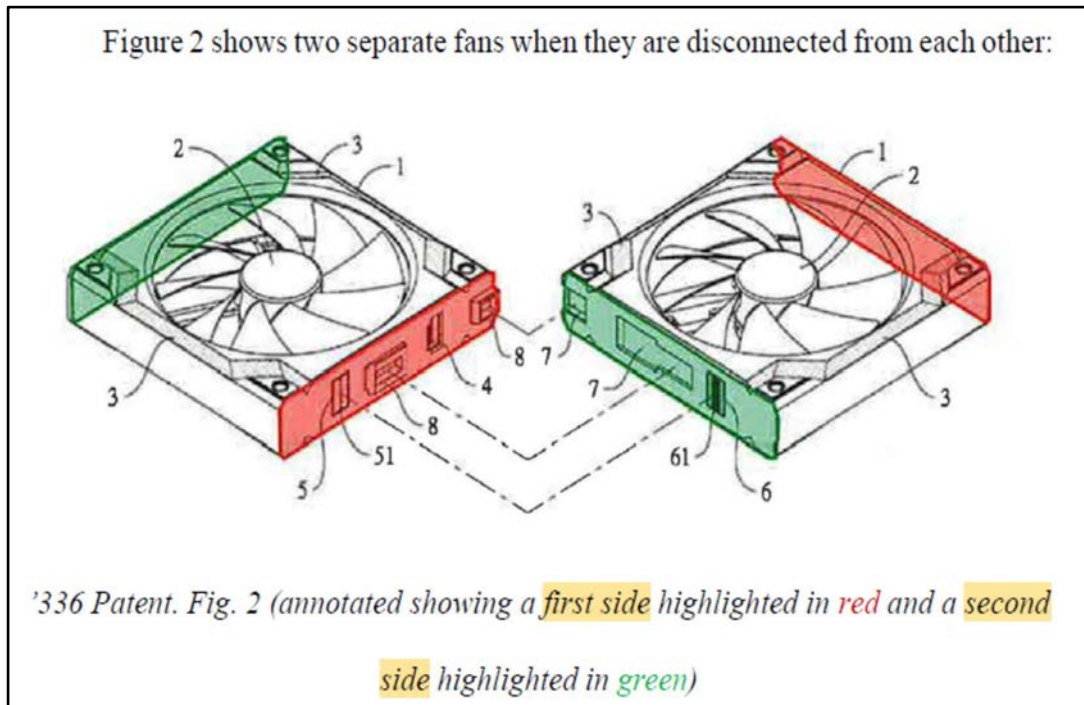
The Board's construction of claim 1 above is supported by, *e.g.*, Figure 1 of the '336 patent (reproduced and annotated below), which shows an illumination fan embodiment as claimed. This embodiment includes a body **1**, a fan **2** disposed in the center of the body **1**, an illumination area **3** disposed on at least two sides of the fan at a top of the body **1** (cyan), a power socket **4** and a first connector **5** disposed on one side of the body **1** (red), and a second connector **6** disposed on another side (green) of the body **1**:



Petitioner and its expert interpret the claim phrases, “one side of the body” and “another side of the body,” in the same way as the Board’s understanding under “the plain meaning of claim 1” (Decision at 17), as shown below in reproduced excerpts of the Petition:



Petition at 8-9 (yellow highlighting added; *red* and *green* highlighting and other annotations original); *accord* Ex-1004 (Wolfe Declaration), ¶ 13.



Petition at 9 (yellow highlighting added; *red* and *green* highlighting and other annotations original); *accord* Ex-1004 (Wolfe Declaration), ¶ 14.

Patent Owner agrees with the Board and believes the terms in the Challenged Claims should have their plain meaning from the viewpoint of a POSITA at the time of the '336 patent's filing and **do not require any express construction**. Petitioner agrees. Petition at 7 ("For the purposes of this Petition, Petitioners also give the claim terms in the '336 Patent their ordinary and customary meaning that they would have to a person having ordinary skill in the art at the time of the alleged invention[.]"). Should Petitioner change its claim construction position or offer a

construction that deviates from the understanding adopted by Patent Owner and the Board, Patent Owner reserves the right to respond accordingly.

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 further contends that claim 5 is not entitled to this date. Petition at 9-13. For purposes of the POR, however, the Board need not resolve this issue because all cited prior art predates December 26, 2018.³

III. PERSON OF ORDINARY SKILL IN THE ART

For purposes of this POR, Patent Owner agrees with the definition for a person of ordinary skill in the art (“POSITA”) provided by the Board (Decision at 15):

[W]e 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.

³ Patent Owner currently takes no position as to whether Petitioner’s priority date position on claim 5 is correct.

IV. GROUND 4: LAI ALONE OR IN VIEW OF HASEGAWA FAILS TO DISCLOSE CLAIM LIMITATIONS 1[b], 1[c], AND 1[d]

Petitioner's Ground 4 relies on Lai in view of Hasegawa for claims 1 and 2. Petition at 6. Grounds 5-7 also rely on Lai and Hasegawa, and cite additional references to account for dependent claims 3-5. But, as shown below, Lai in view of Hasegawa fails to disclose several claim limitations of at least claim 1. Accordingly, all of Petitioner's Grounds based on the Lai-Hasegawa combination (*i.e.*, Grounds 4-7) fail. Ex-2006, ¶ 40.

A. Petitioner Fails To Show Lai Alone or in View of Hasegawa Teaches Limitation 1[b], “an Illumination Area on at Least Two Sides of the Fan at Top of the Body”

Lai alone or in view of Hasegawa does not disclose or teach the limitation, **“an illumination area on at least two sides of the fan at top of the body.”** Petitioner points to the four discrete LEDs depicted in Lai's Figures 2 and 3 as the alleged “illumination area,” but Petitioner fails to demonstrate an illumination area “at top of the body” of the illumination fan, as required by claim 1. Because Lai does not disclose this limitation, Grounds 4-7 fail. Ex-2006, ¶ 41.

Lai discloses the use of multiple RGB LEDs installed in each illumination fan. The only disclosures in Lai relating to the positioning of these LEDs in a perspective view are contained in Figure 3, reproduced below:

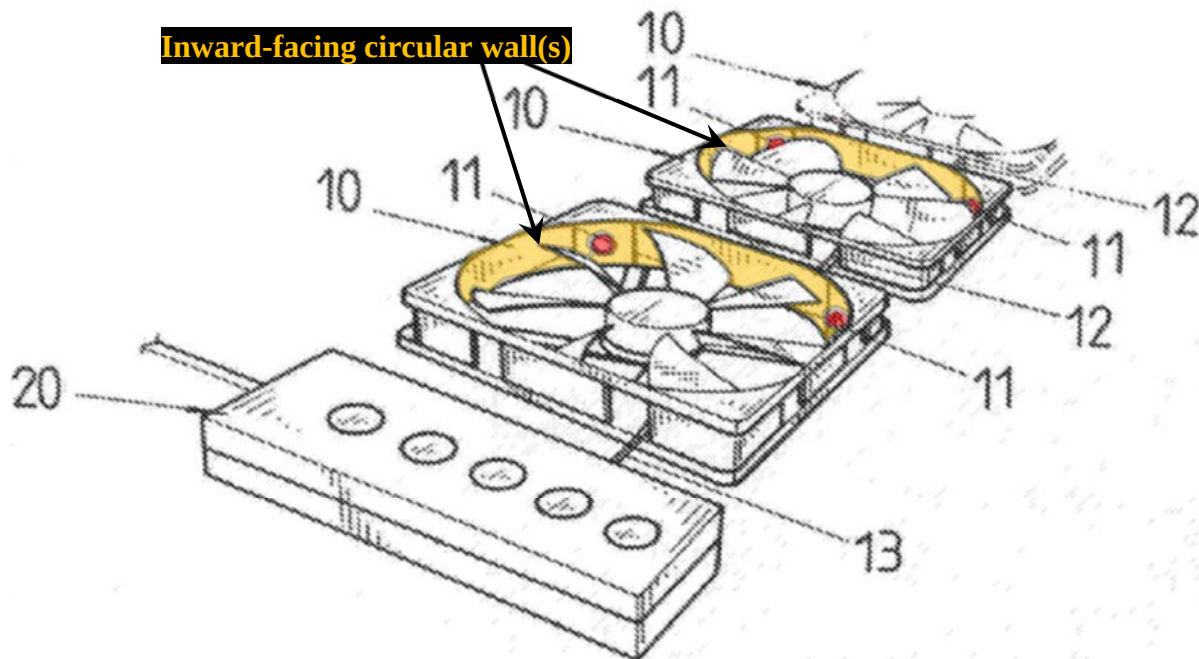


FIG.3

Lai, Fig. 3 (annotations added); Ex-2006, ¶ 42.

As seen above, Figure 3 of Lai makes it clear that the LEDs (labeled “11” in this figure) are attached near the corners of the fan body and are fixed to the inward-facing circular wall surrounding the circular opening within which the fan blades rotate. None of Lai’s LEDs are positioned “at the top of the body” as required by the claims. Instead, as also shown in Figure 3, the LEDs are positioned below the top and to an inner sidewall of the Lai’s fan. Indeed, a POSITA would have quickly recognized that Lai places the LEDs on the inner wall of its fan body, below the top, so as to illuminate the fan blades as they rotate. Lai therefore does not disclose an illumination fan with an illumination area **“at top of the body,”** as claimed. Ex-2006, ¶ 43.

Below, Patent Owner provides an annotated version of Figure 1 of the '336 patent with Lai's LEDs included, which illustrates how the '336 patent's illumination area 3 "at top of the body" differs from the *Lai's LEDs*:

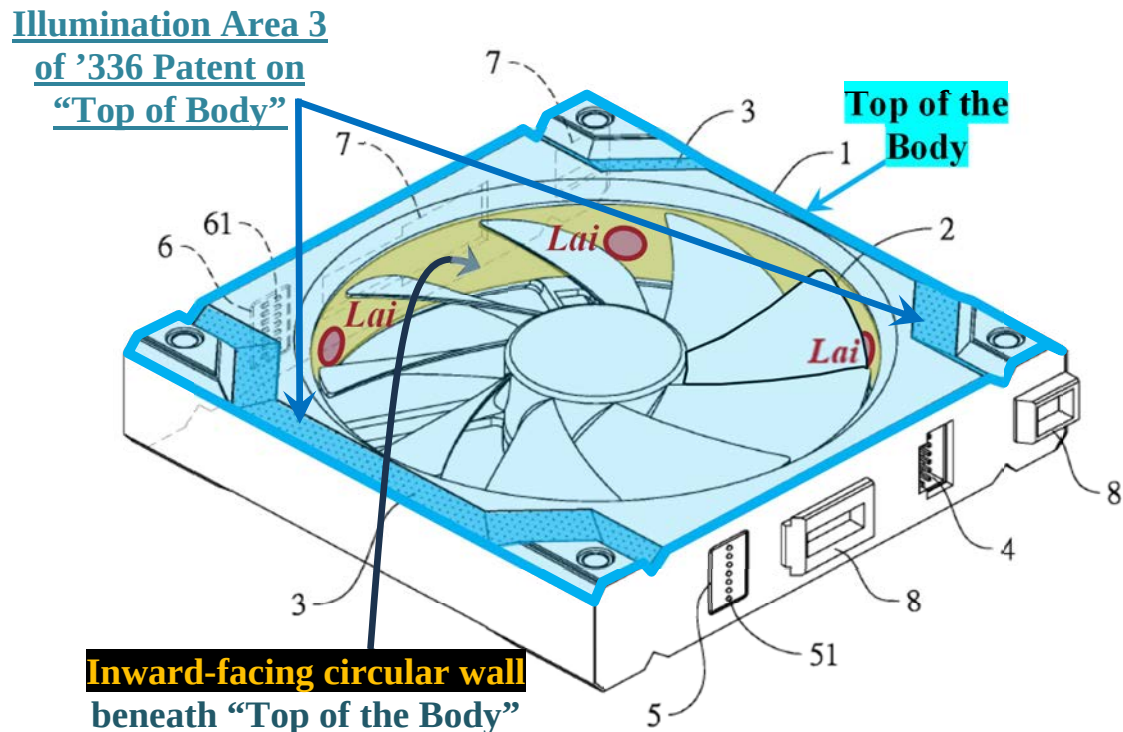


Fig. 1

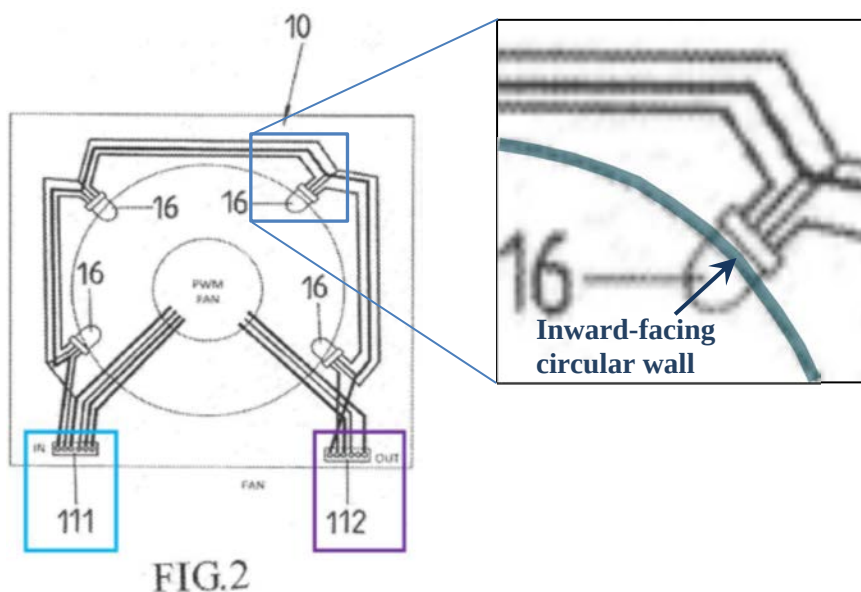
'336 patent, Figure 1 (annotated). Ex-2006, ¶ 44.

The annotated Figure 1 above shows a version of the claimed illumination areas 3 (cyan). Consistent with the claim language, the illumination areas 3 are located at the top of the body. The *red circles*, in contrast, show the positioning of *Lai's LEDs*. As shown, the LEDs are positioned on the **inward-facing circular wall** beneath the "top of the body," i.e., *not* "at top of the body," as required by

the '336 claims. Ex-2006, ¶ 45.

Placing the LEDs in Lai at the **top** of the body would have been far less effective in creating Lai's intended illuminated effect on the center fan blades. Lai's design thus does not disclose – and arguably teaches away from – an illumination area “at top of the body” like the '336 patent. Ex-2006, ¶ 46.

Figure 3 contains the sole perspective view of the Lai fans and shows that the LEDs are positioned on the inner wall of Lai's fan body, **beneath** the top. The only other source of information relating to positioning of Lai's LEDs is Figure 2, but nothing in this figure is inconsistent with Figure 3's perspective view. Figure 2 merely provides a “schematic view” [Lai, 0006], which a POSITA would have understood as referring to a simplified representation that shows the components and their electrical connections to each other, but not necessarily their actual physical layout or appearance. Ex-2006, ¶ 47.



Lai, Fig. 2 (annotations added); Ex-2006, ¶ 47.

As shown, Figure 2 includes four addressable RGB LEDs (labeled “16” in this figure), which are electrically connected in a circular arrangement, with the electrical wiring starting at the input points (labeled as “111”) and progressing to the output points (labeled as “112”). The figure suggests that the preferred embodiment would place the four LEDs in roughly four equally spaced locations near the corners of the fan 10. And as can be seen in the annotated blow-up above-right, the circle denoting the inward-facing circular wall surrounding the center space for the rotating fan is drawn **across** the LED 16. This indicates to a POSITA that the LED 16 is **beneath** the top of the fan 10’s body, which is to be expected. Figure 2 is thus consistent with, and actually supports, the depiction in Figure 3 showing the LEDs located approximately midway between the top and bottom of each fan 10’s body. Ex-2006, ¶ 48.

Petitioner nevertheless argues that the LEDs in Lai “would be understood to be visible from outside the housing when LED fans 10 are normally mounted.” Petition at 57. Petitioner cites to its expert declaration for the proposition that “Lai already indicates that lights should be visible from outside, including from the top, of the fan body.” *Id.* at 58 (citing to Ex-1004 (Wolfe Dec.) at ¶ 115). But Petitioner’s expert merely makes a conclusory statement and cites no part of Lai to support this proposition. *See* Ex-1004 at ¶ 115. To the contrary, there is nothing in Lai suggesting

that the LEDs' light should be directly visible from a top view of each fan 10's body; as explained, the purpose of the LEDs in Lai is not for the LEDs *themselves* to be visible but to emit light onto the rotating fan blades. Ex-2006, ¶ 49.

Petitioner's argument also overlooks that claim 1 expressly requires an illumination area that is *physically located* at the top of the body – not merely an illuminated area in which reflected light happens to be perceptible from a top view. Under Petitioner's apparent reasoning, virtually any illuminated fan would qualify as having its illumination area “at top of the body” if any amount of light was perceptible from a top view, rendering this limitation meaningless. Indeed, an area on the fan body can be passively illuminated by ambient light, but a POSITA would not have deemed that to be an illumination area. Ex-2006, ¶ 50.

Petitioner's argument also cannot be reconciled with the plain language of claim 1, which makes clear that an “**illumination area**” is not simply an area where light happens to be visible to the user – it is the area of the body that *actually generates light, i.e., illuminates*. Claim 1 itself makes this clear by reciting that the “**illumination area**” is “**electrically connected**” with the power socket such that the illumination area is “*driven into ... illumination.*” '336, 4:9-15, Cl. 1. Thus, even if it were the case that some light from the LEDs in Lai might be visible from a top view (which Petitioner has not shown as explained below), this is insufficient to show the claimed illumination area at top of the body that is electrically connected

to power and driven into illumination. Ex-2006, ¶ 51.

In fact, the LEDs in Lai would likely not even be visible when the fan body is viewed from the top because they would be mostly, if not entirely, blocked by the “top of the body.” This is because a POSITA would have understood that (1) the lenses of the LEDs in the use case in Lai would typically have been **directional** pointing toward the fan blades, and thus would not permit much, if any, light going in the lateral direction toward the user viewing the fan 10 from the top, and (2) the tips of the LEDs would not substantially extend into the circular space in which the fan blades rotate to avoid interfering with the blades’ rotation. Further, it would only be the fan blades that would reflect and/or diffuse the LEDs’ light, but the fan blades are not **located** at the “top of the body,” as explained above. Ex-2006, ¶ 52.

Ultimately, Petitioner bears the burden of demonstrating that Lai discloses or renders obvious an illumination area at the top of the body, but has failed to do so. Petitioner cannot make this showing given (a) the paucity of disclosures in Lai, and (b) the lack of any reasoned and non-conclusory analysis in the Petition. Ex-2006, ¶ 53.

Apparently recognizing that Lai does not disclose any LEDs or an illumination area at the top of the body, Petitioner resorts to its backup argument that “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.” Petition at 58. But this

conclusory argument fails for several reasons. Ground 4 does not cite any references disclosing placement of the LEDs for an illuminated fan at top of the body. Petitioner's argument that Lai could be so modified amounts to little more than an appeal to "common sense" or "ordinary creativity" with no supporting prior art disclosure (see Ex-2006, ¶ 54), which here does not provide a basis for filling in missing claim limitations. See *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1363 (Fed. Cir. 2016) ("In cases in which 'common sense' is used to supply a missing limitation, as distinct from a motivation to combine, moreover, our search for a reasoned basis for resort to common sense must be searching. And, this is particularly true where the missing limitation goes to the heart of an invention."). Petitioner provides no reasoned justification for this purported modification (Ex-2006, ¶ 54), let alone attempts to satisfy the "searching" analysis required by Federal Circuit precedent.

Petitioner argues for example that "[t]here are no physical limitations that prevent or discourage moving them to the top surface," "[w]ire lengths would not need to substantially change and there are no obstacles to avoid," and "[e]lectronics modules are commonly available in a choice of light configurations, *e.g.*, top or corner or side lights, to facilitate wiring." Petition at 58. But these assertions (aside from being unsupported), do nothing more than generically assert that it might be physically **possible** to relocate the LEDs to some other position. These assertions

do not provide any rationale for why a POSITA would be ***motivated*** to relocate the LEDs from their carefully-selected mid-depth position in Lai – let alone to the top of the body as claimed. In fact, if a POSITA repositioned the LEDs depicted in Lai’s Figure 3 at the top of the body (a POSITA would not do so), Lai’s LEDs would not serve their original purpose of illuminating the fan blades from the inner surface of the fan body at mid-depth, and ***beneath*** the top of the body. Ex-2006, ¶ 55.

Hasegawa does not teach any illumination area at all and thus cannot cure Lai’s deficiency. Therefore, Petitioner fails to show that Lai in view of Hasegawa discloses or teaches limitation 1[b]: “**an illumination area on at least two sides of the fan at top of the body**” as recited in claim 1 of the ’336 patent, so Ground 4 fails. Ex-2006, ¶ 56.

B. Petitioner Fails To Show That Lai Teaches Limitation 1[c]: “a Power Socket and a First Connector on *One Side of the Body*, and a Second Connector on *Another Side of the Body*”

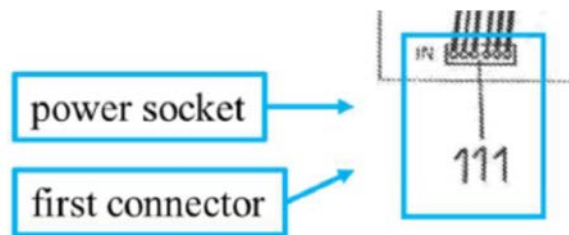
Limitation 1[c] of claim 1 requires “a power socket and a first connector on one side of the body, and a second connector on another side of the body.” Petitioner fails to show that Lai teaches this limitation. Ex-2006, ¶ 57.

As an initial matter, Petitioner fails to show that Lai teaches any “power socket” or “connector.” Indeed, ***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***.”). 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)). Thus, Petitioner’s mappings must be rejected. Ex-2006, ¶ 59.

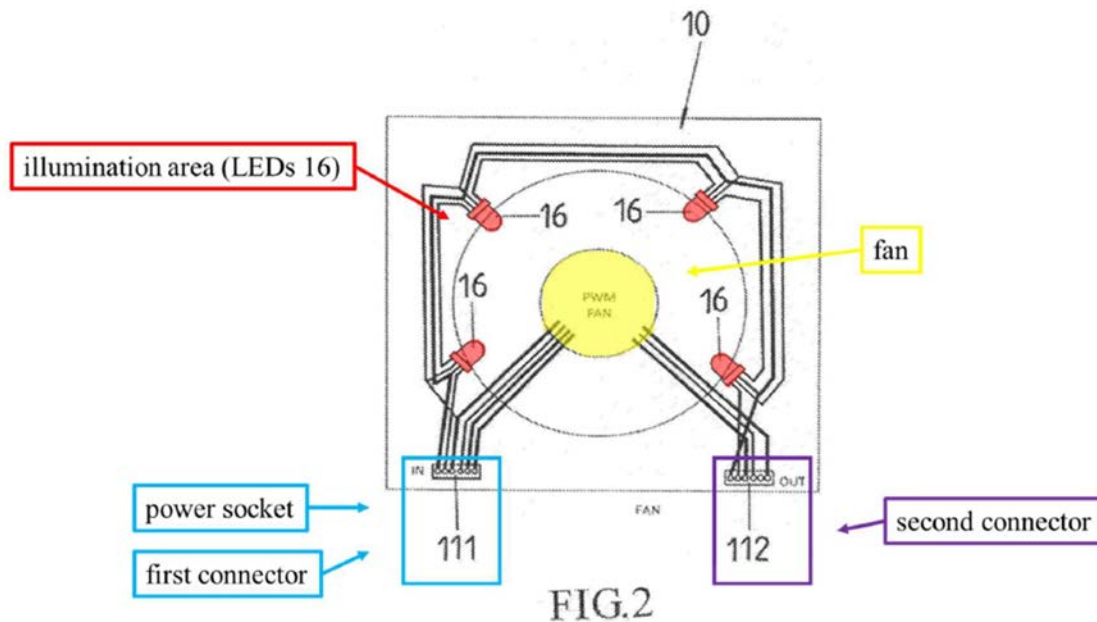
As an initial matter, Petitioner attempts to characterize Lai’s single input 111 as the “first connector” and “power socket”⁴ and the single input 112 as the “second

⁴ Petitioner maps the single input 111 of Lai to ***both*** the “power socket” and “first connector” limitations simultaneously:



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. Patent Owner previously in its preliminary response (Paper 6 at 37-39) argued that the power socket and the first connector must be structurally separate, but the Board disagreed. Decision at 28

connector” as shown below:



Petition at 68 (annotating Fig. 2 of Lai); Ex-2002, ¶ 88. But contrary to Petitioner’s assertion, Lai does not characterize element 111 as a “socket” or a “connector.” See *generally* Ex-1012. Instead, Lai simply refers to item 111 as a “**single** input 111.” *Id.* at 7. 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. Petitioner is using hindsight based on the ’336 patent itself to force the mapping of element 111 or 112 as a power socket and/or a

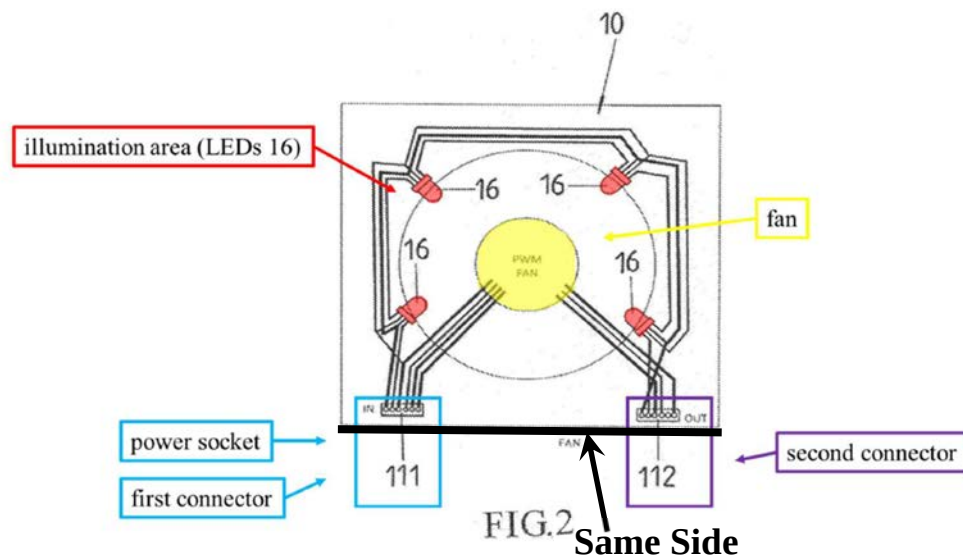
(“On this record, we do not agree that the claimed first connector, having an electrically conductive terminal, must be a separate structure from a power socket.”).

connector, which is prohibited (Ex-2006, ¶ 59). *See Cheese Sys.*, 725 F.3d at 1352 (“even a hint of hindsight” should be avoided).

Apparently recognizing that Lai does not disclose or otherwise teach any “socket” structure at all, Petitioner again resorts to “common sense” to supply a missing claim limitation. Specifically, Petitioner argues 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”; that “[t]hey would be a trivial substitute for a connector that was not considered a ‘socket’”; and 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.” Petition at 60-61. But, like before, these conclusory arguments are fatally defective because they fail to cite **any** reference disclosing a “socket” structure. Petitioner’s “common sense” argument does not and cannot provide a basis for the missing “socket” limitation. *See Arendi*, 832 F.3d at 1363 (“In cases in which ‘common sense’ is used to supply a missing limitation, as distinct from a motivation to combine, moreover, our search for a reasoned basis for resort to common sense **must** be searching.”). Petitioner again provides no reasoned justification for this purported modification to satisfy the “searching” requirement. Ex-2006, ¶ 60.

Even assuming *arguendo* Petitioner’s proposed modification was acceptable (it is not), limitation 1[c] 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 patent, Cl. 1. Petitioner fails to show that Lai, **without modification**, teaches this limitation at least because the alleged “second connector” 112 is not located on “another side”; instead Lai’s second connector 112 is located **behind** the **same** “one side” as the alleged “power socket” and “first connector” 111, as shown below:



Petition at 68 (black “**Same Side**” labeling added, other annotations original). As shown, Petitioner maps Lai’s element 111 as the “power socket” and “first connector,” and Lai’s element 112 as the “second connector” in Figure 2. Petitioner even admits that “the schematic in FIG. 2 of Lai shows both single input 111 and single output 112 on the **same** side.” Petition at 62. Because both elements 111 and 112 are **behind** the **same** side of the fan body, they are **not on** “one side” and “another side.” Ex-2006, ¶ 61.

Petitioner’s expert’s testimony confirms Lai fails to disclose a first connector

on a first side and a second connector **on** another side. Specifically, during his deposition, Petitioner's expert characterized the "**Same Side**" annotated in Lai's Figure 2 above as an "**edge**" and admitted elements 111 and 112 are **internal** components "**behind the lower edge**" and are "**not on**" it:

[Q.] Dr. Wolfe, would a POSITA reading Lai's Figures 2 and 3 have understood elements 111 and 112 as marked by you in Exhibit 2012 to be on the same edge of the LED fan 10?

THE DEPONENT: **No. They are on the interior**, one on the left side and one on the right side. **So they are not on an edge at all.**

...

Q. [Y]ou testified that given elements 111 and 112 are **internal** elements for the **LED fan 10**, a POSITA would have understood these two elements to be **behind the lower edge**, and one of them is also **behind** the left edge and the other one is also **behind** the right edge, correct?

A. **Yes. In the embodiment that's illustrated.**

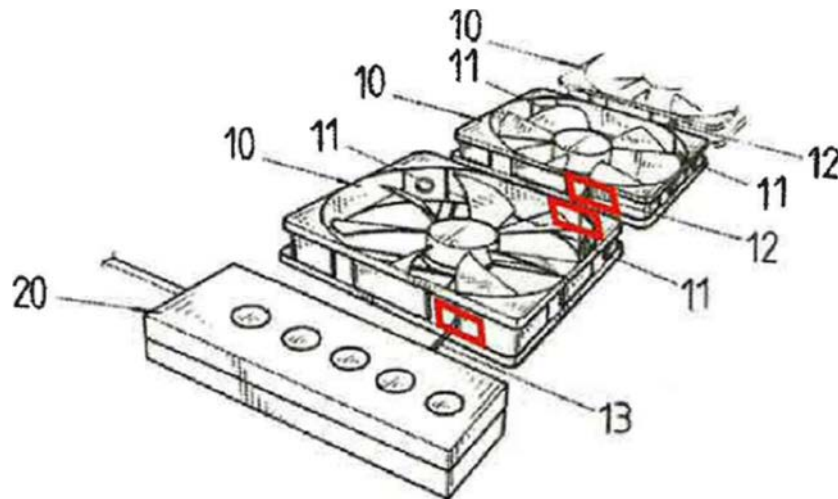
Ex-2005 (4/25/2025 Wolfe Tr.) at 73:8-19 and 74:16-23; *compare id.* with Lai, Fig. 2. That is, Petitioner's expert admits Lai teaches that elements 111 and 112 are **behind** the **same** "lower side" of fan 10's body (what he referred to as the "lower edge"). As mentioned, Petitioner also concedes that "the schematic in FIG. 2 of Lai shows both single input 111 and single output 112 on the **same** side." Petition at 62. Either way, Petitioner fails to show that Lai alone teaches the first and second

connectors **on different** sides as required by limitation 1[d]. Ex-2006, ¶ 62; *see also* Ex-2002, ¶¶ 94-95.

Acknowledging Lai fails to disclose limitation 1[d], 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. Again Petitioner improperly resorts to common sense to provide a missing limitation: “[t]here are no physical limitations that prevent or discourage moving them around from the corners to the sides”; “[w]ire lengths would not need to substantially change and there are no obstacles to avoid”; and “[e]lectronics modules are **commonly** available in a choice of connector configurations, e.g. top or bottom or side connectors, to facilitate wiring” (Petition at 63-64). Again, Petitioner cannot rely on “common sense” to provide a missing claim limitation (Ex-2006, ¶ 63). *Arendi*, 832 F.3d at 1363. Petitioner’s purported modification of Lai also seems to rely on impermissible hindsight (Ex-2006, ¶ 63). *See Cheese Sys.*, 725 F.3d at 1352 (prohibiting “even a hint of hindsight”).

Effectively acknowledging Lai’s deficiency, Petitioner argues that “[i]t would have been obvious to a PHOSITA to combine Lai and Hasegawa.” Petition at 66. Specifically, Petitioner asserts that Lai in view of Hasegawa would teach a POSITA

to produce a device similar to that of Figure 3 of Lai, but with visible connectors on the fan body sides” in “**red boxes**,” as shown below:



Petition at 66-67. But as explained below, irrespective of how Petitioner proposes modifying Lai, Petitioner fails to show that Lai alone or in view of Hasegawa teaches a “power socket on the [same] one side of the body” as the “first connector,” as required by limitation 1[d].

C. Petitioner Fails to Establish Lai Alone or in View of Hasegawa Teaches “the Power Socket [Is] on the [Same] One Side of the Body” as the “First Connector”

As noted previously, claim 1 requires:

1. ***An illumination fan*** connectable with at least one illumination fan for a computer, comprising: ***a body, provided with ... a power socket and a first connector on one side of the body ...***

(the “*Same Side*” limitation). Limitation 1[d] confirms that the power socket is on the same “one side” as the first connector:

“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”

Thus, per the plain meaning of the claim language, both the power socket and the first connector must be located on the same “one side” of the body of a single illumination fan (Ex-2006, ¶ 66). The Board agrees. Decision at 16-17.

The specification of the '336 patent confirms this construction is correct. As shown in Figure 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:

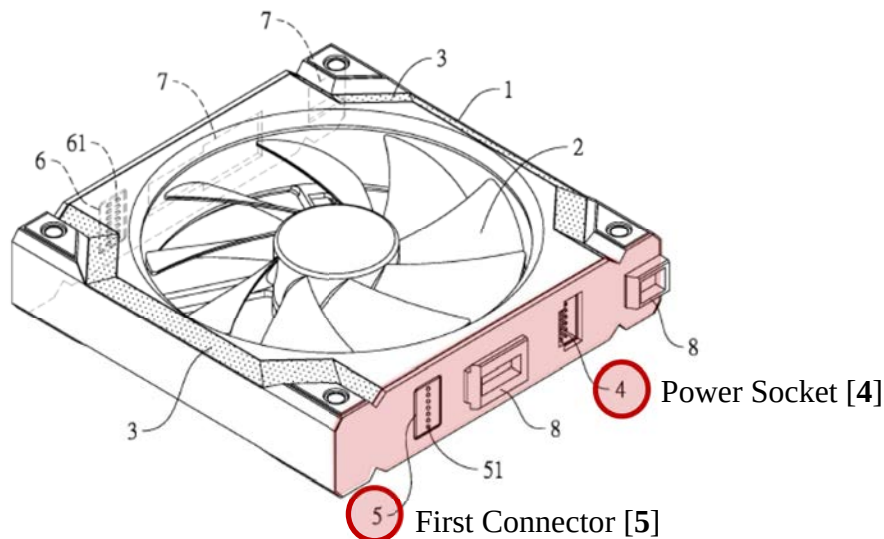
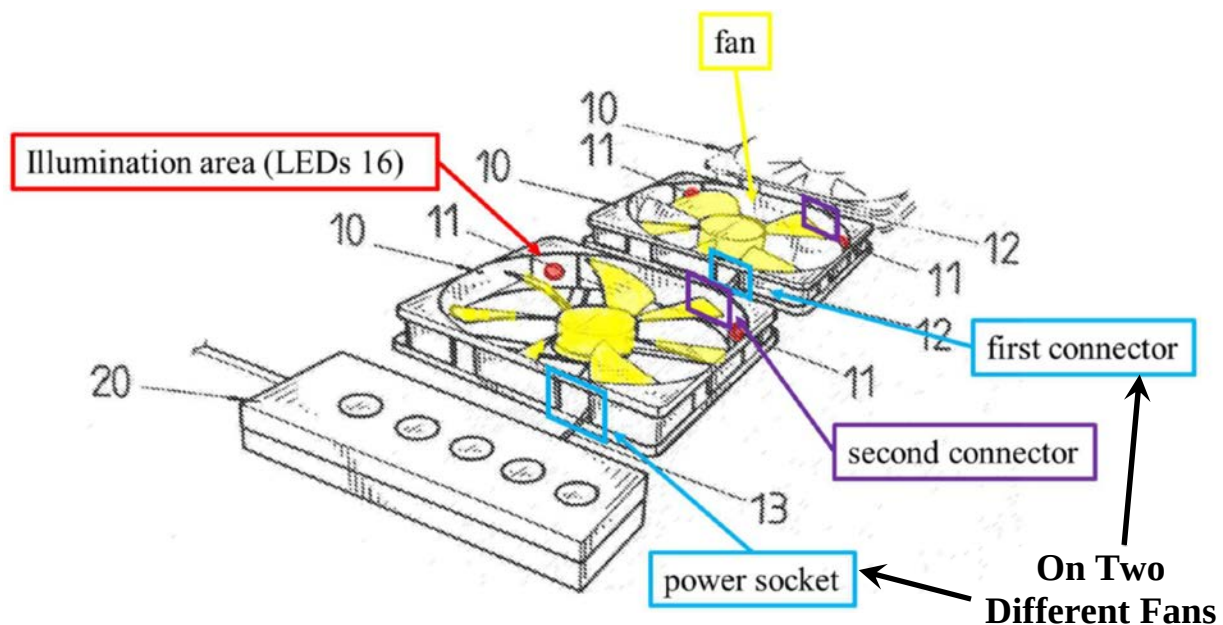


Fig. 1

Ex-1001 at Fig. 1. Ex-2006, ¶ 67; *see also* Ex-2002, ¶ 57. Further, this construction is also 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 ... ***placed on the same side*** of the fan housing.” Ex-2003 at 4.⁵

Attempting to meet the Same Side limitation, Petitioner creates a ***modified*** Lai system, purportedly by ***moving*** the alleged “power socket,” the “first connector,” and the “second connector” to different “side[s] of the two [fan 10] bod[ies]” (or “edges,” if using the vocabulary of Petitioner’s expert during his deposition) in Figure 3, as shown below:



Petition at 69 (“On Two Different Fans” labeling added; other annotations original);

⁵ Further, in contrast to the illumination area 3 located at the top of the body, the purported “LEDs 16” are ***not*** located at the top of the body of each fan 10 because they are located on an inside wall of the body. Ex-2002, ¶ 58.

Ex-2006, ¶ 68; *see also* Ex-2002, ¶ 99. In doing so, however, Petitioner fails to show that the **modified** Lai system, by itself or in view of Hasegawa, meets the Same Side limitation. As can be seen above, in Petitioner’s purported Lai system as **modified** by itself or in view of Hasegawa, the “power socket” is mapped onto a first fan 10’s body (the *first* fan 10 counting from the left) while the “first connector” is mapped onto a completely different fan (the *second* fan 10 counting from the left). The claims do not allow for the use of **two different fans** to meet the Same Side limitation because the plain language of the claim requires a **single illumination fan** to include both the power socket and the first connector on ***the same side***:

“1. ***An illumination fan*** connectable with at least one illumination fan for a computer, comprising: ***a body***, provided with ... a power socket and a first connector ***on one side of the body***, ...”

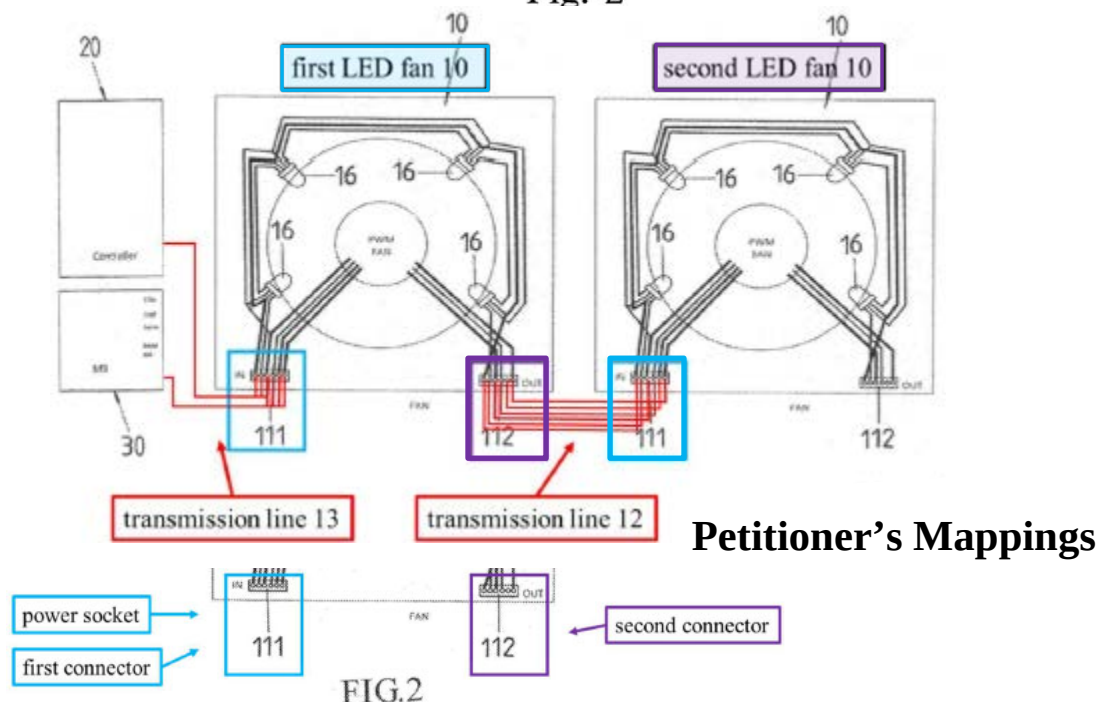
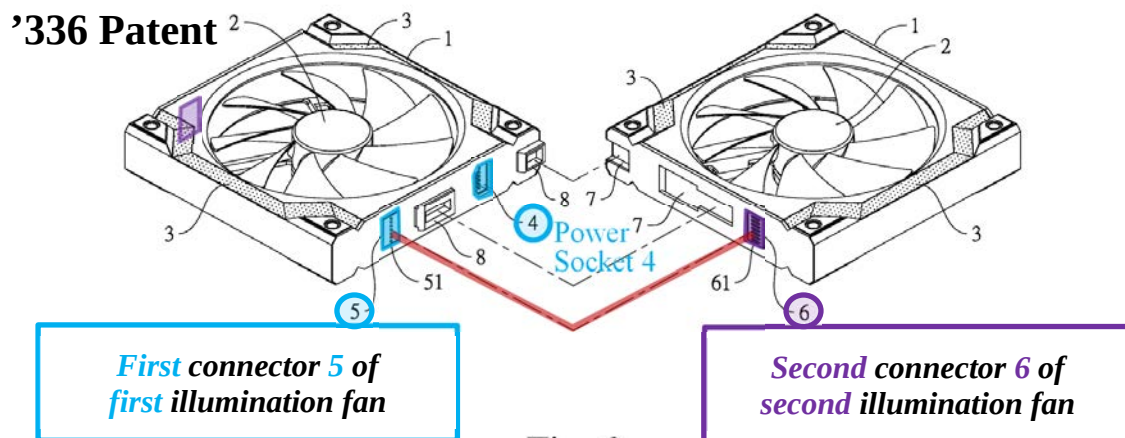
Thus, as Petitioner’s own analysis proves, Lai alone or in view of Hasegawa fail to teach the Same Side limitation of the claims. Ex-2006, ¶ 69.

D. Petitioner Fails to Establish That Lai Alone or in View of 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 explained in the previous section, claim 1 requires the same illumination fan to have “a power socket and a first connector on [the same] one side of the body” of that same illumination fan. Ex-2006, ¶ 70. As it relates to these components, limitation 1[d] in claim 1 further requires:

“when the **first** connector of the body [of the **first** illumination fan] is connected with a **second** connector of a body of another [i.e., a **second**] illumination fan, a fan and an illumination area of the body of another illumination fan are respectively driven into rotation and illumination.”

That is, limitation 1[d] requires that the **first** connector of the body of the **first** illumination fan be connected with the **second** connector of the body of the **second** illumination fan.” But Petitioner mapped Lai’s components **the other way around**:



Compare '336 patent, Cl. 1, Fig. 2 (annotated) *with* Petition at 71, 73, 68 (annotated).

As seen above, instead of showing Lai's *first* connector 111 of Lai's *first* LED fan 10 is being connected with Lai's *second* connector 112 of Lai's *second* LED fan 10 (like claim 1), Petitioner shows Lai's *second* connector 112 of Lai's *first* LED fan 10 is being connected with Lai's *first* connector 111 of Lai's *second* LED fan 10 via transmission line 12. That is, Petitioner shows the *converse* of what claim 1 of the '336 patent requires. Critically, the respective mappings to the *first* and *second* connectors of the first illumination fan in claim 1 of the '336 patent cannot be trivially swapped because the *first* connector must be on the *same* side as the *power socket*, which must also be "supplied with power" and on a different side as the *second* connector. Ex-2006, ¶ 70.

Thus, Petitioner fails to show that Lai alone or in view of Hasegawa teaches "the first connector of the body [of the first illumination fan] is connected with a second connector of a body of another [*i.e.*, a second] illumination fan" as required by limitation 1[d] of the '336 patent. Ex-2006, ¶ 67; *see also* Ex-2002, ¶ 104.

V. GROUND 1: TSUJI ALONE OR IN VIEW OF HUANG FAILS TO TEACH LIMITATIONS 1[b], 1[c], AND 1[d]

Petitioner's Ground 1 relies on Tsuji in view of Huang. Petition at 5. But as shown below, Tsuji in view of Huang fails to disclose at least limitations 1[b], 1[c], and 1[d]. Further, a POSITA would not have been motivated to combine the

teachings of Tsuji and Huang. Indeed, the Board’s initial view is that, based on the “preliminary record, Petitioner has not sufficiently shown that Tsuji teaches or suggests limitation 1[c].” Decision at 50. As explained below, the Board’s initial findings here were correct and should be adopted in the Final Written Decision.

A. Overview of Tsuji (Ex-1007)

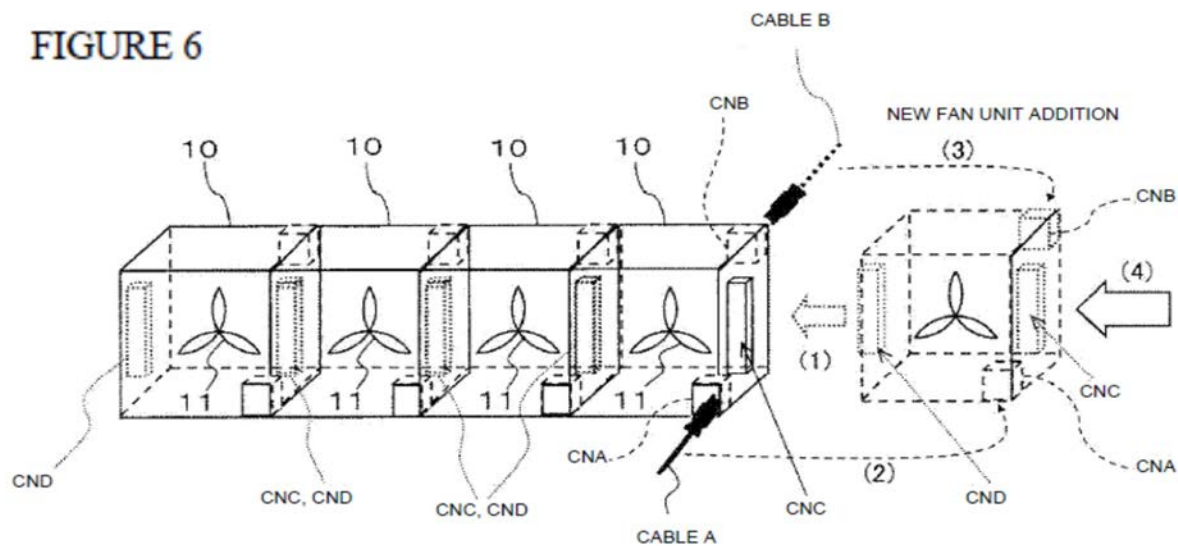
A foundational purpose of Tsuji’s is to “enable hot swapping of one fan unit,” a goal Tsuji reiterates numerous times. See Tsuji (Ex-1007) at Cl. 3 (“[T]he plurality of fan units is configured so as to enable hot swapping of one fan unit among the plurality of fan units ...”); [0002] (“[A]n ability to 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 exposed power sockets to be dynamically plugged in 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 uninterrupted power. Tsuji's procedural description further illustrates this necessity:

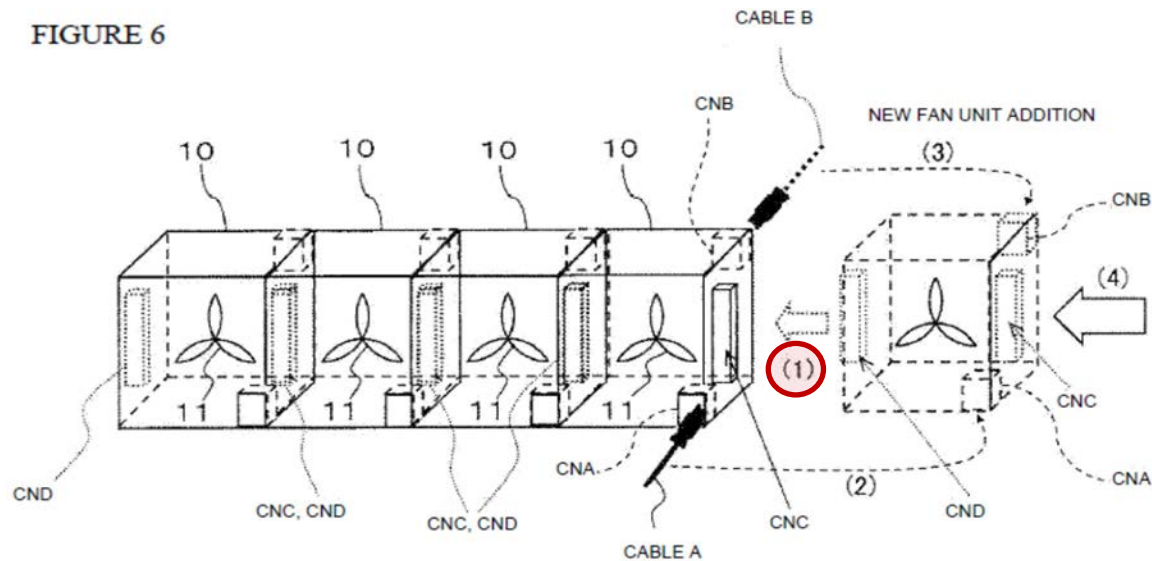
[0042] [T]he hot-swapping procedure of fan unit 10 according to the present embodiment will be explained while referring to FIG. 6 [reproduced below]. ...

FIGURE 6



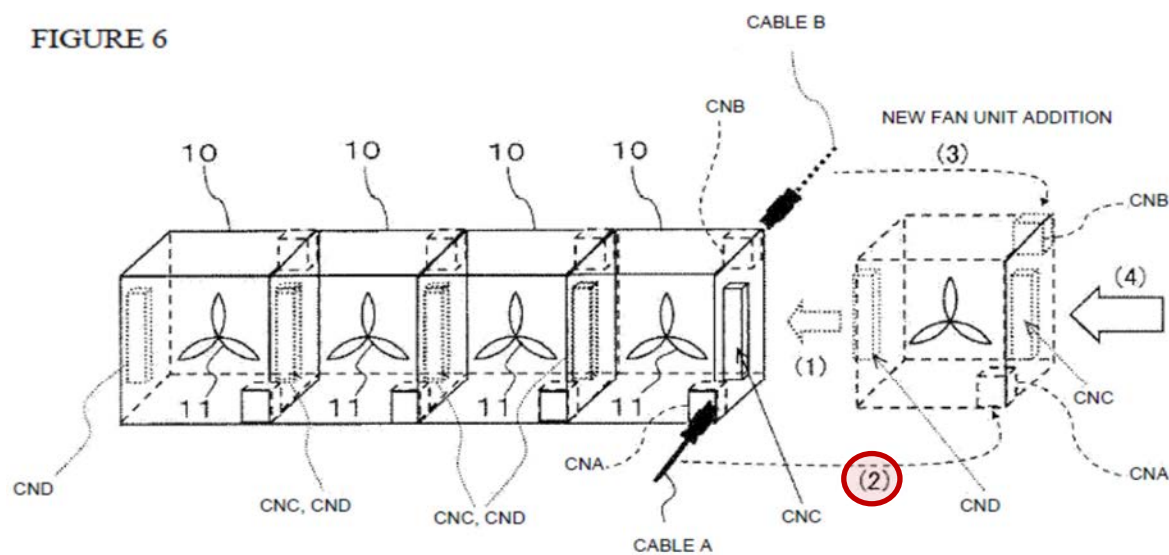
[0044] [T]he maintenance person engages the connector CNC (male) of fan unit 10 on the right-most side with the connector CND of the new fan unit 10 (refer to **Arrow (1)** shown in FIG. 6). Accordingly, the new unit 10 is connected to fan unit 10 on the right-most side as a fifth fan unit 10.

FIGURE 6



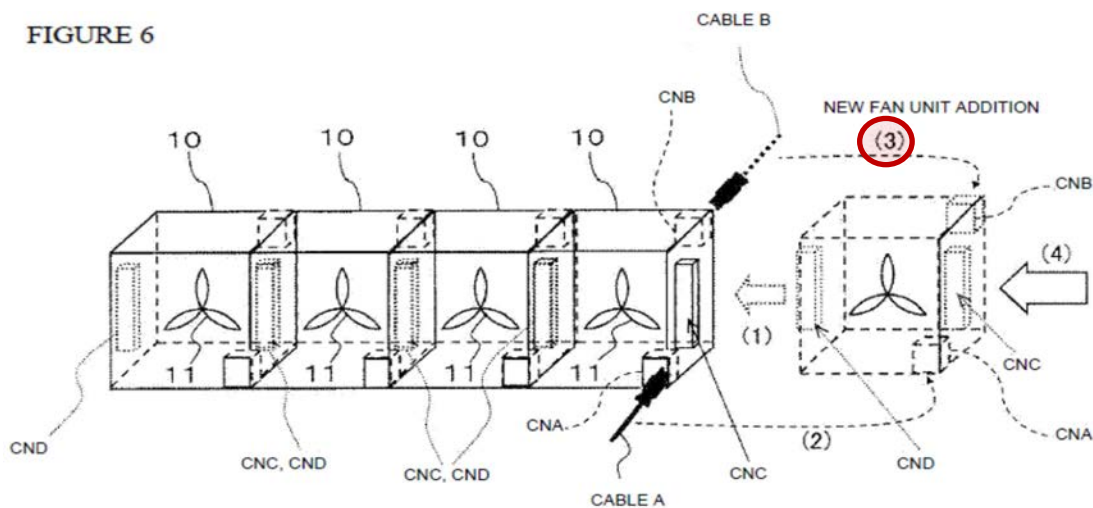
[0045] Subsequently, the maintenance person removes the cable A that is connected to the connector CNA of fan unit 10 on the right-most side, and connects the same to the connector CNA of the additionally- linked new fan unit 10, as shown by **Arrow (2)** of FIG. 6. ...

FIGURE 6



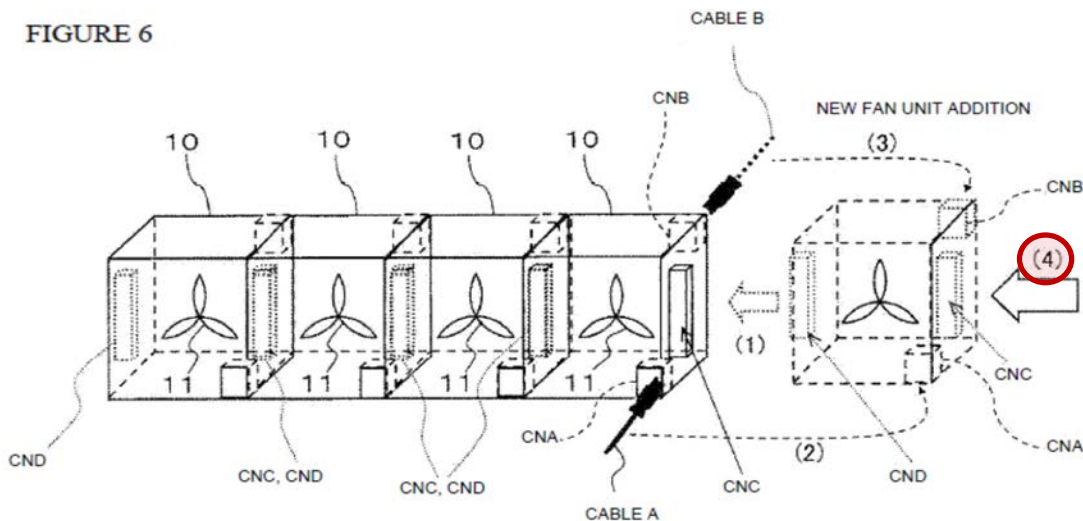
[0046] Furthermore, the maintenance person removes the cable B that is connected to the connector CNB of fan unit 10 on the right-most side, and connects the same to the connector CNB of the additionally- linked new fan unit 10, as shown by **Arrow (3)** of FIG. 6. ...

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]; Ex-2006, ¶ 74.

B. Petitioner Fails To Show That Tsuji in View of Huang Teaches the Same Side Limitation

As explained previously, per the plain meaning of the claim language, both the power socket and the first connector must be located on the same “one side” of the body of a single illumination fan. Petitioner, however, fails to show that Tsuji teaches this Same Side limitation. The Board agrees. Decision at 16-17, 49-50.

Petitioner did not apply the plain meaning of the claims to the prior art. Instead, Petitioner’s Ground based on Tsuji only require the “first connector” to be on the “one side of the body” but not the “power socket.” Throughout the Petition and its supporting expert declaration, in no instance did Petitioner and its expert show that the cited prior art teaches a power socket and a first connector located on the same side of a single illumination fan. *See generally* Petition and Ex-1004. ***This***

misapplication of the plain meaning of the claims by Petitioner and its expert is a fatal blow to all of Petitioner's Tsuji grounds, as explained in more detail below.

Ex-2006, ¶ 76.

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 the '336 patent's Fig. 1 embodiment) or the "rear" (equivalent to the bottom of the illumination fan body in the '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 the CNC connector (the alleged "first connector") is positioned on a separate side of the fan unit:

FIGURE 6

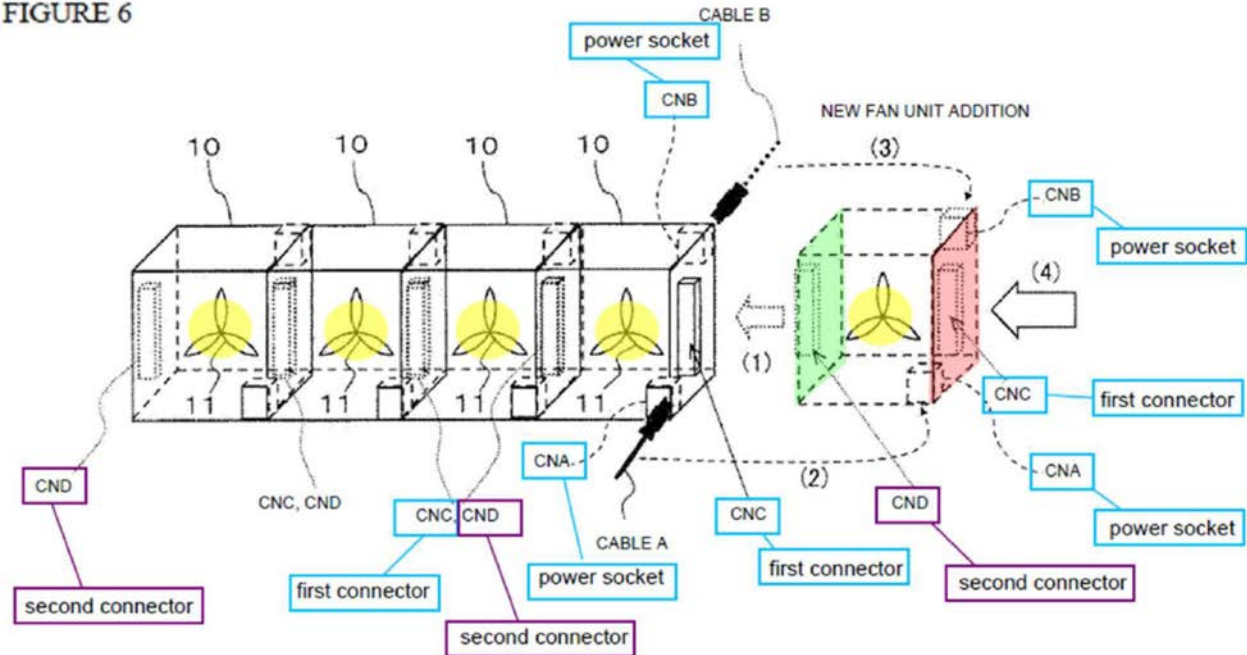
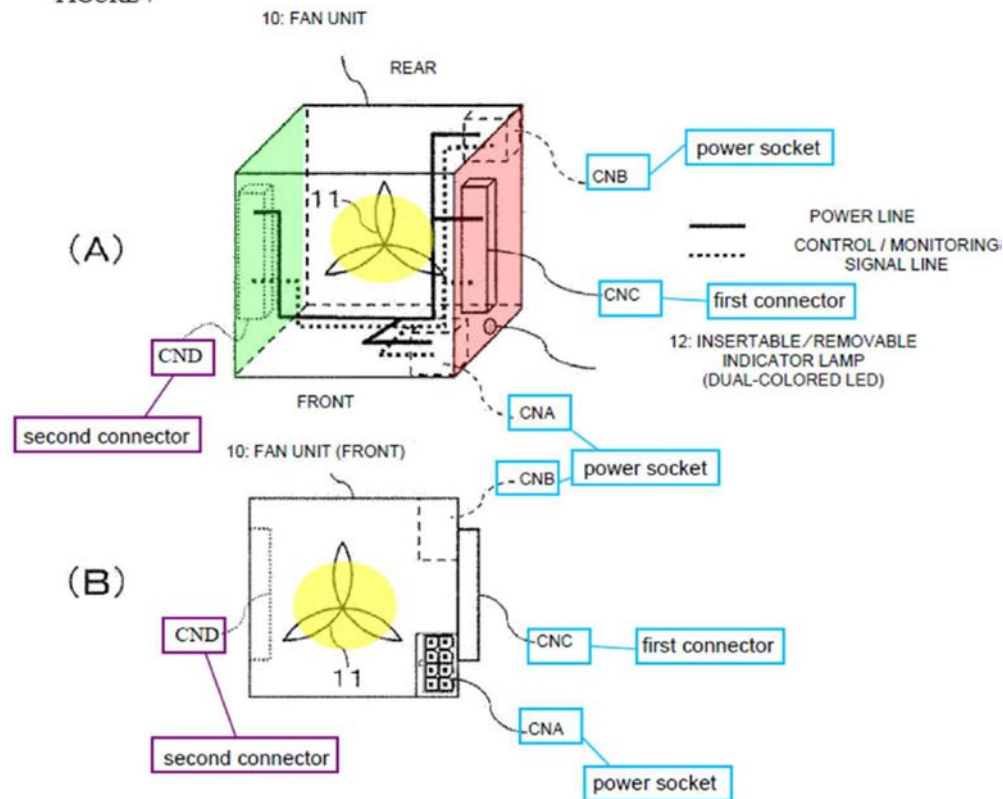


FIGURE 7

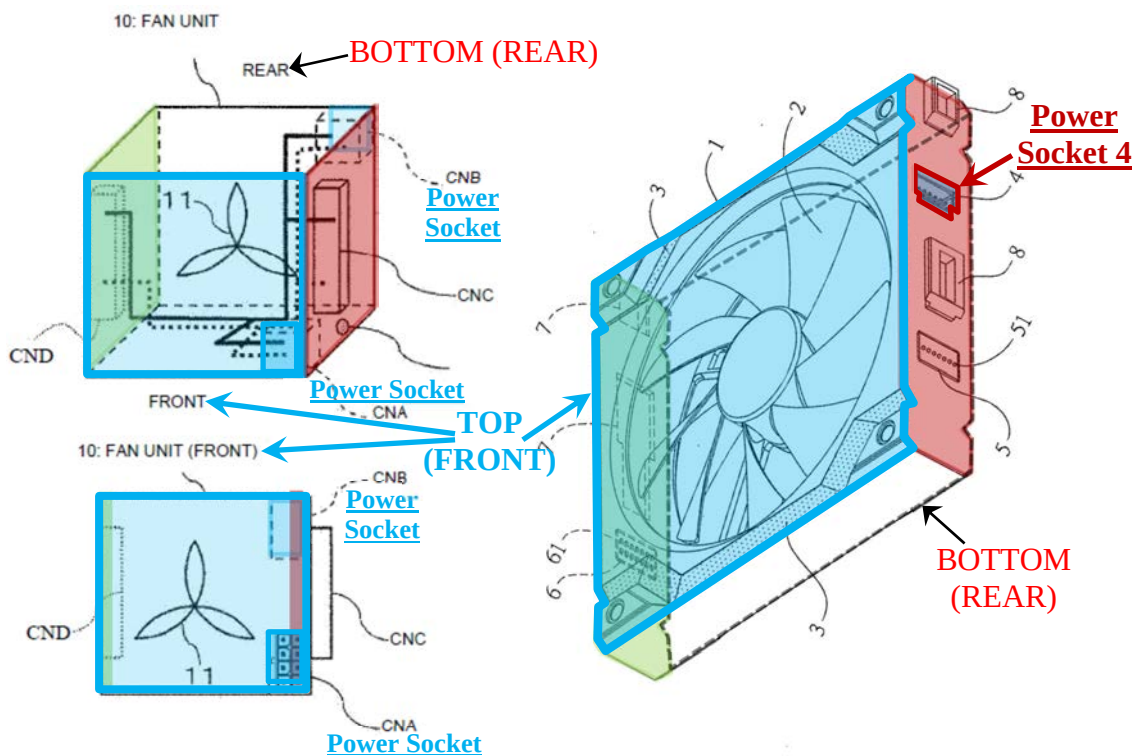


Petition at 34 (annotating Figs. 6-7 of Tsuji); Ex-2006, ¶ 77; *see also* Ex-2002, ¶ 59.

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 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 the alleged power socket CNA or CNB. *Id.*; Ex-2002, ¶ 60. Thus, Petitioner fails to show that, in Tsuji, the alleged “power socket” CNA or CNB is on the same “one side of the body” that the alleged “first connector” CNC is on.

Indeed, the 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” CNA/CNB) with

'336 patent (FIG. 1 (rotated), "Power Socket 4") (annotated); Ex-2006, ¶ 78.

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 "**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 the first connector. 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-2006, ¶ 79; *see also* Ex-2002, ¶¶ 61-62.

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. Ex-2006, ¶ 80. Thus, Ground 1 fails.⁶

⁶ This failure is fatal to all of Petitioner's grounds based on Tsuji, *i.e.*, Grounds 1

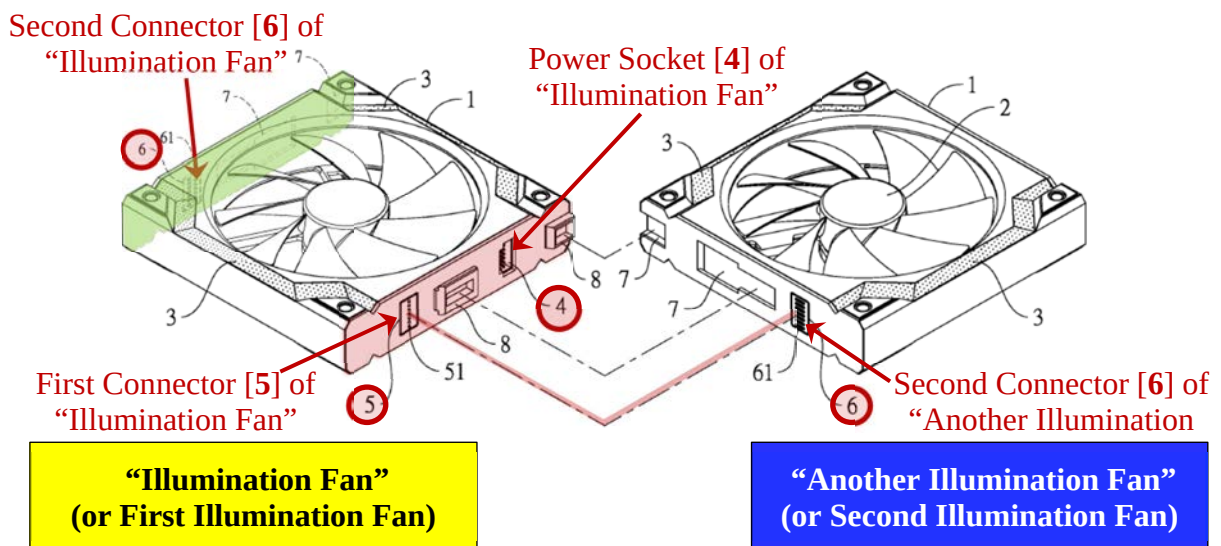
Even if Petitioner had suggested a modification of Tsuji to relocate the CNA/CNB connectors (which Petitioner did not), such a modification would make no sense in the system of Tsuji and would render it inoperable. This is because, for example, relocating the power sockets CNA and CNB to the side of CNC would jam the power sockets between adjacent fan units, rendering them inaccessible and inoperable. Thus, the specific layout in Tsuji—placing the power sockets CNA and CNB on the front (top) and rear (bottom) of the fan body and the connectors CNC and CND on the sides—is a deliberate requirement aimed at preventing wiring interference and preserving uninterrupted power—all essential for the operational integrity of Tsuji’s hot-swapping system. Ex-2006, ¶ 81; *see also* Ex-2002, ¶¶ 63-64. Further, Huang cannot cure Tsuji’s deficiency because Petitioner uses Huang for only the illumination area related limitations. Ex-2006, ¶ 81.

In sum, it is a physical impossibility in Tsuji’s hot-swapping scheme to have the power socket CNA or CNB located on the *same* “one side of the body” as the first connector, as required by claim 1 of the ’336 patent. *Id.*, ¶ 82.

through 3, because Petitioner relies solely on Tsuji for this limitation of claim 1. *See* Petition, at 32-35.

C. Petitioner Fails To Show Tsuji in View of Huang Teaches Limitation 1[d]’s Requirement that “the First Connector of the Body [of the First Illumination Fan] Is Connected with a Second Connector of a Body of Another [i.e., a Second] Illumination Fan.”

Petitioner fails to show that Tsuji alone or in combination with Huang teaches limitation 1[d]’s requirement that “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 patent, Cl. 1, Fig. 2 (annotated); Ex-2006, ¶ 83. As can be seen above, the *first* connector [5] of the body of the **first illumination fan** must also be on the same side of the body of the **first illumination fan** (red side) as the power socket [4] of the **first illumination fan**. The second connector [6] of the **first illumination fan** also must be on a *different* side of the body of the **first illumination fan** (green side). Thus, the respective mappings to the “*first* connector” and the “*second* connector”

of the first illumination fan **cannot** be trivially swapped, neither can the respective mappings to the (first) “illumination fan” and the (second or) “another illumination fan.” Ex-2006, ¶ 83.

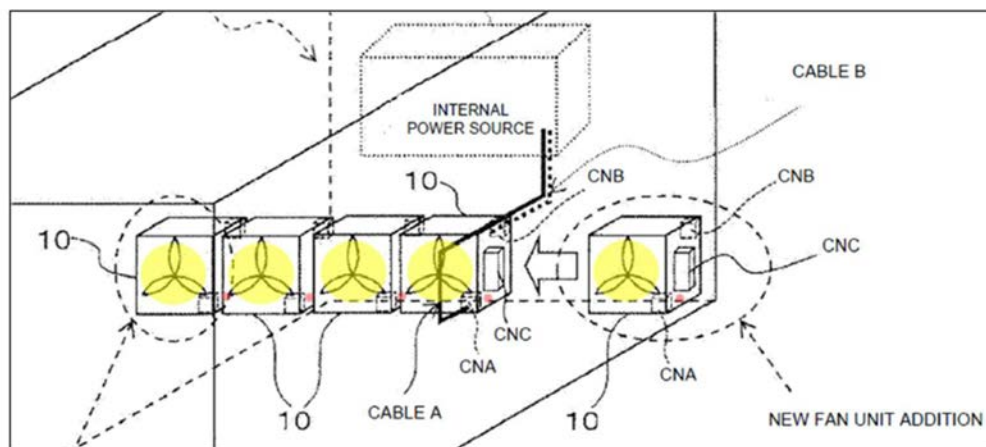
Petitioner must show all the above spatial relationships amongst the recited claim elements in limitation 1[d] in the Petition. Yet throughout the entire discussion of Tsuji, Petitioner has never once labeled which fan unit 10 is the alleged (first) “illumination fan” and which is the alleged (second or) “another illumination fan. Nor has Petitioner shown that the order of labeling the alleged first and second illumination fans does not matter, such that either of any two adjacent fan unit 10s in Tsuji can be the (first) “illumination fan” or the (second or) “another illumination fan” (it cannot because the order of labeling them does matter). The section discussing limitation 1[d] in the Petition (at 35-39) is also devoid of any explanation on **which** fan unit 10’s CNC and CND connectors are respectively mapped to the first and second connectors of the (first) “illumination fan”; nor **which** fan unit 10’s CND connector is mapped to the second connector of the (second or) “another illumination fan.” Huang has nothing to teach in this regard, so Petitioner’s reliance on Huang cannot save its defective analysis based on Tsuji. Thus, Petitioner fails to show that Tsuji alone or in combination with Huang teaches limitation 1[d]’s requirement that “the **first** connector of the body [of the illumination fan] is connected with a **second** connector of a body of another illumination fan.”

Ex-2006, ¶ 84.

D. Petitioner Fails To Show That Tsuji in View of Huang Teaches Limitation 1[b], “an Illumination Area on at Least Two Sides of the Fan at Top of the Body”

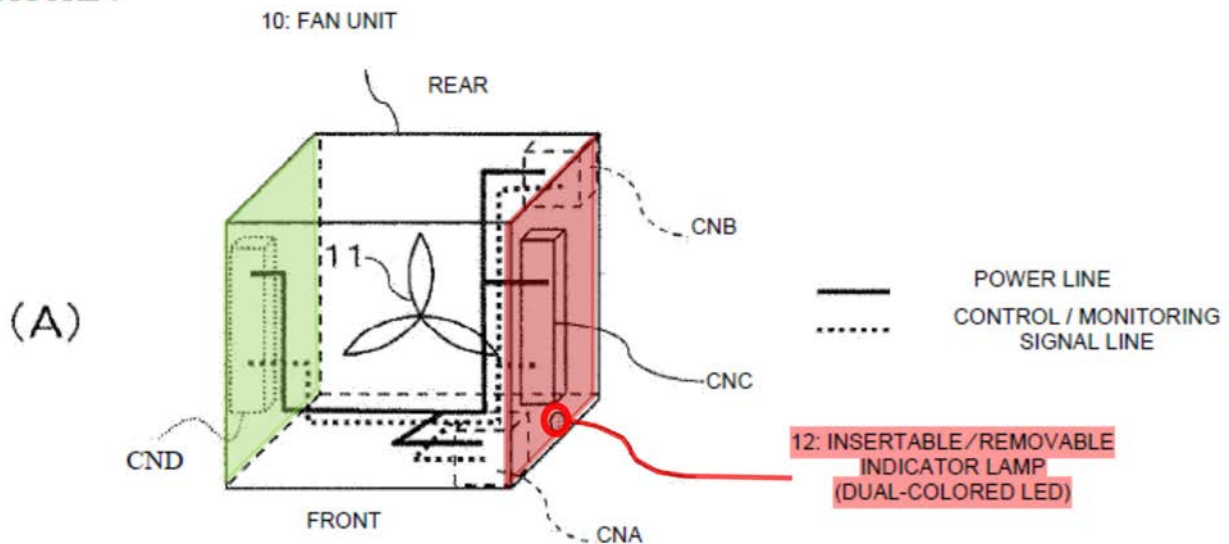
Claim 1 of the '336 patent requires, *inter alia*, claim limitation 1[b], “an illumination area on at least two sides of the fan **at top of the body.**” However, Tsuji in view of Huang fails to teach this limitation. Thus, Ground 1 fails. Ex-2006, ¶ 85.

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 at 31; Ex-2006, ¶ 85; *see also* 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 teaches a **single** indicator lamp located on only **one** side of the fan and also not on **top** (front) of the fan body. That is, Petition fails to show that Tsuji's indicator lamp is "on at least **two** sides of the fan at **top** of the body." Ex-2006, ¶ 86; see also Ex-2002, ¶¶ 68-69. 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 at 32. Petitioner's obviousness argument 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 elements, such as those in Huang Ex-1008) 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-2006, ¶¶ 86-87; see also Ex-2002, ¶ 70. Indeed, Tsuji's primary objective is

cooling computers in a server room where seldom anyone goes but for maintenance related reasons. That is, there is no motivation for a POSITA to add fancy illumination through, *e.g.*, translucent fan bodies such as that in Huang to the Tsuji system because such illumination adds only heat and costs to the hot-swapping system with **no** discernable benefits and only harms. Ex-2006, ¶¶ 86-87.

In sum, Tsuji alone or in view of Huang fails to disclose “an illumination area on at least two sides of the fan at top of the body” in claim 1 of the ’336 patent, and thus Tsuji in view of Huang does not render claim 1 obvious. Ex-2006, ¶ 88; *see also* Ex-2002, ¶¶ 71-76.

Because Grounds 1 and 4 fail, Petitioner has not shown that claim 1 is unpatentable. Thus, claims 2-5 have also not been shown to be unpatentable.

VI. GROUND 2 & 6: PETITIONER FAILS TO SHOW ECHAZARRETA IS COMBINABLE WITH TSUJI/HUANG OR LAI/HASEGAWA

Petitioner’s Grounds 2 and 6 rely on Tsuji/Huang or Lai/Hasegawa in view of Echazarreta. Petition at 44, 78. But as explained below, Petitioner fails to show how Echazarreta is combinable with Tsuji/Huang or Lai/Hasegawa. Ex-2006, ¶ 90.

A. The Limitations of Claim 4

Claim 4 is reproduced below:

4. The illumination fan connectable with at least one illumination fan for a computer of claim 1, wherein a groove is provided on one side of the body of the illumination fan, while **an engaging block** is provided on another side thereof to be engaged into

the groove, such that when the groove of the body of the illumination fan is engaged with ***the engaging block of the body of another illumination fan***, the body of the illumination fan is connected with the body of another illumination fan.

As shown above, claim 4 relies on “***an engaging block***” as the antecedent basis for “***the engaging block of the body of another illumination fan***.” Thus, claim 4 effectively recites that “***a groove*** is provided on ***one side*** of the body of the illumination fan, while ***an engaging block*** [of the body of another illumination fan] is provided on ***another side*** [of the body of the illumination fan] to be engaged into ***the groove*** [of the body of the illumination fan],” as exemplarily shown in the annotated Figure 2 below:

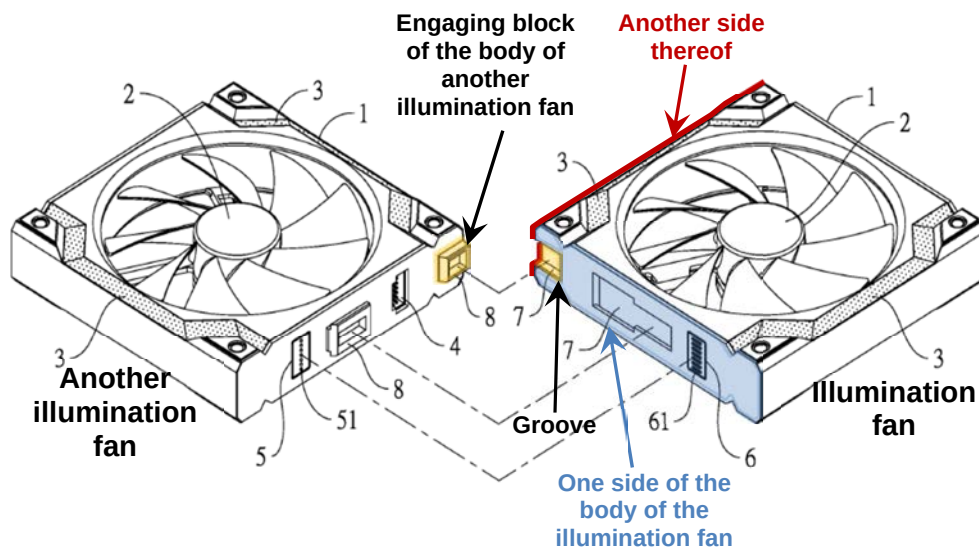
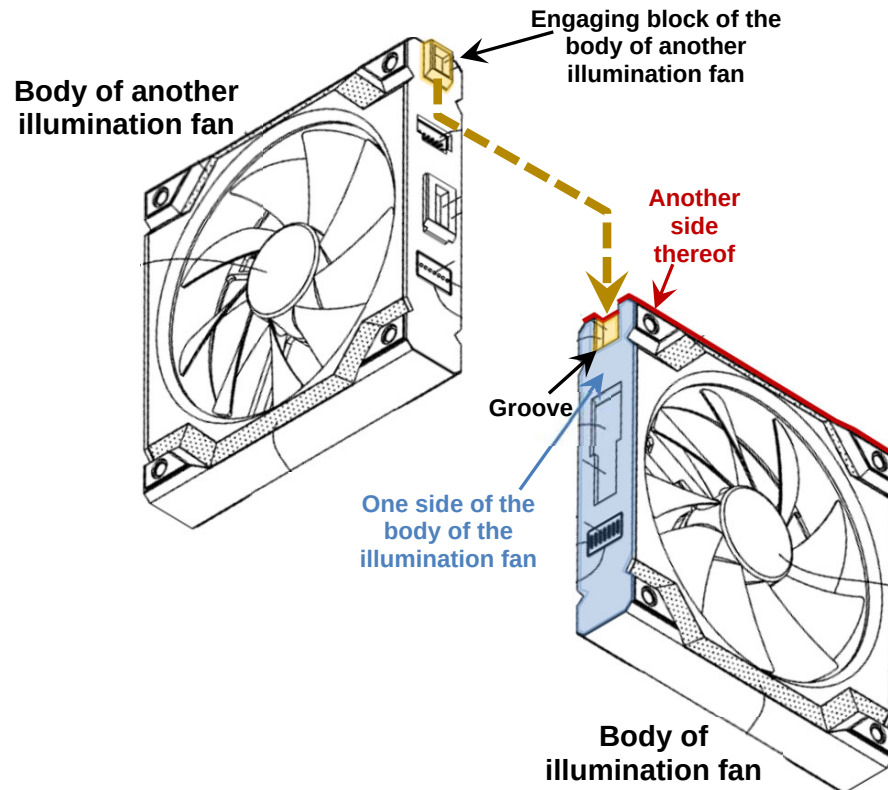


Fig. 2



As shown above, annotated Figure 2 exemplifies claim 4’s language that “**an engaging block** [of the body of another illumination fan] is provided on **another side** [of the body of the illumination fan] to be **engaged into the groove** [provided on **one side** of the body of the illumination fan].” The engaging block 8 of the body of another illumination fan is **provided** through an opening **on** the “another side” of the body of the illumination fan to be **engaged into** the groove 7 provided on the “one side” of the body of the illumination fan. This is what claim 4’s language

of providing “an engaging block” on the “another side thereof” means⁷—by providing the engaging block through the opening on the “another side thereof” with respect to the body of the illumination fan to be engaged into the groove 7. Ex-2006, ¶¶ 91-93.

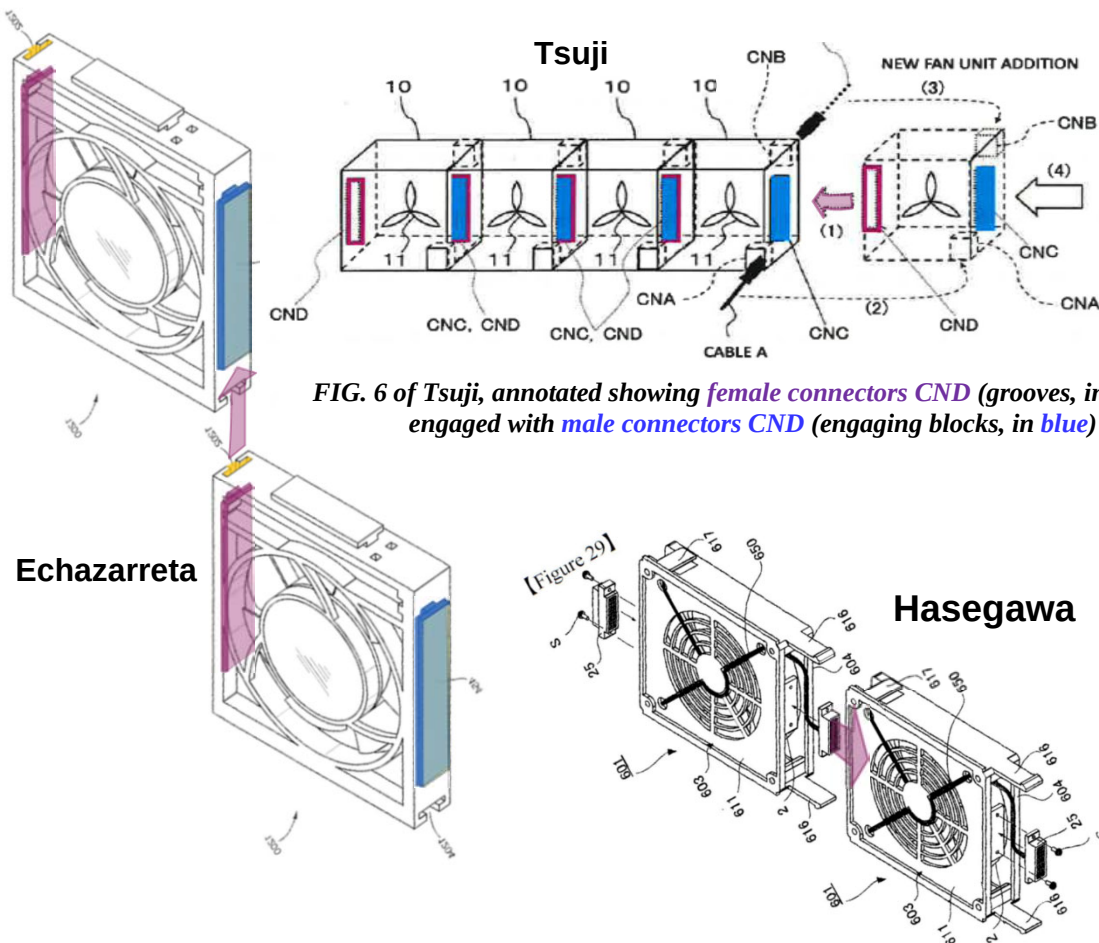
B. Petitioner Fails To Show Echazarreta Is Combinable with Tsuji/Huang or Lai/Hasegawa

The Echazarreta art (Ex-1009) cannot be used to modify Tsuji/Huang or Lai/Hasegawa to teach the limitations of claim 4. This is because Echazarreta’s fan bodies’ purported engaging blocks will get in the way of Tsuji/Huang’s or Lai/Hasegawa’s electrical connections between their fan bodies’ sides, causing their

⁷ The “an engaging block ... provided on another side thereof” in claim 4 does **not** mean that the “an engaging block” is part of “the body of the illumination fan” even though it is “provided on another side thereof.” This is because the engaging block, if interpreted to be part of the illumination fan body, would then have to be engaged into the **same** illumination fan body’s **own** groove provided on **another** side of the **same** illumination fan body. The engagement under this interpretation is nonsensical and violates claim 4’s language: “when the groove of the body of the illumination fan is engaged with **the engaging block of the body of another illumination fan**, the body of the illumination fan is connected with the body of another illumination fan.”

fans to become inoperable. Ex-2006, ¶ 94.

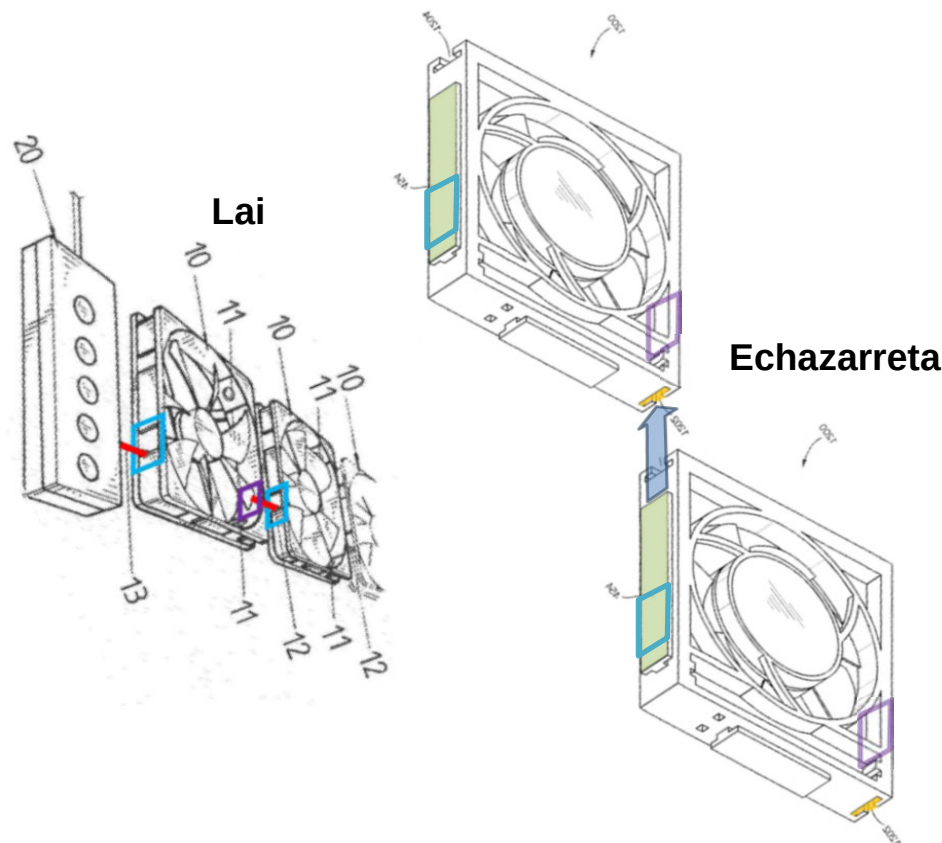
In the case of Tsuji/Huang, because Huang does not have connectors between adjacent fans, only Tsuji needs to be considered. As shown below, the connectors of Tsuji's fans are engaged and disengaged in a direction perpendicular to that in which the connectors of Echazarreta's fans are engaged and disengaged. As such, Tsuji's fan connectors simply cannot be combined with Echazarreta's fan connectors. Indeed, for example, the engagement of a CNC connector of a Tsuji fan with a CND connector of an adjacent Tsuji fan in the direction like Echazarreta's fan connectors would be impossible because Tsuji's CND connectors do not have openings in the perpendicular direction for Tsuji's CNC connectors to engage into. Conversely, the disengagement of a CNC connector of a Tsuji fan already engaged with a CND connector of an adjacent Tsuji fan in the perpendicular direction like Echazarreta's fan connectors will just break the Tsuji fan connectors. Tsuji's hot swapping mechanism also will not work if its fan bodies must be connected and disconnected in the perpendicular direction like Echazarreta's fan bodies due to vertical space constraints. Accordingly, Echazarreta is incompatible with Tsuji and cannot be combined with Tsuji to modify the Tsuji/Huang system. Ex-2006, ¶ 95.



Hasegawa (see above-right) is like Tsuji in that it has connectors engaging and disengaging with each other in a direction **perpendicular** to that of Echazarreta, too, and thus cannot be modified in view of Echazarreta for the same reasons as those for Tsuji. Thus, Lai modified in view of Hasegawa cannot be combined with Echazarreta, either. Ex-2006, ¶ 96.

As to Lai alone, as shown below, before making an Echazarreta connection between Lai's adjacent fans, the fans will first need to be pulled apart so much that Lai's transmission line 12 (red) between the fans will simply break, not to mention that Echazarreta's purported engaging block (green) on Lai's fans will shear off and

sever Lai's transmission line 12 when "engaging into" the groove (yellow). Then, upon full engagement, Echazarreta's purported engaging block (green) will also block off the openings (purple and blue) on the sides of Lai's fan bodies to prevent the transmission line 12 (red) from going through between the adjacent fans altogether. Thus, Echazarreta cannot be combined with Lai to modify it into an operable device. Ex-2006, ¶ 97.



In sum, Petitioner fails to show how Echazarreta can be combined with Tsuji/Huang or Lai/Hasegawa to create an operable system. Indeed, because of the difficulties above, a POSITA would not have been motivated to modify Tsuji/Huang or Lai/Hasegawa in view of Echazarreta. Thus, Grounds 2 and 6 fail. Ex-2006, ¶ 98.

VII. GROUND 3 & 7: PETITIONER FAILS TO SHOW CHOU OR LIU TEACHES LIMITATIONS IN CLAIM 5 AND IS COMBINABLE WITH TSUJI/HUANG OR LAI/HASEGAWA

Petitioner's Grounds 3 and 7 rely on Tsuji/Huang or Lai/Hasegawa in view of Chou or Liu. Petition at 47, 81. But as explained below, Petitioner fails to show how Chou or Liu teaches key limitations in claim 5 and is combinable with Tsuji/Huang or Lai/Hasegawa. Ex-2006, ¶ 99.

Claim 5 is reproduced below:

5. The illumination fan connectable with at least one illumination fan for a computer of claim 1, wherein a groove is provided on two sides of the body of the illumination fan, and the body of the illumination fan is connected with the body of another illumination fan by respectively engaging an engaging block with one of the grooves on the sides of the body of the illumination fan and one of the grooves on the sides of the body of another illumination fan.

As can be seen below, Figures 4 and 5 of the '336 patent show an embodiment of claim 5, in which the illumination fan bodies are connected laterally on their sides:

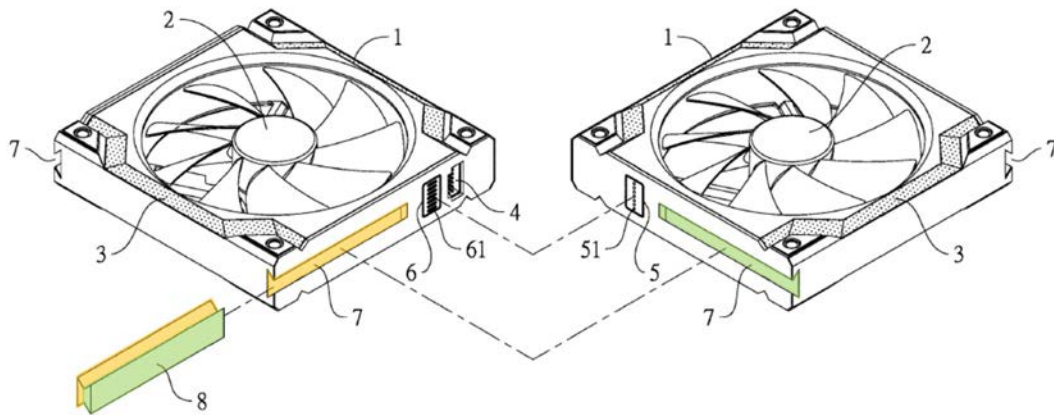


Fig. 4

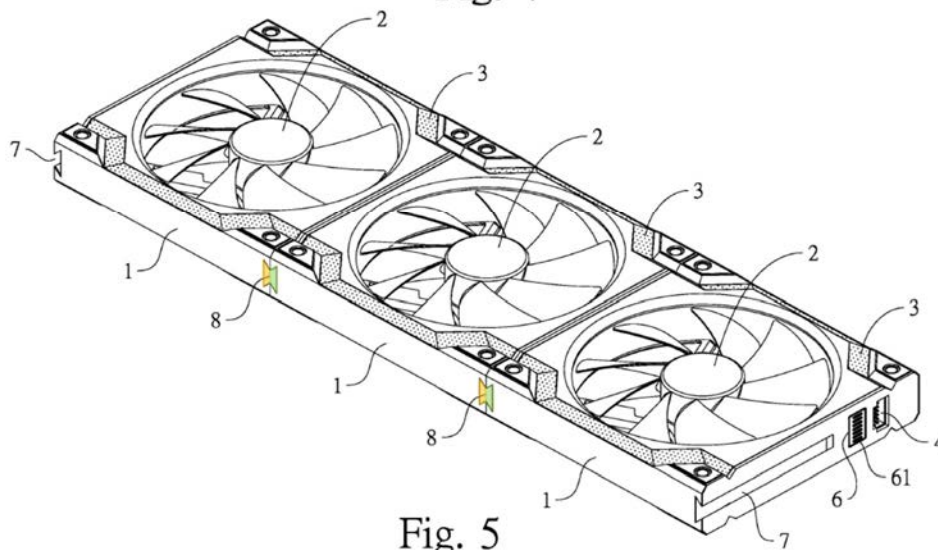


Fig. 5

Chou, including without limitation its Figure 4, does not teach the original claim 5 because Chou's fan connection is on the top and bottom (or the front and back) of the fan bodies such that they are connected in the **top/bottom** (front/back) direction of the fans' rotational axes, as shown below:

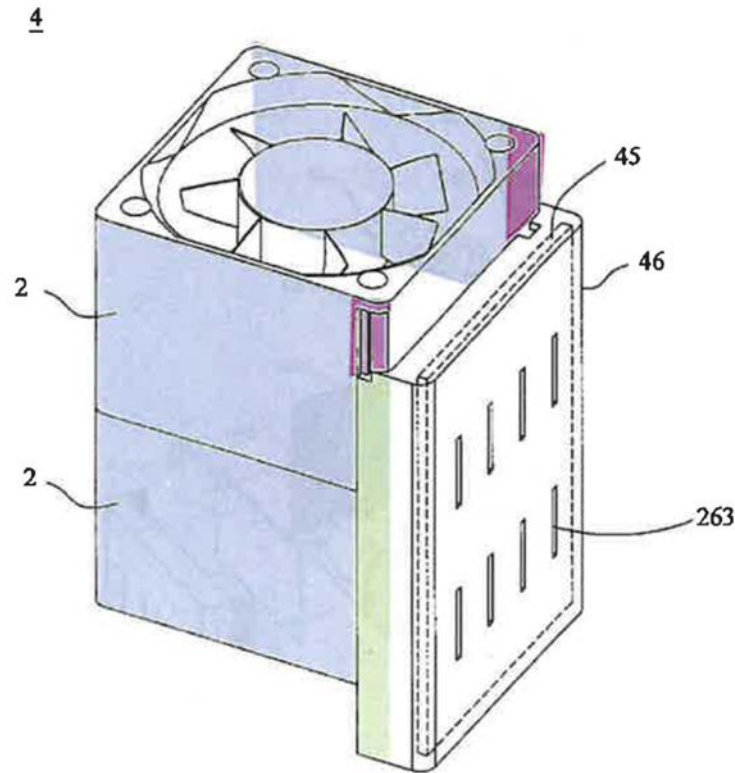


FIG. 4 of Chou, annotated

Fig. 4 of Chou (annotated); *compare id.* with Figs. 4-5 of '336 patent; Ex-2006, ¶ 101.

Indeed, Chou states that “[a]s shown in FIG. 4 [reproduced and annotated above], the fan assembly 4 includes two fans 2 **connected in series** and connected together.” *See, e.g.,* Chou at [0025]; *see also id.* at [0009] (stating its “fans are **connected together in series.**”) A POSITA would have understood from the phrase “connect[ion] in series,” Chou means the fan body connection in the top/bottom (front/back) direction. Ex-2006, ¶ 102. In contrast, the fan bodies in claim 5 are connected on their sides **laterally** at least because claim 5 depends from the claim 1,

which recites an illumination area on “top” of the body of the illumination fan. Thus, the fan connection in claim 5 should **not** be on the top of the fan body to avoid blocking the illumination area. Claim 5 is therefore distinguishable from and patentable over Chou. Ex-2006, ¶ 102.

Further, Chou also cannot be used to modify Tsuji/Huang or Lai/Hasegawa to connect the fan bodies in the top/bottom (*i.e.*, front/back) direction because Tsuji’s and Lai/Hasegawa’s electrical connectors are all located laterally on the fan bodies’ sides (highlighted in **red** and **green** by Petitioner) in a direction **perpendicular** to Chou’s fan body connection, as shown below:

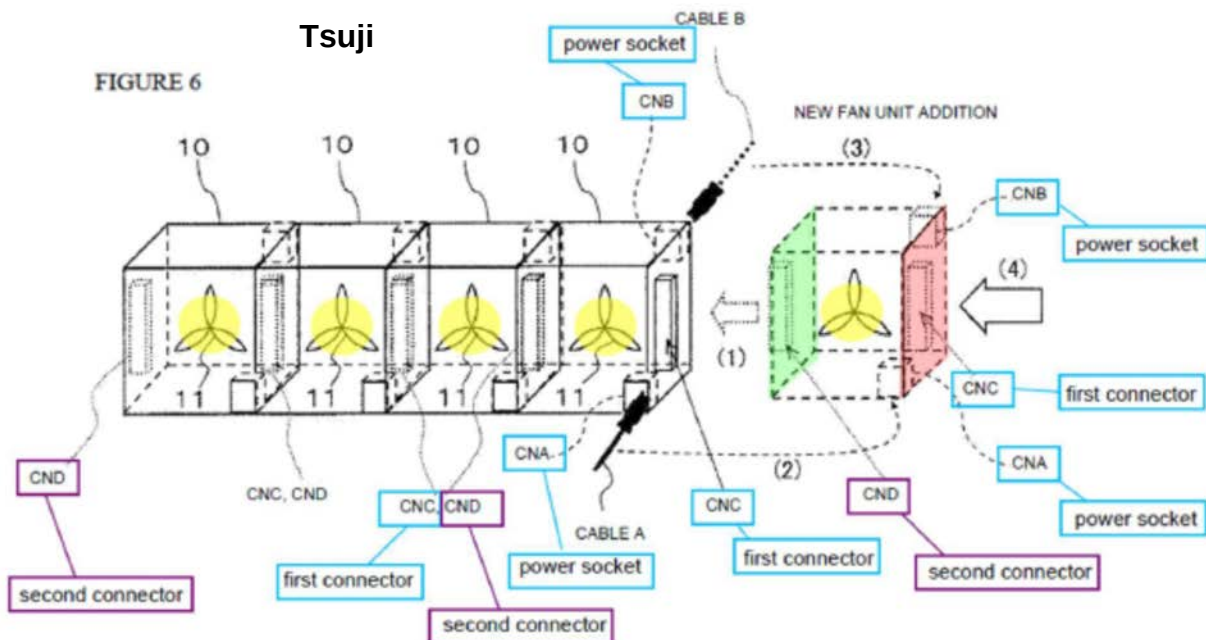
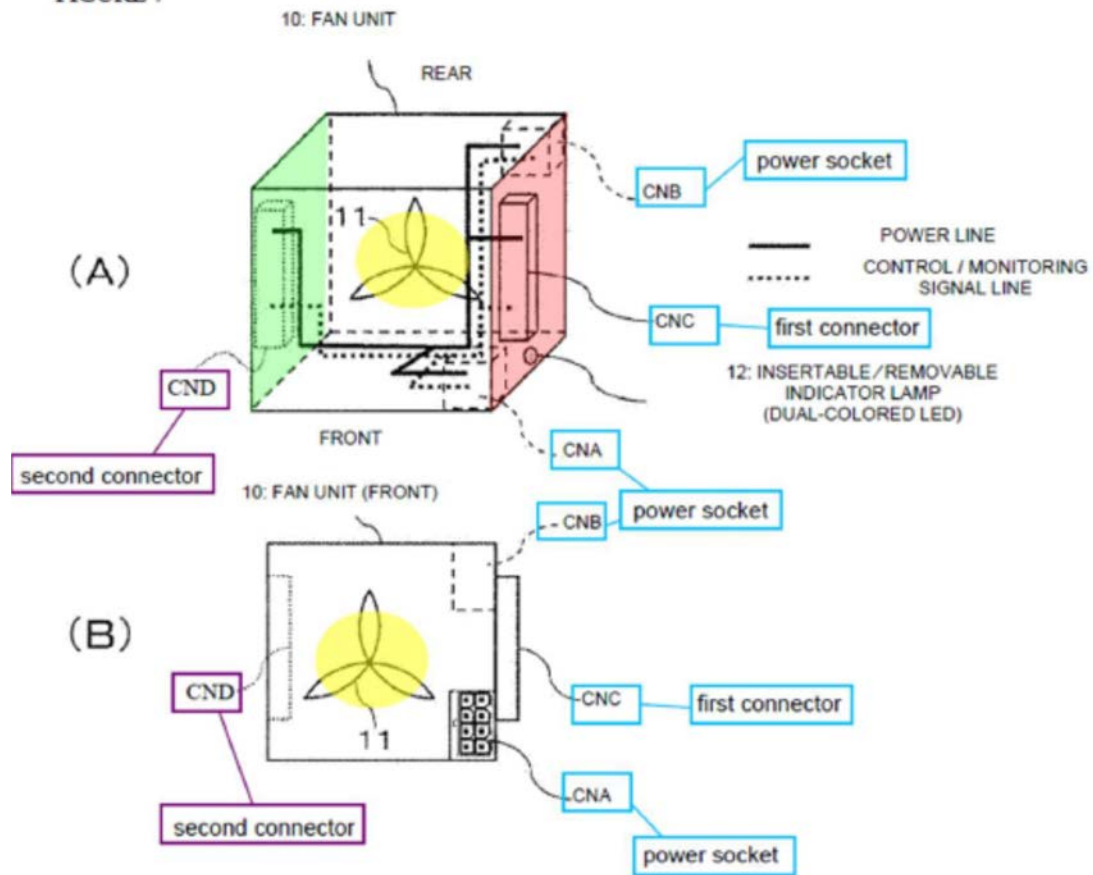
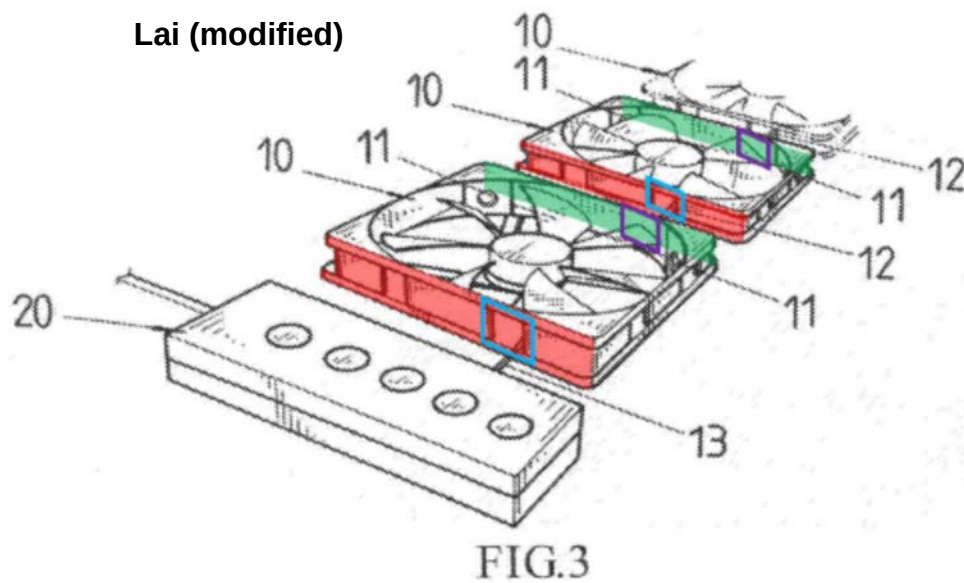


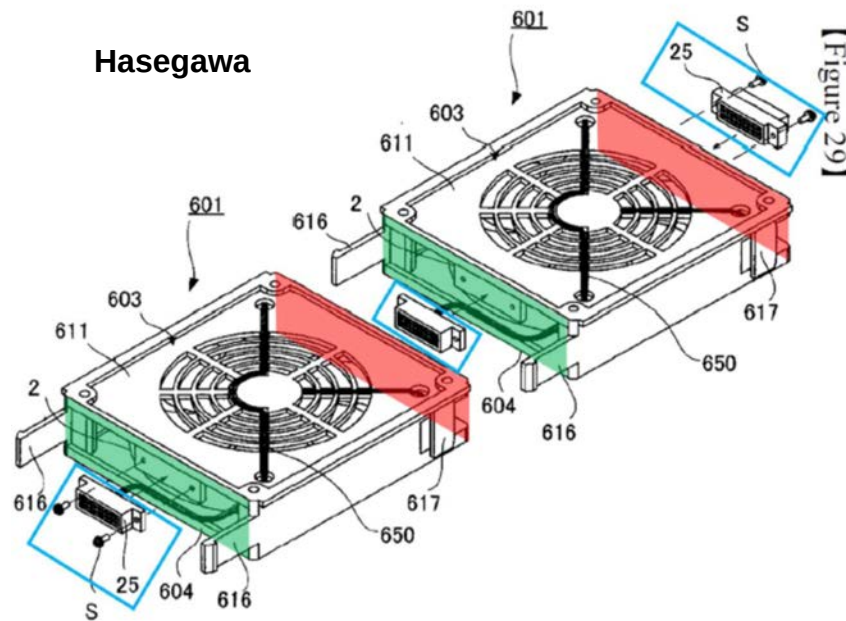
FIGURE 7



Petition at 34 (annotations original).



Petition at 59 (annotations original).



Petition at 65 (annotations original).

As shown above, the fan bodies in Tsuji, Lai, or Hasegawa connected laterally on their sides cannot be combined with Chou's connection on the fan bodies' top/front and bottom/back in a direction that is perpendicular to that in Tsuji, Lai, or Hasegawa. This is at least because the fan bodies in Tsuji, Lai, and Hasegawa must be connected laterally via their electrical connectors on their fan body sides to be operable. As a result, a POSITA would not have been motivated to modify Tsuji, Lai, and/or Hasegawa in view of Chou. Critically, Petitioner has completely ignored the stark contrast between the **top/bottom** fan connection in Chou and the **lateral** fan connection in Lai, Tsuji, and/or Hasegawa on their fan body **sides**. Indeed, nowhere in the Petition nor in its expert declaration is the **top/bottom v. lateral/side fan**

connection issue addressed, at all. Ex-2006, ¶ 104.

Assuming *arguendo* that Chou could be somehow combined with Lai, Tsuji, or Hasegawa to teach a connection on the fan bodies' sides (it cannot be so combined), Tsuji/Huang or Lai/Hasegawa as modified by Chou still do not teach “a groove is provided on two sides of the body of the illumination fan, and the body of the illumination fan is connected with the body of another illumination fan by respectively engaging an engaging block with one of the grooves on the sides of the body of the illumination fan and one of the grooves on the sides of the body of another illumination fan[,]” as required by claim 5. This is at least because Chou's alleged engaging block is *a sliding clamp that **clamps serially two sliding rails on the two fan bodies' corners***, such that when Chou is used to purportedly modify Lai and/or Tsuji to clamp the fan bodies **laterally**, the sliding rails will have to be moved onto the **top/front** and the **bottom/back** of each fan body for the sliding clamp to clamp them. But that is contrary to claim 5's requirement that the “grooves” be on the “**sides** of the body” of each illumination fan. Ex-2006, ¶ 105.

In the case of Tsuji, as shown in the annotated figure below (reproduced from Petition), the “[a]dded connecting member” in the front (*i.e.*, on the “top”) of each fan 10 even cuts off (or at least interferes with) the critical cable **A**, thus rendering the hot-swapping system in Tsuji inoperable:

FIGURE 6

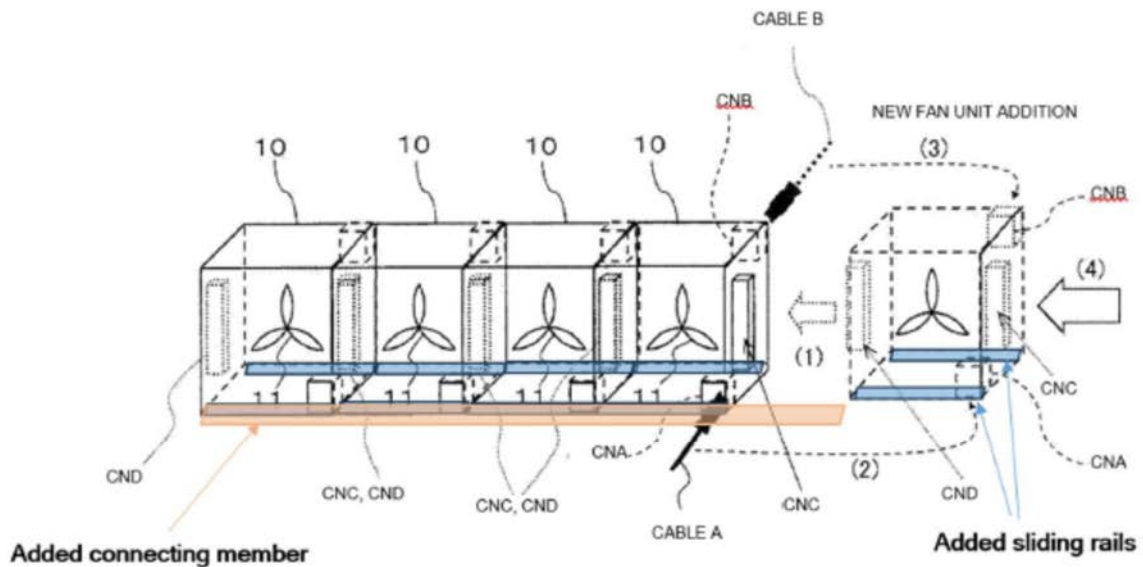
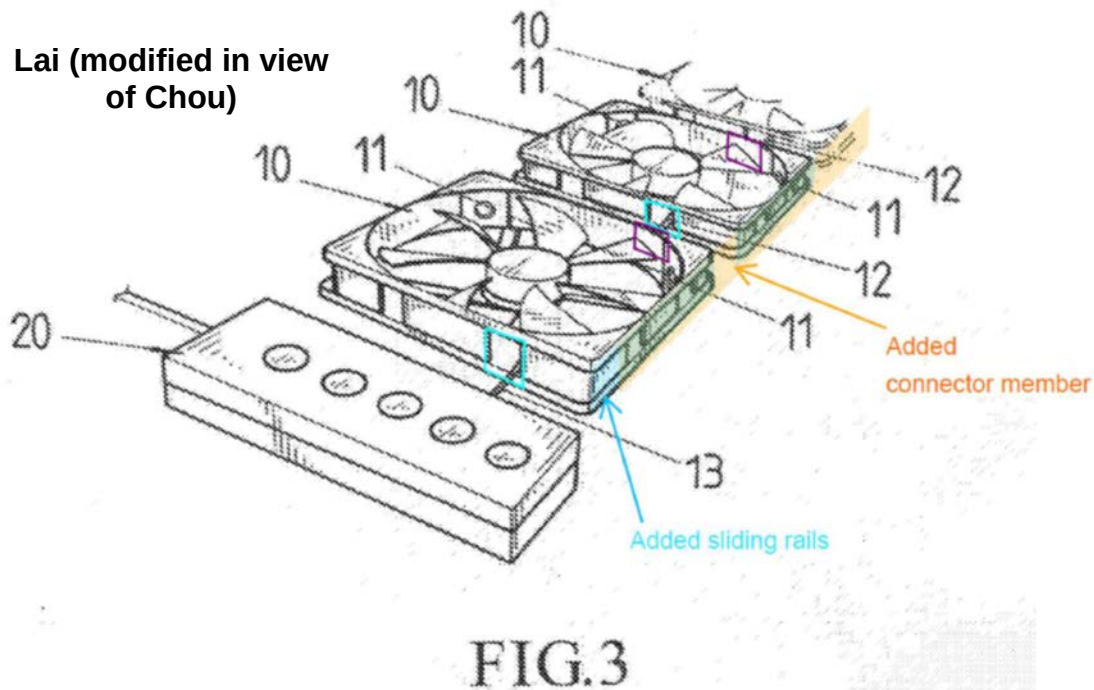


FIG. 6 of Tsuji (modified)

Petition at 51 (annotations original). The “[a]dded sliding rails” of each fan 10 to purportedly engage with the “[a]dded connecting member” are also **not** located on “**two sides** of the [fan 10’s] body” as required by claim 5—instead, they appear to be located on either the **same lower** side (singular), or the front/top and back/bottom, of each fan 10’s body. This is contrary to claim 5’s language reciting “**a groove is provided on two sides of the body of the illumination fan**, and the body of the illumination fan is connected with the body of another illumination fan by respectively engaging an engaging block with one of **the grooves on the sides of the body of the illumination fan and one of the grooves on the sides of the body of another illumination fan.**” Ex-2006, ¶ 106.

In the case of Lai, the situation is similar, as shown in the below annotated figure (reproduced from the Petition) purportedly to be a Lai system modified in view of Chou:



Petition at 84 (black labeling added; other annotations original). As can be seen above, the “[a]dded sliding rails” of each fan 10 to purported engage with the “[a]dded connecting member” are *not* located on “two sides of the [fan 10’s] body” as required by claim 5—instead, they appear to be located on the same lower side of each fan 10’s body. This is contrary to claim 5’s language reciting “*a groove is provided on two sides of the body of the illumination fan*”, and the body of the illumination fan is connected with the body of another illumination fan by respectively engaging an engaging block with one of *the grooves on the sides of the*

body of the illumination fan and one of the grooves on the sides of the body of another illumination fan.” Ex-2006, ¶ 107.

Similarly, Liu, including without limitation its Figures 4A and 4B, is cumulative of Chou with respect to at least the serial fan connection and thus cannot cure the deficiencies of Chou, as shown below:

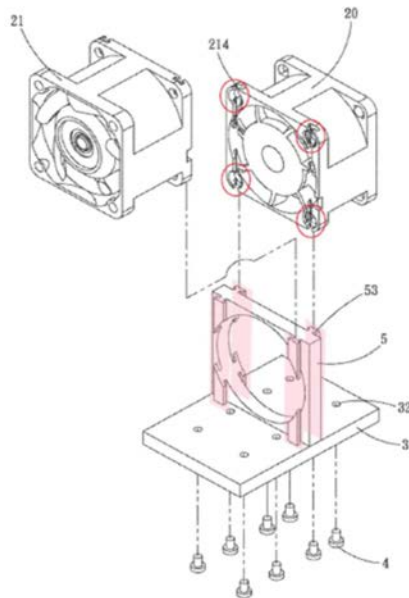


Fig. 4A

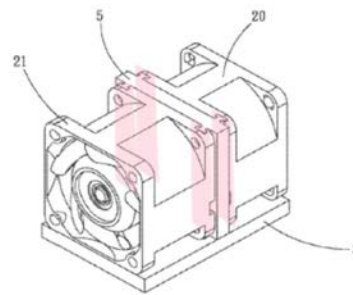
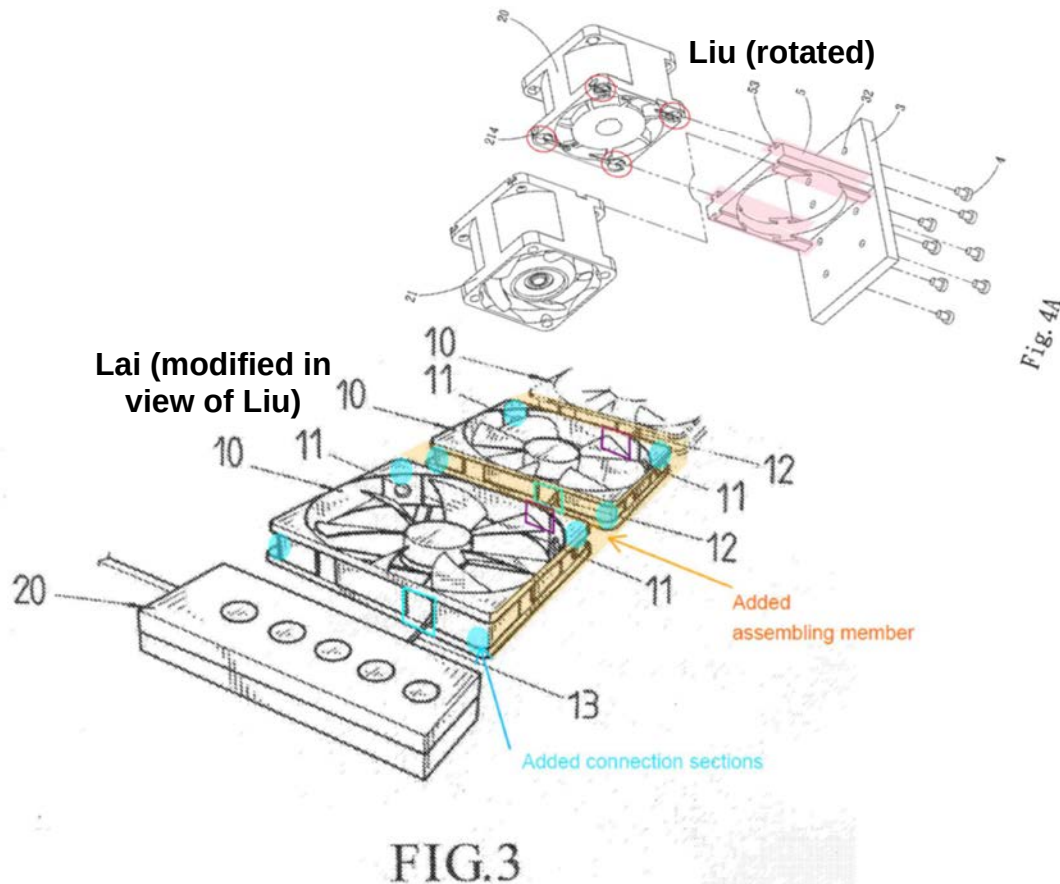


Fig. 4B

Petition at 86 (annotations original); Ex-2006, ¶ 108.

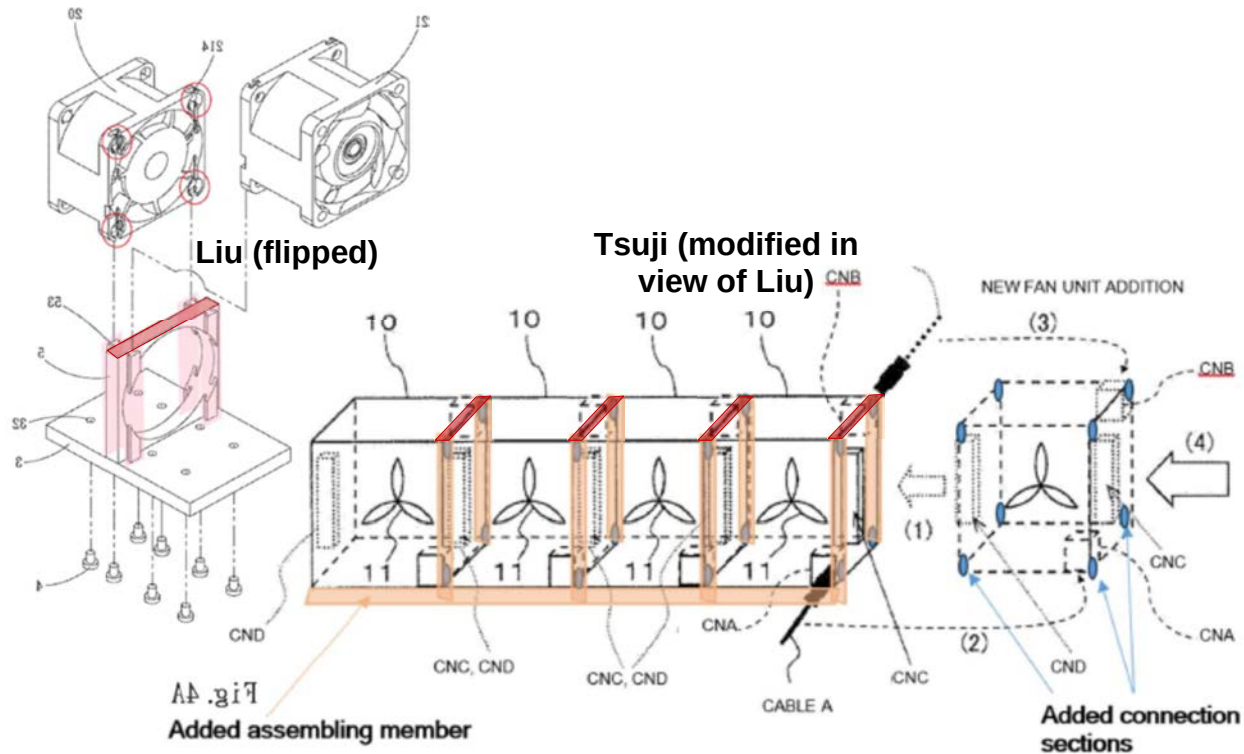
Indeed, just like Chou, Liu teaches only a **top/bottom** connection of the fan bodies, and does not teach any **lateral** connection on the fan bodies' **sides**. As a result, Liu cannot be used to modify Tsuji, Hasegawa, or Lai, each designed to connect on their fan bodies' **sides** and **not** on their **top/bottom** like Liu. And even if Lui *arguendo* could be somehow used to modify Tsuji, Hasegawa, or Lai (Liu cannot), Liu's engaging block **that must get in-between the fan bodies** will also

break the electrical connections on the fan bodies' sides in Tsuji, Hasegawa, and Lai, as shown below:



Petition at 86-87 (black labeling added; other annotations original). As can be seen above, Liu's "[a]dded assembling member" (yellow) when sliding in-between the fan bodies 10 in Lai will sever the transmission lines 12 between Lai's fan bodies. Ex-2006, ¶ 109.

The same severance will happen to Tsuji's connectors CNC and CND as well if combined with Liu and will similarly cause the Tsuji fans to become inoperable, as shown below:



Petition at 53-54 (black labeling and *red* highlighting added; other annotations original). As shown above, even if *arguendo* the Tsuji system were modified in view of Liu, the “[a]dded assembling member” (*orange*) when sliding in-between the fan bodies 10 in Tsuji will be blocked by the protruding CNC connectors. Note that the top portions of Liu’s “[a]dded assembling member” (*red*) cannot be trivially removed due to structural integrity issues without undue experimentation. If sliding the “[a]dded assembling member” in-between the fans 10 by force, the protruding CNC connectors may break, thus severing the electrical connection between two adjacent fans 10 and rendering the hot-swapping system inoperable. Ex-2006, ¶ 110. Further, the CNC and CND connectors after being engaged/connected between two adjacent fans 10 must be disengaged/disconnected in a horizontal

direction (parallel with the pink, left-pointing arrow between the first two Tsuji fans counting from the right below) that is **perpendicular** to the vertical direction of the fan disengagement in Liu system:

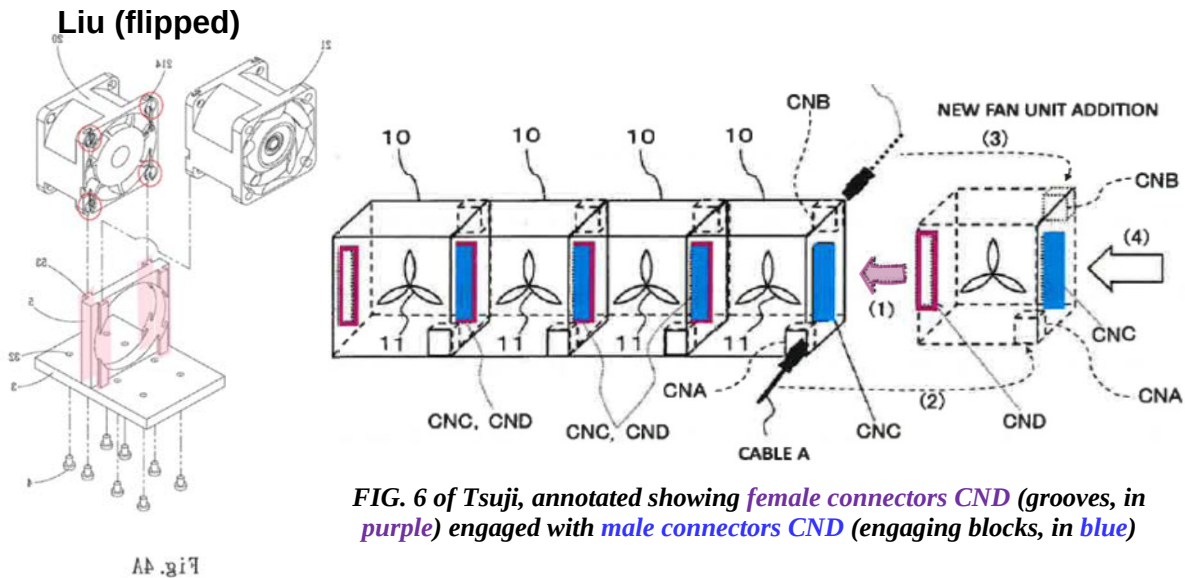


FIG. 6 of Tsuji, annotated showing female connectors CND (grooves, in purple) engaged with male connectors CND (engaging blocks, in blue)

As shown above, the engaged/connected CNC and CND between two adjacent fans 10 in Tsuji cannot be disengaged/disconnected in the vertical direction like Liu, and if the disengagement/disconnection is forced, the CNC and CND connectors will simply break, again rendering the Tsuji system inoperable. Thus, a POSITA would have understood that Tsuji cannot be modified by Liu and remain operable. Ex-2006, ¶ 111.

Similarly, a POSITA would have understood that Hasegawa will have the same **top/bottom** vs. **lateral/side** connection issue as that concerning Lai and Tsuji if the combination of Hasegawa with Chou or Liu is attempted. In the Petition, however, Petitioner never shows that Hasegawa can be modified in view of Chou or

Liu. *See generally* Petition. Thus, Petitioner fails to prove that Hasegawa can be combined with Chou or Liu. Ex-2006, ¶ 112.

Huang is irrelevant here because it does not have any connection between fan bodies. Ex-2006, ¶ 113.

In sum, by not addressing the top/bottom fan connection in Chou and Liu that is ***perpendicular*** to the fan connection in Lai, Tsuji, or Hasegawa, Petitioner fails to show that Chou or Liu is combinable with Lai, Tsuji, and/or Hasegawa. That is, Petitioner fails to prove that claim 5 is unpatentable over Lai, Hasegawa, Tsuji, and/or Huang in view of Chou or Liu. Ex-2006, ¶ 114.

VIII. CONCLUSION

For at least the above reasons presented in this POR, the Board should find that Petitioner has failed to show that any of the claims 1-5 of '336 patent is unpatentable.

Respectfully submitted,

GREENBERG TRAURIG, LLP

Date: May 14, 2025

By: /s/ Kyle Chen
Kyle D. Chen (admitted *pro hac vice*)
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 11,522 words, as counted by the word-processing program Microsoft Word for Office 365 used to generate this Petition at 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: May 14, 2025

By: /s/ Kyle D. Chen
Kyle D. Chen (admitted *pro hac vice*)
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: May 14, 2025

By: /s/ Kyle D. Chen
Kyle D. Chen (admitted *pro hac vice*)
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