

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ELMOS SEMICONDUCTOR SE,
Petitioners

v.

TEXAS INSTRUMENTS INCORPORATED,
Patent Owner

Case IPR2024-00802
Patent 11,653,432

PATENT OWNER'S PRELIMINARY RESPONSE

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EXHIBITS

- | | |
|---------|---|
| TI-2001 | About Us – Elmos Semiconductor SE webpage available at
https://www.elmos.com/english/about-elmos/company/about-us.html |
| TI-2002 | Reserved |
| TI-2003 | U.S. Patent Application Publication No. 2011/0121744 to Salvestrini
et al. |
| TI-2004 | U.S. Patent Application Publication No. 2010/0060175 to Lethellier |

I. INTRODUCTION

The request for *inter partes* review from Elmos Semiconductor SE (“Elmos” or “Petitioner”) should be denied for numerous reasons. Petitioner alleges sophistication as “a leading manufacturer of automotive mixed-signal semiconductors” with approximately 40 years of experience in analog mixed signal IC solutions (TI-2001, 1, 5), but that sophistication is not apparent in the Petition, which is rife with errors, each of which providing an independent basis to deny institution. These errors not only include legal errors of the petition but also include factual errors regarding the cited references. Because of these errors, Petitioner has failed to carry its burden to show unpatentability of the challenged claims, and *inter partes* review should be denied.

One of the first problems with the Petition is that it relies on purely attorney argument rather than any support from expert testimony as the Petition fails to provide even a single citation to Dr. Glösekötter’s declaration. Because the Petition does not rely on Dr. Glösekötter’s declaration, no weight should be given to the declaration.

Even if consideration were given to uncited portions of Dr. Glösekötter’s declaration, Dr. Glösekötter’s testimony should still be given no weight because his testimony is not based on underlying facts. For example, Dr. Glösekötter provides no citations supporting his testimony on the meaning of certain claim

terms and what a POSITA would have found obvious. *See, e.g.*, EX1003, ¶¶40-47, 71, 83, 91, 97, 102, 108. Per 37 C.F.R. §42.65(a), “[e]xpert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.” *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (August 24, 2022) (designated precedential: February 10, 2023) (holding declaration is entitled to little weight when it contains an exact restatement of the petition’s unsupported, conclusory assertions without any additional supporting evidence or reasoning).

On the merits of the Petition, Petitioner’s analysis of the prior art makes it impossible to determine the alleged modifications and combinations of the prior art. *Infra* Section V.A. The shortcomings in Petitioner’s obviousness grounds are noticeable and worsened by (1) Petitioner’s failure to identify with any real particularity differences between the prior art and the claimed invention and (2) Petitioner’s failure to engage in a proper obviousness analysis of the claims. *Infra* Sections V.B and V.C. Accordingly, the “information presented in the petition” is insufficient to satisfy Petitioner’s burden that the initial petition identify “with particularity” the evidence that supports the grounds for the challenge to each claim” under 35 U.S.C. § 312(a)(3). *Intelligent Bio-Systems, Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“utmost importance”); *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1330-1331 (Fed. Cir. 2019);

In re Magnum Oil Tools Int'l, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“could have been included in a properly-drafted petition, but was not”). Hence, the Board should deny institution for failure to comply with the particularity requirement of 35 U.S.C. § 312(a)(3).

Even if the Board considers the teachings of the alleged prior art, all proposed Grounds 1-5 suffer from noticeable factual defects. To illustrate, Petitioner fails to prove that Sudhaus renders obvious “an error amplifier” and “an amplifier output stage” including “a slew-rate controller” as required by the claims. *Infra* Sections V.D and V.F. Petitioner’s reliance on disclosures of various other references for these deficiencies of Sudhaus does not establish that these claimed features would have been obvious. *Infra* Sections V.E and V.G. Petitioner’s proposed modifications and combinations are infected with hindsight and would have been anything but obvious. Indeed, Petitioner ignored significant design and functional differences between Sudhaus’s LED driver system and the systems of the other prior art references. In light of these differences, a POSITA would have had no reason to make Petitioner’s proposed changes. Worse yet, nothing in the Petition explains why a POSITA would have plucked the other prior art references from the “sea of prior art” to implement an element into Sudhaus. *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1337 (Fed. Cir. 2016). Finally, Petitioner has not provided a certified translation of Praxis and has not met its burden of showing that

Praxis, Provost, TI Paper, and UK Paper qualify as “printed publications” under the law. *Infra* Sections V.H and V.I.

II. SUMMARY OF THE '432 PATENT

The '432 Patent is directed to a light-emitting diode (LED) driver system with slew-rate control. EX-1001, 1:6-8, 2:16-18. The '432 Patent illustrates an example of a LED driver system 200 in FIG. 2, reproduced below. EX-1001, 3:4-5, 4:11-15.

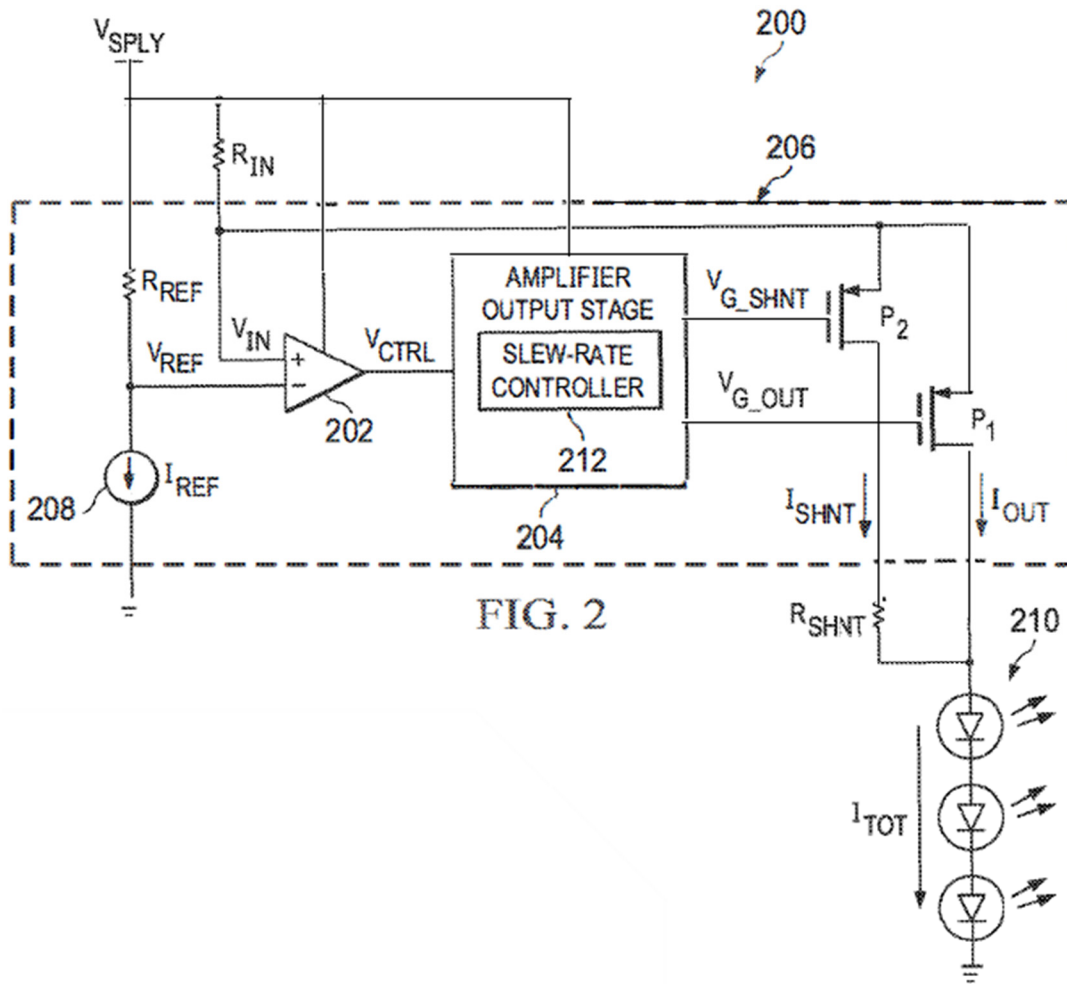


FIG. 2

EX-1001, FIG. 2.

The LED driver system 200 includes an error amplifier 202, an amplifier output stage 204, an LED string 210, and a shunt resistor R_{SHNT} . EX-1001, 3:11-13, 4:16-17. The error amplifier 202 compares an input voltage V_{IN} with a reference voltage V_{REF} and provides a control voltage V_{CTRL} in response to the comparison. EX-1001, 3:15-18, 4:21-24. Based on the control voltage V_{CTRL} provided by the error amplifier 202, the amplifier output stage 204 controls an amplitude of an output current I_{OUT} in a first current path and an amplitude of a shunt current I_{SHNT} in a second current path that includes the shunt resistor R_{SHNT} . EX-1001, 3:25-31, 4:47-52. The amplitude sum of the output current I_{OUT} and the shunt current I_{SHNT} is expressed as a total output current I_{TOT} that is provided through the LED string 210. EX-1001, 3:32-38, 4:53-55.

The '432 Patent states that a LED driver system with such a configuration provides thermal protection for an integrated circuit (IC) chip of the LED driver system by diverting excess current resulting from higher amplitudes of the supply voltage V_{SPLY} through the shunt resistor R_{SHNT} . EX-1001, 3:38-44, 4:61-67, 5:47-56. The total output current I_{TOT} has an approximately constant amplitude sum of the output current I_{OUT} and the shunt current I_{SHNT} , and a greater proportion of the total output current I_{TOT} is provided through the shunt resistor R_{SHNT} as the input voltage V_{IN} increases relative to the reference voltage V_{REF} . EX-1001, 3:32-38, 4:55-61.

In the example of FIG. 2, the amplifier output stage 204 includes a slew-rate controller 212 that controls the slew-rate of the shunt current I_{SHNT} through the shunt resistor R_{SHNT} . EX-1001, 3:57-62, 5:57-61. The slew-rate controller 212 uses an offset current enabling a predefined slew-rate that results in a more gradual decrease of the voltage V_{G_SHNT} , which results in a more gradual increase of the amplitude of the shunt current I_{SHNT} . EX-1001, 5:61-67. By controlling the slew-rate of the shunt current I_{SHNT} through the shunt resistor R_{SHNT} , transient effects and EMI can be mitigated in the LED driver circuit 200. EX-1001, 4:7-10, 6:1-15.

III. CLAIM CONSTRUCTION

All claim terms in this proceeding are to be construed according to the *Phillips* standard. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005); 37 C.F.R. §42.100. No claim construction is necessary to deny institution. Patent Owner's arguments for denial do not hinge on the outcome of an actual controversy about any claim construction expressed in the Petition. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (“[C]laim terms need only be construed to the extent necessary to resolve the controversy.”). As detailed below, the defects in the Petition are readily identifiable without defining any specific claim term.

IV. STANDARD FOR GRANTING *INTER PARTES* REVIEW

The Board may grant a petition for *inter partes* review only where “the

information presented in the petition ... shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. §314(a); 37 C.F.R. §42.108(c). Petitioners bear the burden of showing that this statutory threshold has been met. *See* Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,756 (Aug. 14, 2012). Critically, Petitioners must fulfill this burden based on “information presented in the petition” (35 U.S.C. §314(a)), and the law forbids Petitioners from subsequently adding theories/arguments that should have been part of their initial Petition. *Intelligent Bio-Systems, Inc. v. Illumina Cambridge, Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (citing to 35 U.S.C. § 312) (“It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’”); *see also* *Cuozzo Speed Techs., LLC v. Lee*, 136 S.Ct. 2131, 2154 (2016) (Alito, J. concurring in part and dissenting in part) (“Thus, if a petition fails to state its challenge with particularity—or if the Patent Office institutes review on claims or grounds not raised in the petition—the patent owner is forced to shoot into the dark. The potential for unfairness is obvious.”).

As such, the original Petition must establish a *prima facie* case of obviousness with regard to its proposed combinations of references. It is well settled that “rejections on obviousness cannot be sustained by mere conclusory

statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Intn’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); *PersonalWeb Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 993 (Fed. Cir. 2017) (explaining that it is insufficient to allege “that a skilled artisan, once presented with the two references, would have understood that they could be combined.”). As shown below, Petitioner has not established a *prima facie* case of obviousness with respect to Grounds 1-5 because Petitioner has not stated its challenge with particularity, and requires Patent Owner to guess at its theories. Accordingly, the Board should decline to institute review of the ’432 Patent.

V. PETITIONER HAS NOT SHOWN A REASONABLE LIKELIHOOD THAT IT WOULD PREVAIL IN PROVING THE OBVIOUSNESS OF ANY CHALLENGED CLAIM

A. The Petition lacks particularity and detail on the modifications to Sudhaus and the combinations of the references

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to Patent Owner. *See Dynamic Drinkware, LLC*

v. Nat'l Graphics, Inc., 800 F. 3d 1375, 1378 (Fed. Cir. 2015) (discussing the burden of proof in *inter partes* review). Petitioner must explain how the proposed combination of prior art would have rendered the challenged claims unpatentable, but Petitioner never provides the required particularity with any of its stated grounds. All of Petitioner's five grounds apply to independent claims 1, 11, and 16 as shown in the table below.

Ground	Claims	Obviousness §103 Basis for Challenge
1	1-3, 6, 10-11, 16-17	Sudhaus
2	1-4, 6-7, 10-12, 15-18	Sudhaus, Ryoichi
3	1-4, 6-7, 10-12, 15-18	Sudhaus, Ryoichi, Praxis
4	1-4, 6-7, 10-12, 15-18	Sudhaus, Ryoichi, Praxis, Wu
5	1-20	Sudhaus, Ryoichi, Praxis, Provost, TI Paper, UK Paper

Pet., 4. For the Ground 1 obviousness challenge based on Sudhaus, Petitioner never explains what features of Sudhaus a POSITA would modify or explains a rationale for doing so. For Grounds 2-5, Petitioner applies varying combinations of the references to the claim elements of the independent claims. The table below summarizes how Petitioner applied the references to the independent claims.

Claim Element	Ground 2 References	Ground 3 References	Ground 4 References	Ground 5 References
[1.pre]	Sudhaus, Ryoichi	Sudhaus, Ryoichi	Sudhaus, Ryoichi	Sudhaus, Ryoichi
[1.1]	Sudhaus, Ryochi	Sudhaus, Ryochi, Praxis	Sudhaus, Ryochi, Praxis	Sudhaus, Ryochi, Praxis
[1.2]	Sudhaus, Ryochi	Sudhaus, Ryochi,	Sudhaus, Ryochi,	Sudhaus, Ryochi,

		Praxis	Praxis	Praxis
[1.3]	Sudhaus, Ryochi	Sudhaus, Ryochi	Sudhaus, Ryochi, Wu	Sudhaus, Ryochi, Wu, Provost, TI Paper, UK Paper
[1.4]	Sudhaus	Sudhaus	Sudhaus, Praxis	Sudhaus, Praxis
[11.pre]	Sudhaus, Ryoichi	Sudhaus, Ryoichi	Sudhaus, Ryoichi	Sudhaus, Ryoichi
[11.1]	Sudhaus, Ryochi	Sudhaus, Ryochi, Praxis	Sudhaus, Ryochi, Praxis	Sudhaus, Ryochi, Praxis
[11.2]	Sudhaus, Ryochi	Sudhaus, Ryochi, Praxis	Sudhaus, Ryochi, Praxis	Sudhaus, Ryochi, Praxis
[11.3]	Sudhaus, Ryochi	Sudhaus, Ryochi	Sudhaus, Ryochi, Wu	Sudhaus, Ryochi, Wu, Provost, TI Paper, UK Paper
[11.4]	Sudhaus	Sudhaus, Praxis	Sudhaus, Praxis	Sudhaus, Praxis
[11.5]	Sudhaus	Sudhaus, Praxis	Sudhaus, Praxis	Sudhaus, Praxis
[16.pre]	Sudhaus, Ryoichi	Sudhaus, Ryoichi	Sudhaus, Ryoichi	Sudhaus, Ryoichi
[16.1]	Sudhaus, Ryoichi	Sudhaus, Ryoichi, Praxis	Sudhaus, Ryoichi, Praxis	Sudhaus, Ryoichi, Praxis
[16.2]	Sudhaus, Ryoichi	Sudhaus, Ryoichi, Praxis	Sudhaus, Ryoichi, Praxis	Sudhaus, Ryoichi, Praxis
[16.3]	Sudhaus, Ryoichi	Sudhaus, Ryoichi, Praxis	Sudhaus, Ryoichi, Praxis	Sudhaus, Ryoichi, Praxis

[16.4]	Sudhaus, Ryoichi	Sudhaus, Ryoichi, Praxis	Sudhaus, Ryoichi, Praxis	Sudhaus, Ryoichi, Praxis
[16.5]	Sudhaus, Ryoichi	Sudhaus, Ryoichi, Praxis	Sudhaus, Ryoichi, Praxis	Sudhaus, Ryoichi, Praxis
[16.6]	Sudhaus, Ryoichi	Sudhaus, Ryoichi	Sudhaus, Ryochi, Wu	Sudhaus, Ryochi, Wu, Provost, TI Paper, UK Paper

Each of Grounds 2-5 further compound the lack of particularity because the Petition fails to clearly identify which reference is being relied on for particular elements and how the references are to be combined. As the record lacks an explanation as to *how* or *why* the cited references would be modified to meet the recited claim elements, a determination of obviousness cannot be reached. *In re NuVasive, Inc.*, 842 F.3d 1376, 1382-86 (Fed. Cir. 2016). “An invention is not obvious just ‘because all of the elements that comprise the invention were known in the prior art;’ rather, a finding of obviousness at the time of invention requires a ‘plausible rational[e] as to why the prior art references would have worked together.’” *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1335 (Fed. Cir. 2013).

Petitioner’s contentions amount to an invitation for Patent Owner and the Board to craft an obviousness analysis where one is lacking. Simply stating that

references relate to the same technology does not provide the how, or why, references should be combined to render an invention obvious. *See Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1368 (Fed. Cir. 2012) (“While the Supreme Court made clear that a mechanical application of the teaching-suggestion-motivation test, requiring an explicit teaching in the prior art, is inappropriate, ‘[w]e must still be careful not to allow hindsight reconstruction of references to reach the claimed invention without any explanation as to how or why the references would be combined to produce the claimed invention.’” (internal citation omitted)).

The grounds recited in the Petition rely on modification of a single reference or a combination of teachings from multiple prior art references, without persuasive explanation, expert testimony, or other evidence as to (1) how teachings from the references are modified or combined, (2) the reasons one of ordinary skill in the art would have modified or combined the teachings to arrive at the claimed invention, or (3) whether one of ordinary skill in the art would have been able to combine the teachings in the manner claimed. Pet. 21–109. It is Petitioner’s burden to demonstrate both “that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *Kinetic Concepts*, 688 F.3d at 1360 (quoting *Procter & Gamble Co. v. Teva*

Pharm. USA, Inc., 566 F.3d 989, 994 (Fed. Cir. 2009) (internal quotation marks omitted)); *Quantificare, Inc. v. The Proctor & Gamble Co.*, IPR2017-02113, Paper 11, 14 (PTAB Mar. 16, 2018).

B. Petitioner fails to specify what Petitioner regards as the differences between the prior art and the claims

It is settled law that, in order to find obviousness under 35 U.S.C. § 103, “the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved.” *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966); *see also KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 399 (2007).

Petitioner’s obviousness analysis renders the Petition deficient as a matter of law because Petitioner fails to specifically explain how the prior art differs from the challenged claims. For example, Petitioner never specifically identifies any deficiency in Sudhaus that is allegedly remedied by a POSITA’s knowledge, Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper. In fact, Petitioner entirely neglects to discuss any differences between the prior art and the claims at issue. Instead, Petitioner argues that disclosures of Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper are relied on “[a]dditionally (and alternatively) to” Sudhaus. *See, e.g., Pet.*, 38-45. However, Petitioner never explains what features of Sudhaus a POSITA would modify or explains a rationale to do so.

Petitioner's choice not to address this required *Graham* factor renders all of its obviousness grounds unclear. When a petition neglects to identify the differences between the prior art and the claims at issue, the Board has good reason to decline institution. *See Adaptics Ltd. v. Perfect Co.*, IPR2018-01596, Paper 20, 20 (PTAB Mar. 6, 2019) (informative) ("Critically, however, the Petition fails to specify what Petitioner regards as the difference(s) between [the prior art] and the challenged claims. *See Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966) (requiring that the differences between the prior art and the claims at issue be ascertained as part of an obviousness analysis).").

Even Petitioner's expert, Dr. Glösekötter, acknowledges that in "determining whether a claimed invention is obvious, you must consider the level of ordinary skill in the field [of the invention] that someone would have had at the time the patent was filed, the scope and content of the prior art, and *any differences between the prior art and the claimed invention.*" EX-1003, ¶27. Yet, neither Petitioner nor Dr. Glösekötter clearly identifies differences between Sudhaus, Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper in the Petition's grounds and the claimed invention. Due to Petitioner's refusal to admit the deficiencies in Sudhaus, Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper (or any other reference), it is unclear why Petitioner believes the claimed invention would have been obvious over Sudhaus or any combination of Sudhaus, Ryoichi, Praxis, Wu,

Provost, TI Paper, and UK Paper.

C. Petitioner fails to show that a POSITA would have been motivated to modify Sudhaus or combine Sudhaus and any of Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper to render obvious the challenged claims

Petitioner's explanation that prior art references are analogous art (Pet., 20) is not sufficient to establish that a POSITA would have had reason to modify or combine their teachings in the manner set forth in the claims. *Johns Manville Corp. v. Knauf Insulation, Inc.*, IPR2018-00827, Paper 9, 10-11 (PTAB Oct. 16, 2018) (Decision Denying Institution) (informative) ("Demonstrating that a reference is analogous art or relevant to the field of endeavor of the challenged patent is not sufficient to establish that one of ordinary skill would have had reason to combine its teachings with other prior art in the manner set forth in the claim.") (citing *Securus Techs., Inc. v. Global Tel*Link Corp.*, 701 F. App'x 971, 977 (Fed. Cir. 2017) ("a broad characterization of [prior art references] as both falling within the same alleged field . . . without more, is not enough for [Petitioner] to meet its burden of presenting a sufficient rationale to support an obviousness conclusion.")). In fact, Petitioner has not shown that a POSITA would have been motivated to modify Sudhaus or to even look to Ryoichi, Praxis, Wu, Provost, TI Paper, or UK Paper in the context of Sudhaus's control circuit. Petitioner ignores significant design and functional differences between Sudhaus's control circuit and

Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper.

For example, in Sudhaus's control circuit 10 of FIG. 1 (as shown below), controller RG controls current sources IS_3 , IS_4 using measurement values from: output voltages U_3 , U_4 detected by measurement devices MU_3 , MU_4 ; currents I_3 , I_4 detected by two further measurement devices MI_3 , MI_4 ; powers P_3 , P_4 detected by power measurement devices MP_3 , MP_4 ; operating voltage U_b detected by a measurement device MU_b ; temperature T measured by a temperature measurement device; and external control instructions I_{soll} . EX-1005, 4:25-51, FIG. 1.

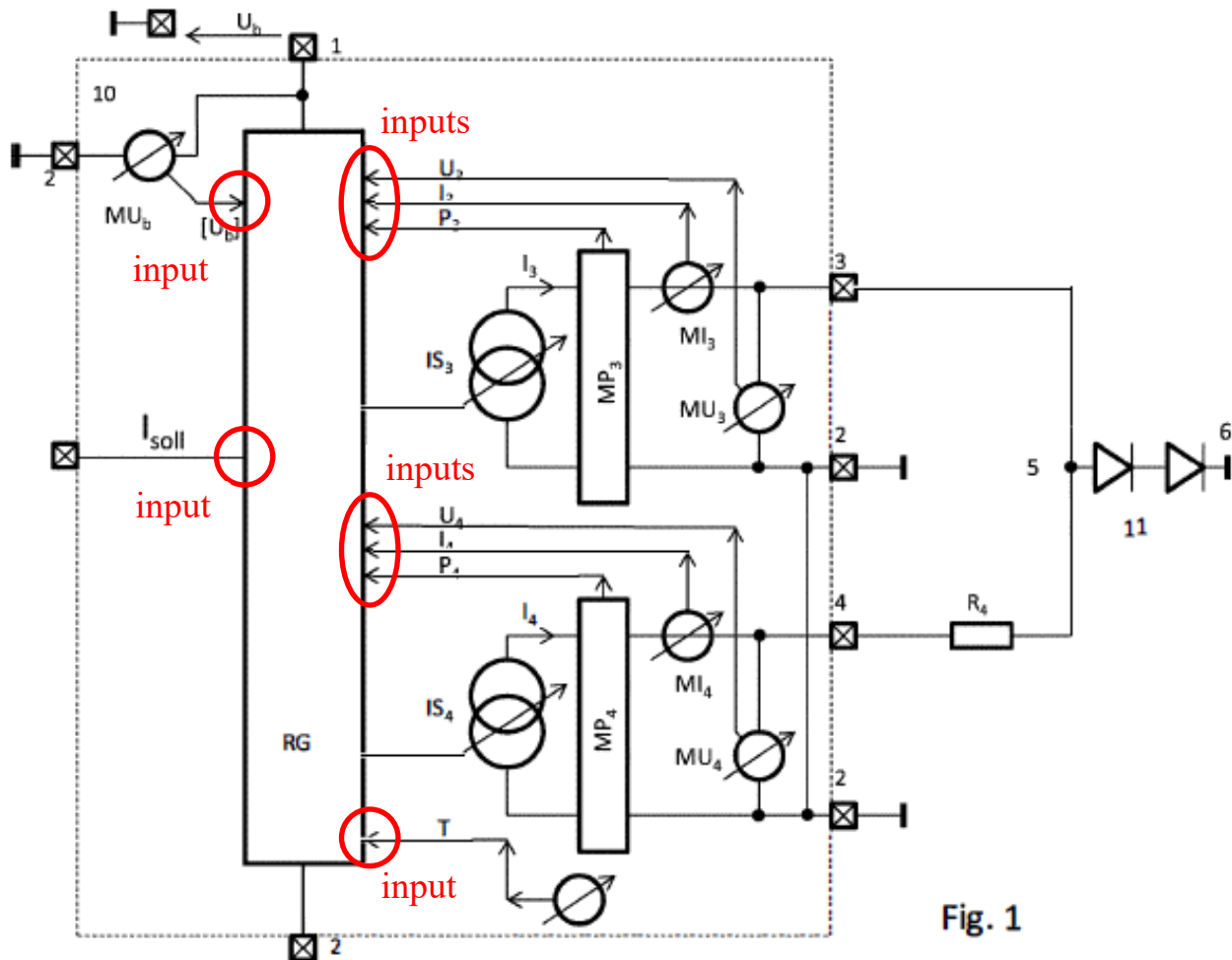


Fig. 1

EX-1005, FIG. 1 (annotated). By contrast, none of Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper controls current sources using all these measurement values. Petitioner does not explain how Sudhaus would still function as intended and continue to control current sources using all these measurement values, when modified based on the teachings of Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper. *IBM Corp. v. Rigetti & Co., Inc.*, IPR2020-00496, Paper 10, 22 (PTAB Aug. 7, 2020) (“Petitioner also needs to sufficiently explain why a person skilled in the art *would* have done that, and why, when... so modified, the [device] would still perform the function [it was intended to perform].”); *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073-74 (Fed. Cir. 2015). Because Sudhaus is significantly different from Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper in these and other respects, a POSITA would not have considered the proposed combinations without the benefit of hindsight. *See WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1337 (Fed. Cir. 2016). The Board should avoid such hindsight assumed in the Petition.

Petitioner further asserts that:

A POSITA would have been motivated to combine Sudhaus and Ryoichi as Ryoichi discloses transistor level detail of a portion of a controller, such as the Sudhaus controller, including current control (the error amplifier and amplifier output stage) and gradual transitioning between current outputs (amplifier output

stage and slew rate control). POSITA would have been motivated to combine Sudhaus and Praxis as Praxis discloses an analog approach to the design need of controlling a sum of two currents. Each of Wu, and the combination of Provost with the TI Paper and the UK Paper, provide alternatives for slew rate control and a POSITA would be motivated to combine any of these references to accommodate a particular design need.

Pet., 21. Petitioner's alleged motivations to combine are unsupported attorney argument and amount to nothing more than an attempt to show that Sudhaus could have been modified to include the error amplifier, amplifier output stage, and slew rate control of one or more of Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper. Showing that a reference "could" have been modified does not demonstrate a motivation or rationale for making the modification or combination. *See Belden*, 805 F.3d at 1073 ("[O]bviousness concerns whether a skilled artisan not only could have made but would have been motivated to make the combinations or modifications of prior art to arrive at the claimed invention."); *Fresenius USA, Inc. v. Baxter Int'l, Inc.*, 582 F.3d 1288, 1299, 1301 (Fed. Cir. 2009). Petitioner has not provided the required analysis of explaining, based on facts and evidence, why a POSITA would have been motivated to make the suggested modification, how the asserted combination would have worked, and why it would have been an obvious combination to a POSITA. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007);

PersonalWeb Techs., LLC v. Apple, Inc., 848 F.3d 987, 994 (Fed. Cir. 2017).

The Petition's description of the Grounds provides no further analysis of the modifications and combinations. For example, for Ground 1 based on Sudhaus alone, the Petition states that:

POSITA would find it obvious, based on Sudhaus, to supply an LED load through two current paths, one current path including an external resistor, while controlling a sum of currents delivered to the load. Sudhaus describes increasing the portion of current through the second current path including the external resistor as supply voltage increases, and *gradually* increasing current through the second current path (control the slew rate) with increasing supply voltage.

Pet., 22. Again, this is unsupported attorney argument. Petitioner provides no explanation as to what suggested modification is being made to Sudhaus and why a POSITA would have been motivated to make the suggested modification.

For Ground 2 based on the combination of Sudhaus and Ryoichi, the Petition states that:

POSITA would find it obvious to include Ryoichi's error amplifier (including the amplifier output stage) in the Sudhaus controller. POSITA would further find it obvious to include Ryoichi's slew rate control to Sudhaus' second current path to accomplish gradual transition from the first current path to the second current path.

Pet., 27-28. However, Petitioner provides no implementation details for including Ryoichi's error amplifier and amplifier output stage in Sudhaus's controller and no implementation details for including Ryoichi's slew rate control to Sudhaus's second current path. This unsupported attorney argument similarly fails to provide a sufficiently detailed explanation as to how teachings from Sudhaus and Ryoichi are combined, how the combination would have worked, why a POSITA would have combined the teachings to arrive at the claimed invention, and whether a POSITA would have been able to combine the teachings in the manner claimed.

Petitioner's unsupported attorney arguments for each of Grounds 3-5 are similarly deficient. The Ground 3 argument based on the combination of Sudhaus, Ryoichi, and Praxis merely states:

Sudhaus and Praxis, make it obvious for POSITA to include Ryoichi's differential part amplifier output stage and slew rate control in the error amplifier of Praxis, to control a transition of a current to Sudhaus, second current path.

Pet., 29-30. The Ground 4 argument based on the combination of Sudhaus, Ryoichi, Praxis, and Wu states:

At the time of the invention, POSITA would find it obvious to combine Wu with Sudhaus, to implement gradual transition of current from a first current path to a second current path.

Pet., 32. Finally, the Ground 5 arguments based on the combination of Sudhaus,

Ryoichi, Praxis, Provost, TI Paper, and UK Paper state:

A POSITA would find it obvious to combine Provost's ramp generator with one or more of Sudhaus, Ryoichi and Praxis to generate a charging current, and to use a charging capacitor with a charging current to generate charging voltage.

Pet., 33.

It would have been obvious to POSITA to use the basic circuit building blocks of Provost's voltage-to-current converter to convert ramp voltage (charging voltage) to offset current to control slew rate of an input signal applied to a driving transistor.

Pet., 34.

It would be obvious for POSITA to use current mirrors to adjust a current magnitude of current I_{offset} (by varying transistor sizes in the current mirrors), or to reconcile output voltage levels of the voltage-to-current converter to the voltage level of the input to the driving transistor.

Pet., 35. Petitioner's arguments for Grounds 3-5 fail to provide a sufficiently detailed explanation as to how teachings from the references are combined, how the combinations would have worked, why a POSITA would have combined the teachings to arrive at the claimed invention, and whether a POSITA would have been able to combine the teachings in the manner claimed. Petitioner's arguments amount to nothing more than impermissible conclusory attorney argument based

hindsight reconstruction.

According to Petitioner, Sudhaus already provides for “controlling total current to LED loads (error amplifier and amplifier output stage)... and gradually transitioning from a first current path to a second current path with increasing supply voltage (slew rate control).” Pet., 35. Because Petitioner alleges that Sudhaus “already provides for” the features and benefits that is Petitioner’s alleged motivation to combine, Petitioner has a burden to show “why” Sudhaus would have been modified to include the error amplifier, amplifier output stage, and slew rate control of one or more of Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper and why the alleged modification to Sudhaus “would have been an improvement on what [the primary system] already provides.” *Microsoft Corp. v. Koninklijke Philips N.V.*, IPR2018-00026, Paper 7, 15 (PTAB April 27, 2018). Indeed, the law mandates an “especially strong” inference of “nonobviousness” where the primary reference undermines the reason being proffered as to why the primary reference should be modified. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1326 (Fed. Cir. 2009).

The element-by-element analysis set forth in the Petition provides no additional analysis regarding the obviousness of the combinations. Pet., 36-109. Merely mapping the claim language to disclosures of the references is not enough to establish obviousness of the claim elements. “An invention is not obvious just

‘because all of the elements that comprise the invention were known in the prior art;’ rather, a finding of obviousness at the time of invention requires a ‘plausible rational[e] as to why the prior art references would have worked together.’”

Broadcom, 732 F.3d at 1335.

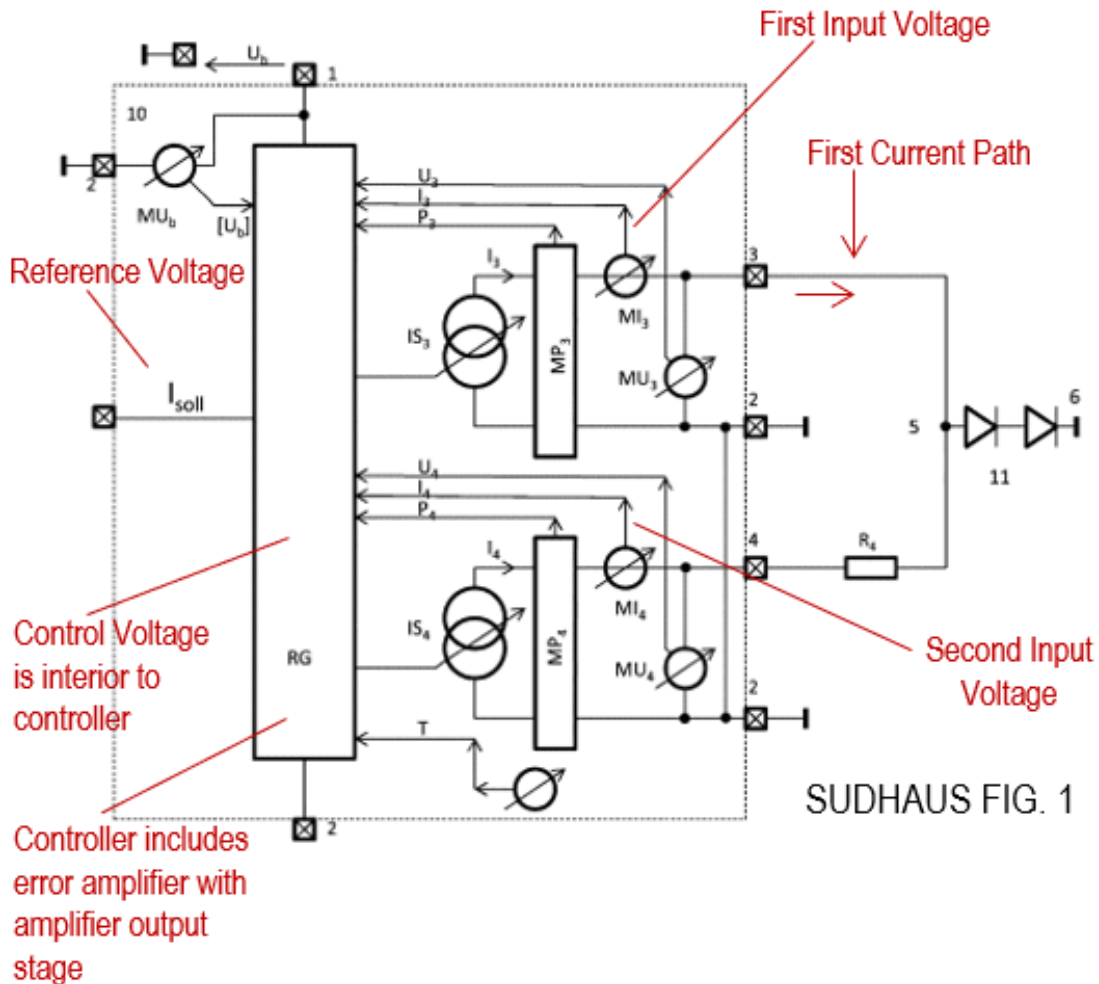
This Petition fails to provide an articulated reasoning with some rational underpinning to justify the legal conclusion of obviousness. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). Accordingly, Petitioner has not demonstrated a reasonable likelihood that it will prevail on its assertion that the challenged claims would have been obvious over Sudhaus alone or in combination with one or more of Ryoichi, Praxis, Wu, Provost, TI Paper, and UK Paper.

D. Grounds 1-5 – Petitioner fails to show that Sudhaus discloses or renders obvious “an error amplifier” and “an amplifier output stage” as required by claims 1, 11, and 16

Claims 1 and 11 require “an error amplifier configured to compare an input voltage with a reference voltage to generate a control voltage; and an amplifier output stage configured to control an output current through a first current path and a shunt current through a second current path based on the control voltage.” Claim 16 requires “an error amplifier comprising a first input to receive an input voltage, a second input to receive a reference voltage, and an output to provide a control voltage; and an amplifier output stage comprising an input coupled to the output of

the error amplifier.” Petitioner alleges that the plain and ordinary meaning of the claimed “error amplifier” is “an electrical circuit that detects a difference between two electrical signals and outputs a signal based on the difference.” Pet., 19, 37. Petitioner fails to show that Sudhaus discloses or renders obvious an error amplifier and an amplifier output stage under the plain claim language or under Petitioner’s proposed construction.

Petitioner alleges that Sudhaus’s controller RG shown in FIG. 1 “performs the functions of an error amplifier and amplifier output stage” and cites several portions of Sudhaus. Pet., 37-38 (citing EX1005, 2:32-33, 4:25-28, 4:46-50, 8:47-55). Based on the cited portions of Sudhaus, Petitioner concludes that “Sudhaus discloses control circuits to control two outputs supplying current to consumer (LED load),” “Controller RG is operative to control two currents based on a desired value for I_{soll} ,” “ControllerRG may comprise analog or digital circuits,” and “ControllerRG has output signals to control currents IS_3 , IS_4 .” Pet., 37-38. The Petition’s annotated version of Sudhaus’s FIG. 1 shown below labels I_3 as “First Input Voltage,” I_4 as “Second Input Voltage,” and I_{soll} as “Reference Voltage” with annotations that “Controller includes error amplifier with amplifier output stage” and “Control Voltage is interior to controller.” Pet., 38.



EX1005, FIG. 1 (as annotated at Pet., 38).

However, Petitioner never explains how Sudhaus discloses or renders obvious the claimed error amplifier and amplifier output stage. Petitioner never explains why **current** I_3 would be a “First Input **Voltage**,” why **current** I_4 would be a “Second Input **Voltage**,” why **current** I_{soll} would be a “Reference **Voltage**,” and whether and which inputs are being compared. Petitioner also provides no support or explanation for why Sudhaus’s controller RG includes an error amplifier that compares two voltages and provides a control voltage to an amplifier output

stage.

Indeed, Petitioner has not shown that Sudhaus discloses, either expressly or inherently, that Sudhaus's controller RG includes an error amplifier and an amplifier output stage. The portions of Sudhaus cited by Petitioner do not mention an error amplifier and an amplifier output stage. As previously discussed, in Sudhaus's control circuit 10 of FIG. 1 (as shown below), controller RG controls current sources IS_3 , IS_4 using measurement values from: output voltages U_3 , U_4 detected by measurement devices MU_3 , MU_4 ; currents I_3 , I_4 detected by two further measurement devices MI_3 , MI_4 ; powers P_3 , P_4 detected by power measurement devices MP_3 , MP_4 ; operating voltage U_b detected by a measurement device MU_b ; temperature T measured by a temperature measurement device; and external control instructions I_{soll} . EX-1005, 4:25-51, FIG. 1.

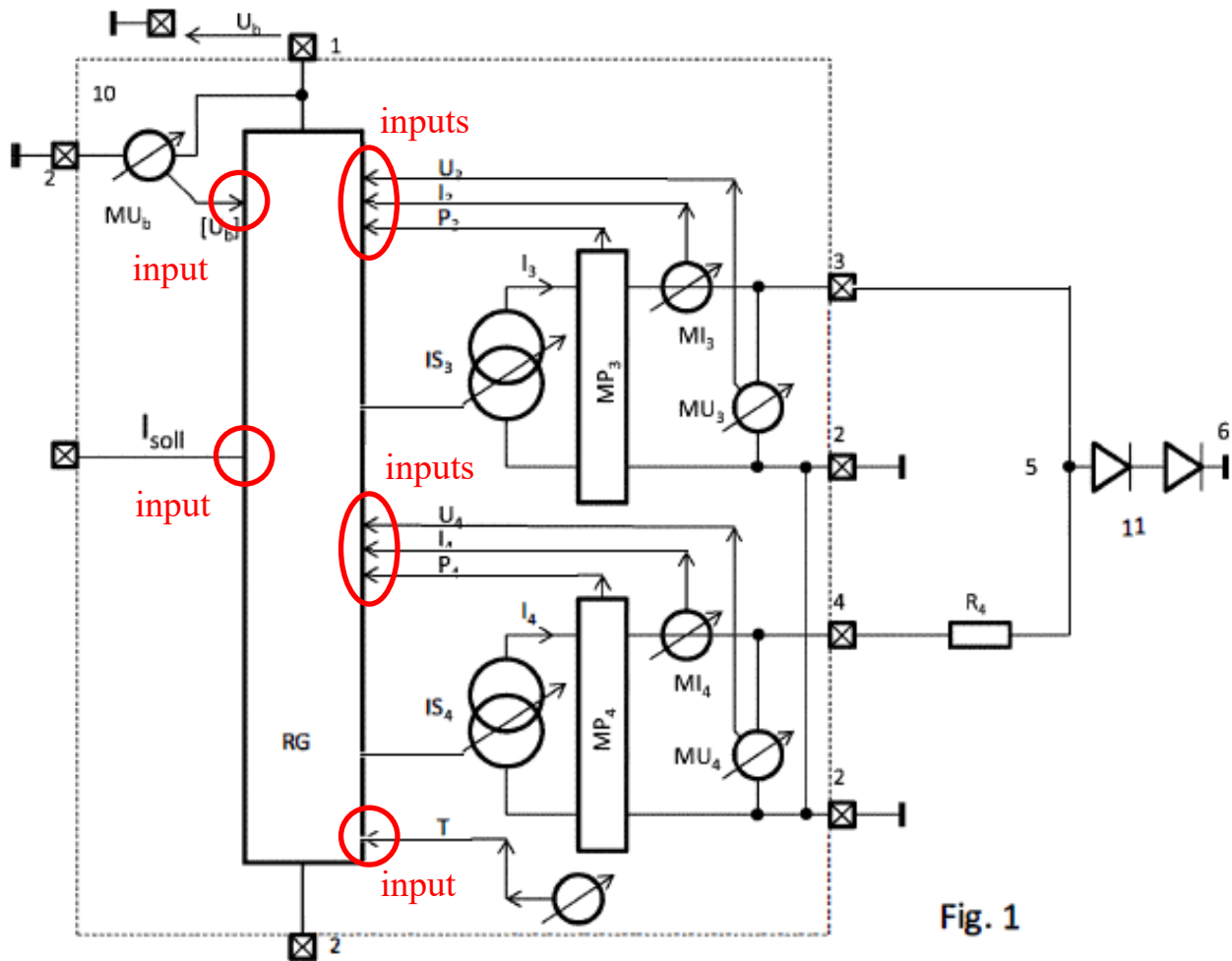


Fig. 1

EX-1005, FIG. 1 (annotated). Controller RG that includes analog or digital circuits and controls two current sources using various inputs does not demonstrate that controller RG necessarily includes an error amplifier and an amplifier output stage. For example, LED drivers that include a microcontroller, a programmable logic device (PLD), a microprocessor, an application specific integrated circuit (ASIC), a digital signal processor (DSP), a field programmable gate arrays (FPGA) as the control circuit are well-known in the field. *See, e.g.*, TI-2003, [0041]; TI-2004, [0111]. Such control circuits would perform calculations using the measurement

values to control the current sources, without an error amplifier and an amplifier output stage. *See, e.g.*, TI-2003, [0041]-[0045]; TI-2004, [0044]-[0046], [0057], [0083]-[0086], [0111].

Petitioner also has not shown that Sudhaus renders obvious the contention that Sudhaus's controller RG includes an error amplifier and an amplifier output stage. As explained above in Sections V.A-V.C, neither Petitioner nor Dr. Glösekötter provides any explanation how Sudhaus's controller RG would be modified to include an error amplifier and an amplifier output stage, why a POSITA would have found it obvious to include an error amplifier and an amplifier output stage in Sudhaus's controller RG, and how Sudhaus would still function as intended and continue to control current sources using all the measurement values when the controller RG is modified to include an error amplifier and an amplifier output stage.

Thus, Petitioner's assertion that "Sudhaus discloses a controller RG that performs the functions of an error amplifier and amplifier output stage" (Pet., 37) is not supported by the Petition. Petitioner's interpretation of Sudhaus appears to be extremely strained, which could be made only by hindsight. *In re Rosenberger*, 386 F.2d 1015, 1018 (CCPA 1967) ("This appears to be an extremely strained interpretation of the reference which could be made only by hindsight."). Accordingly, institution should be denied as Petitioner has not demonstrated a

reasonable likelihood that it will prevail on its assertion that claims 1, 11, and 16 are obvious over Sudhaus.

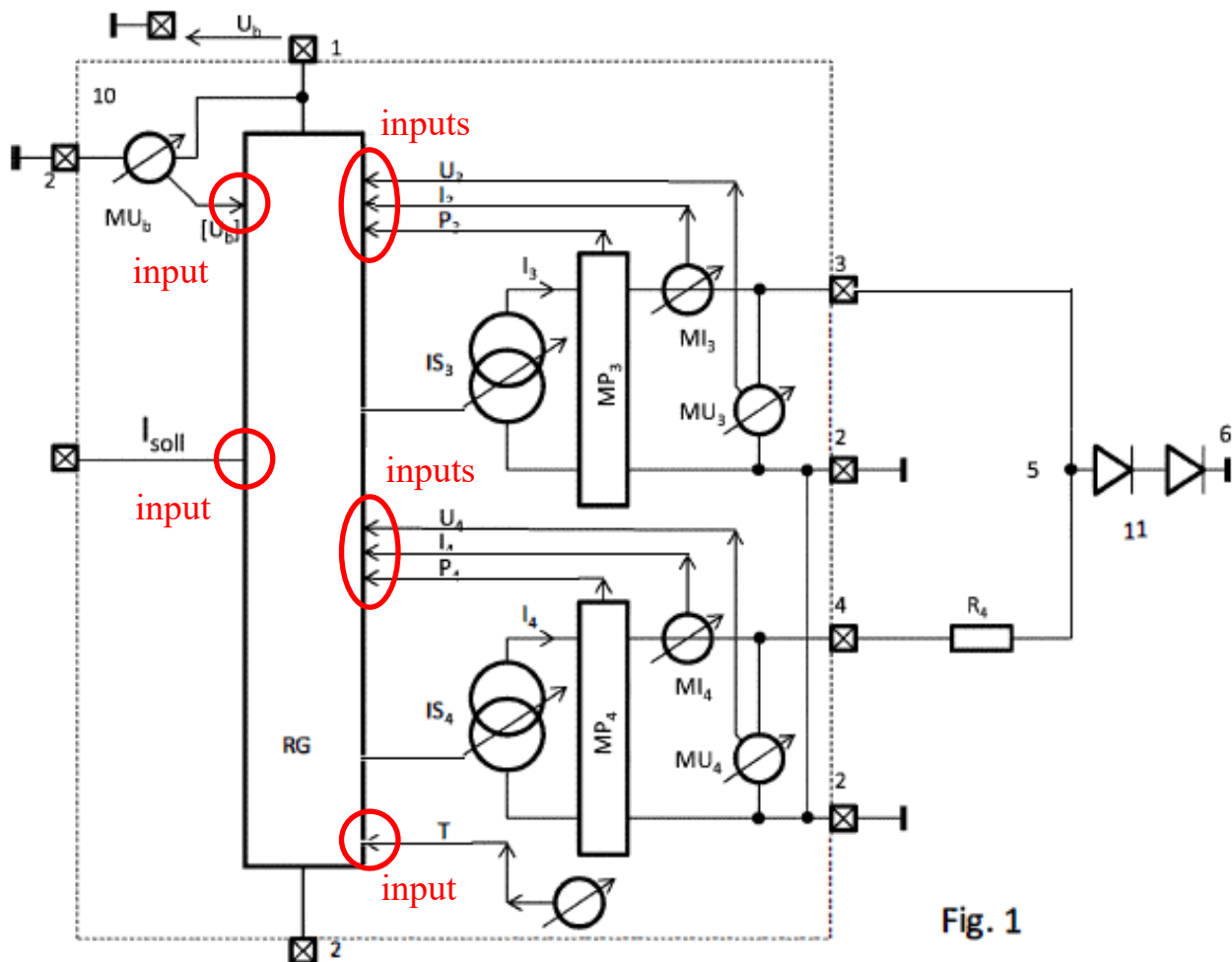
E. Grounds 2-5 – Petitioner fails to show that the combination of Sudhaus and Ryoichi or the combination of Sudhaus, Ryoichi, and Praxis renders obvious “an error amplifier” and “an amplifier output stage” as required by claims 1, 11, and 16

Petitioner states that “[t]o the extent the Board finds that Sudhaus does not disclose an error amplifier and amplifier output stage, Praxis discloses an error amplifier for controlling two current paths, and Ryoichi discloses a transistor level realization of an error amplifier and amplifier output stage for controlling a current to an LED load.” Pet., 35. Petitioner contends that “[a]dditionally (and alternatively) to Sudhaus, Ryoichi discloses transistor level circuits of operational amplifiers including an amplifier output stage, used for controlling current for LEDs” and “[a]dditionally (and alternatively) to Sudhaus/Ryoichi, Praxis discloses analog error amplifiers including two outputs to respectively control two current sources.” Pet., 38-39.

Petitioner has not shown that the combination of Sudhaus and Ryoichi or the combination of Sudhaus, Ryoichi, and Praxis renders obvious an LED system that includes an error amplifier and an amplifier output stage. As explained above in Sections V.A-V.C, neither Petitioner nor Dr. Glösekötter provides any explanation how Sudhaus would be modified to include an error amplifier and an amplifier

output stage as allegedly taught by Ryoichi and Praxis, why a POSITA would have found it obvious to include the error amplifier and amplifier output stage in Sudhaus, and how Sudhaus would still function as intended and continue to control current sources using all the measurement values when modified to include the error amplifier and amplifier output stage.

As previously discussed, in Sudhaus's control circuit 10 of FIG. 1 (as shown below), controller RG controls current sources IS_3 , IS_4 using measurement values from: output voltages U_3 , U_4 detected by measurement devices MU_3 , MU_4 ; currents I_3 , I_4 detected by two further measurement devices MI_3 , MI_4 ; powers P_3 , P_4 detected by power measurement devices MP_3 , MP_4 ; operating voltage U_b detected by a measurement device MU_b ; temperature T measured by a temperature measurement device; and external control instructions I_{soll} . EX-1005, 4:25-51, FIG. 1.

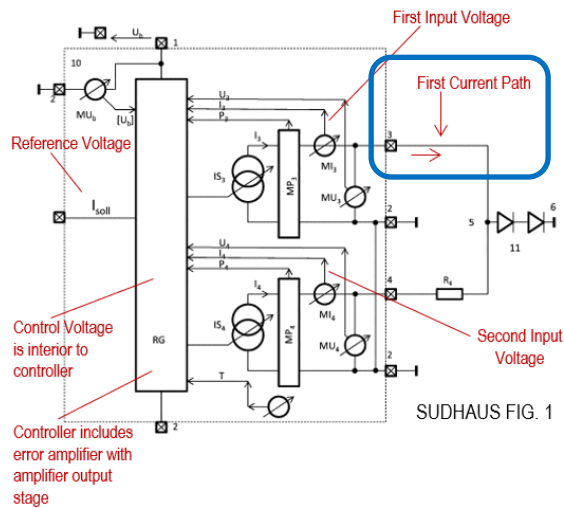


EX-1005, FIG. 1 (annotated). By contrast, neither of Ryoichi nor Praxis controls current sources using all these measurement values. Petitioner does not explain how Sudhaus would still function as intended and continue to control current sources using all these measurement values, when modified based on the teachings of Ryoichi and Praxis.

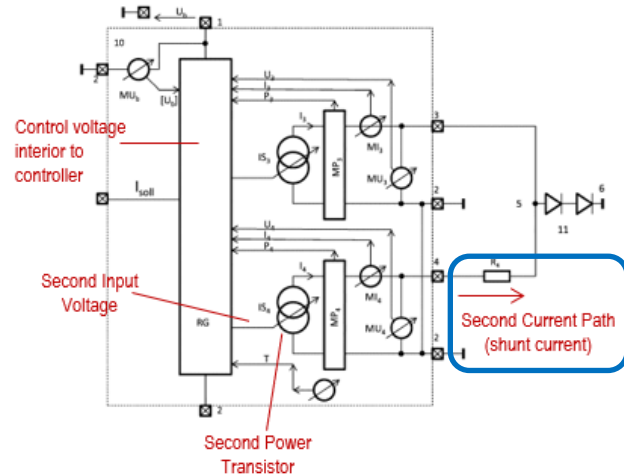
Further, Petitioner does not explain how Ryoichi's operational amplifier and amplifier output stage would be applicable to Sudhaus's system. Sudhaus's system controls two currents output through two different current paths, whereas Ryoichi's

system controls one current output through a single current path, as evident from Petitioner's annotations of Sudhaus and Ryoichi reproduced below.

Sudhaus
two different current paths



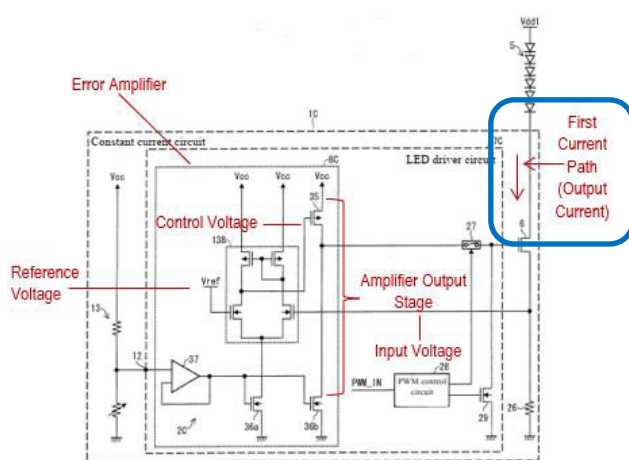
SUDHAUS FIG. 1



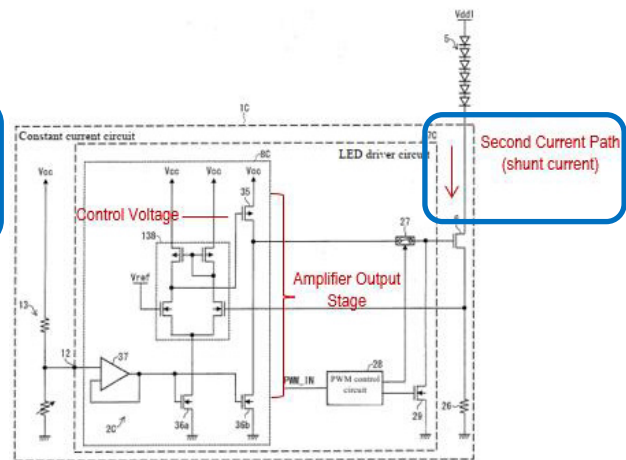
SUDHAUS FIG. 1

EX1005, FIG 1 (as annotated in red at Pet., 38, 40; Patent Owner's additional annotations in blue).

Ryoichi
only one current path



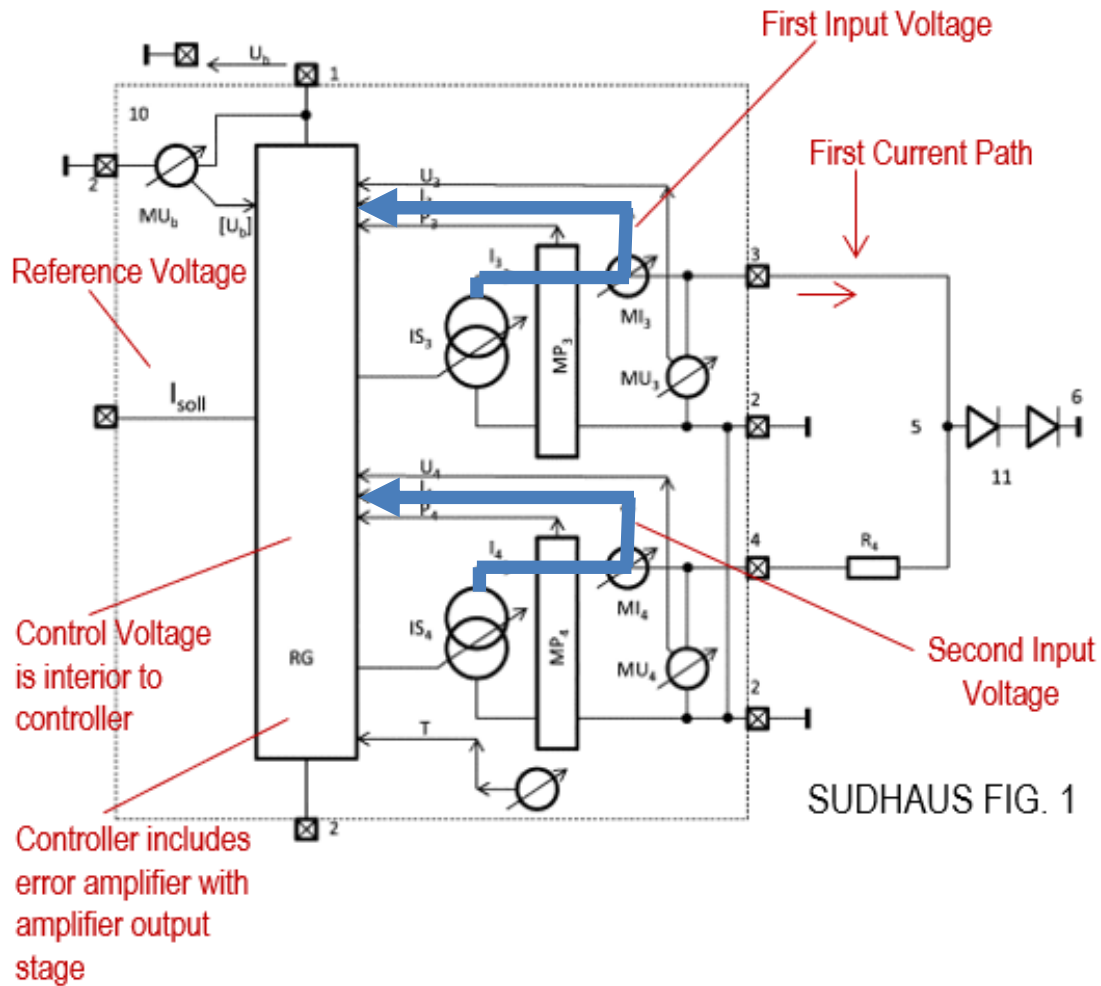
RYOICHI FIG. 5



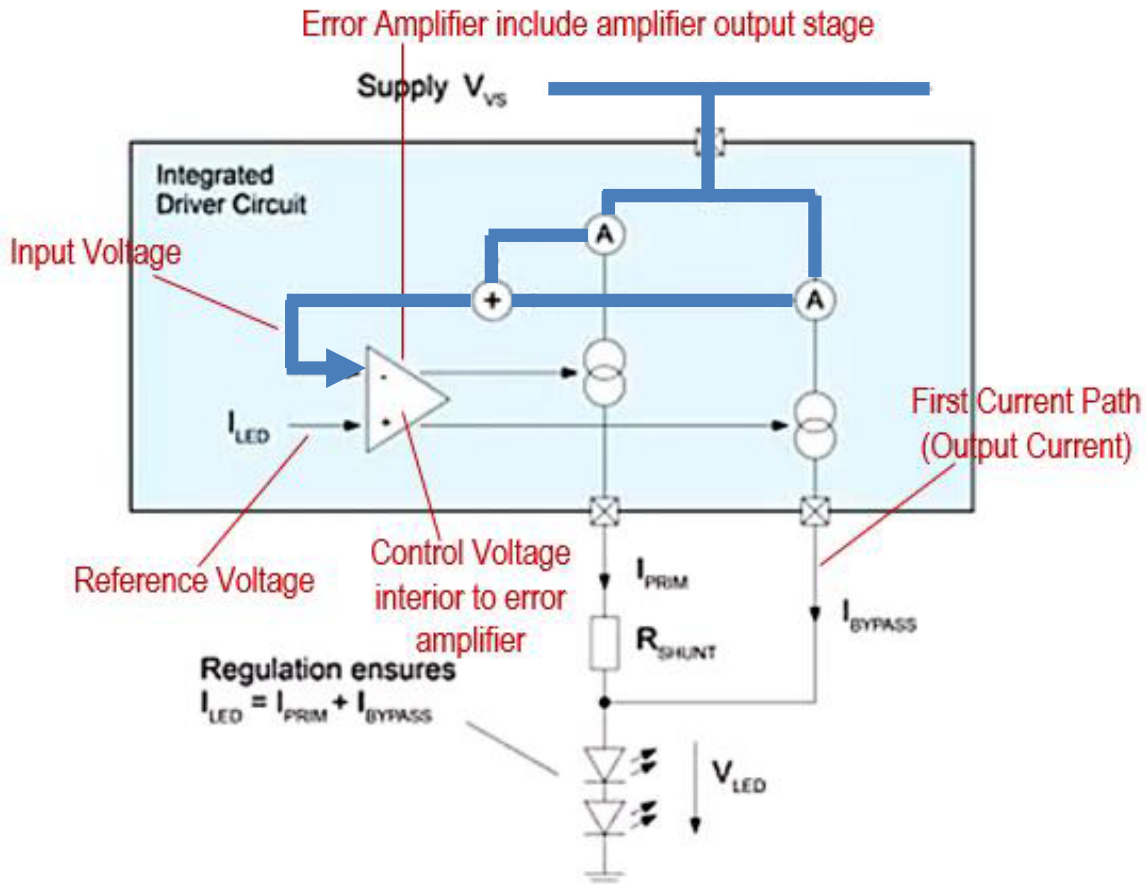
RYOICHI FIG. 5

EX1006, FIG. 5 (as annotated in red at Pet., 39, 40; Patent Owner's additional annotations in blue). Petitioner does not explain how or why a POSITA would combine Sudhaus and Ryoichi such that the single current output of Ryoichi would control both current sources of Sudhaus. Rather, a POSITA would not have had reason to combine the teachings of Sudhaus and Ryoichi because of these significant design and functional differences between Sudhaus's and Ryoichi's systems.

Similarly with Praxis, Petitioner does not explain how Praxis's error amplifier would be applicable to Sudhaus's system. Petitioner's annotations of Sudhaus below show that, in Sudhaus, the "First Input Voltage" and "Second Input Voltage" to controller RG are currents I_3 , I_4 output by the current sources IS_3 , IS_4 . These current paths of the "First Input Voltage" and "Second Input Voltage" are colored blue in Petitioner's annotated figure below.



EX1005, FIG. 1 (as annotated at Pet., 38; Patent Owner's additional annotations in blue). Unlike Sudhaus, Petitioner's annotations of Praxis below show that, in Praxis, the "Input Voltage" to the error amplifier is the input current from Supply V_{VS} . The current path of the "Input Voltage" is colored blue in Petitioner's annotated figure below.



PRAXIS FIG. 1

EX1008, FIG. 1 (as annotated at Pet., 40). Petitioner does not explain how or why Sudhaus's controller RG, which uses the output currents as the "First Input Voltage" and "Second Input Voltage," would incorporate Praxis's error amplifier, which uses the input current as the "Input Voltage." Rather, a POSITA would not have had reason to combine the teachings of Sudhaus and Praxis because of these significant design and functional differences between Sudhaus's and Praxis's systems.

For at least the above reasons, Petitioner has not shown that a POSITA would have been motivated to combine the teachings of Sudhaus, Ryoichi, and Praxis. Neither Petitioner nor Dr. Glösekötter identified a persuasive fact-based “reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *KSR Intn’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). In *Unigene*, the Federal Circuit explained the requirements of an obviousness analysis:

Obviousness requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under examination. [citing *KSR*, 550 U.S. at 418]. Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention. *Id.* at 421.

Unigene Labs., Inc. v. Apotex, Inc., 655 F.3d 1352, 1360 (Fed Cir. 2011). Like the patent challenger in *Unigene*, Petitioner has not provided the required analysis of explaining, based on facts and evidence, **why** a POSITA would have been motivated to make the suggested modification, **how** the asserted combination would have worked, and **why** it would have been an obvious combination to a POSITA—instead relying upon Petitioner’s hindsight assumptions. *See KSR*, 550 U.S. at 418; *Arkie Lures, Inc. v. Gene Larew Tackle, Inc.*, 119 F.3d 953, 956 (Fed.

Cir. 1997) (“Good ideas may well appear ‘obvious’ after they have been disclosed.”). Accordingly, institution should be denied as Petitioner has not demonstrated a reasonable likelihood that it will prevail on its assertion that claims 1, 11, and 16 are obvious over the combination of Sudhaus and Ryoichi or the combination of Sudhaus, Ryoichi, and Praxis.

F. Grounds 1-5 – Petitioner fails to show that Sudhaus discloses or renders obvious “the amplifier output stage comprising a slew-rate controller” as required by claims 1, 11, and 16

Claims 1 and 11 require “the amplifier output stage comprising a slew-rate controller configured to control a slew-rate of the shunt current.” Claim 16 requires “the amplifier output stage comprising a slew-rate controller.” Petitioner alleges that the plain and ordinary meaning of “slew-rate” is “a rate of change of an electrical signal over time” and a “slew-rate controller” is “an electrical circuit that controls a rate of change of an electrical signal over time.” Pet., 19, 42. Petitioner fails to show that Sudhaus discloses or renders obvious the amplifier output stage including a slew-rate controller under the plain claim language or under Petitioner’s proposed construction. As discussed above in Section V.D, Petitioner fails to show that Sudhaus discloses or renders obvious an amplifier output stage and thus fails to show that Sudhaus discloses or renders obvious an amplifier output stage including a slew-rate controller.

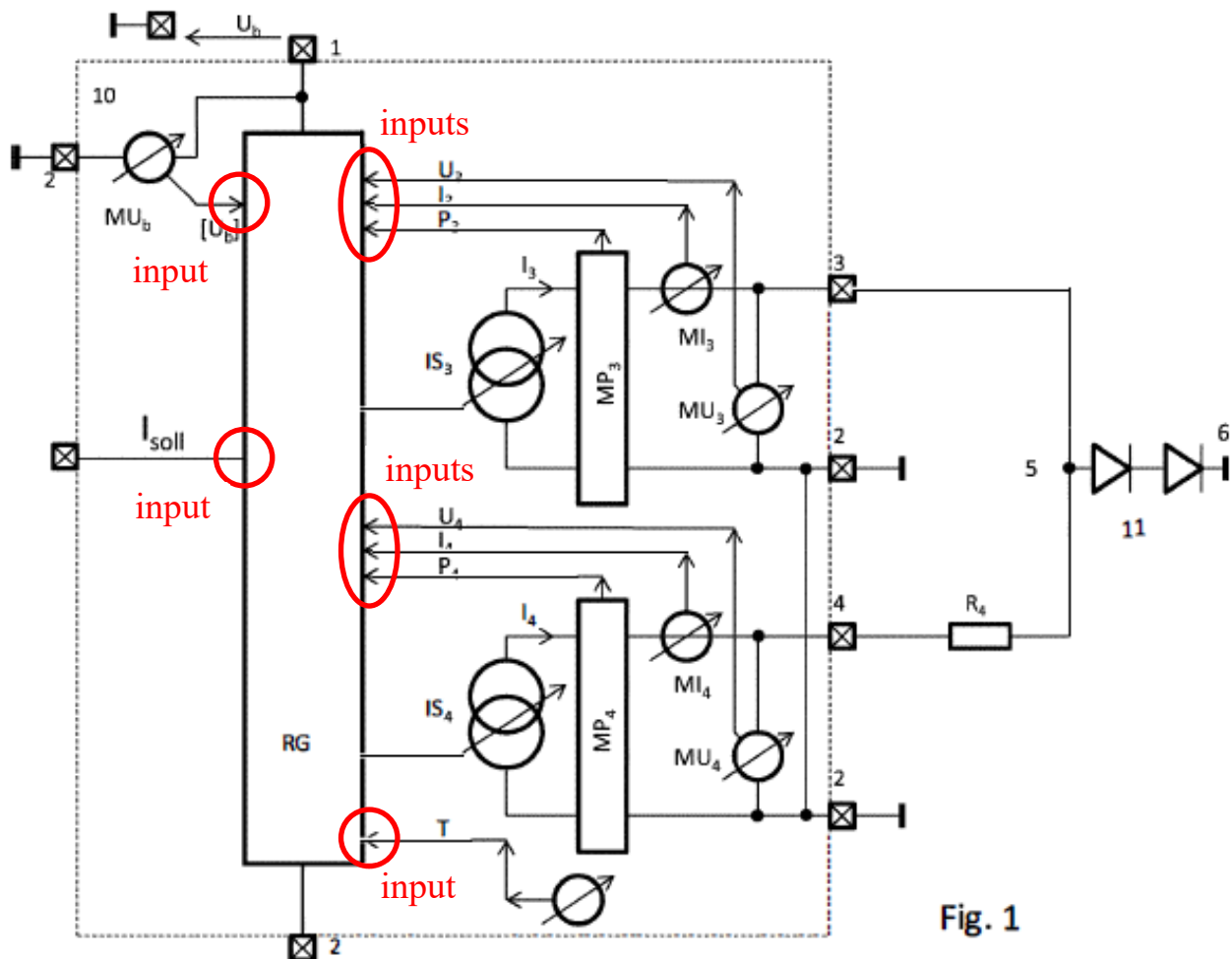
Despite Sudhaus’s deficiencies regarding an amplifier output stage,

Petitioner alleges that “Sudhaus discloses slew rate control of the second current output” because, according to Petitioner, “[i]n Sudhaus, as supply voltage increases, a portion of a total current of two current paths is gradually taken over by the second current path.” Pet., 42 (citing EX1005, 5:43-46, 6:24-29).

However, Petitioner never explains how Sudhaus’s disclosure satisfies or renders obvious a slew-rate controller.

Rather, Petitioner has not shown that Sudhaus discloses, either expressly or inherently, the amplifier output stage includes a slew-rate controller. The portions of Sudhaus cited by Petitioner do not mention a slew-rate controller. *See, e.g.*, Pet., 42 (citing EX1005, 5:43-46, 6:24-29). While Petitioner relies on Sudhaus’s black-box controller (“RG”) as disclosing a slew-rate controller, there simply is no evidence of a slew-rate controller in Sudhaus. Sudhaus’s disclosure of the second current gradually taking over a part of the total current does not demonstrate that controller RG necessarily includes a slew-rate controller. As previously discussed, in Sudhaus’s control circuit 10 of FIG. 1 (as shown below), controller RG controls current sources IS_3 , IS_4 using measurement values from: output voltages U_3 , U_4 detected by measurement devices MU_3 , MU_4 ; currents I_3 , I_4 detected by two further measurement devices MI_3 , MI_4 ; powers P_3 , P_4 detected by power measurement devices MP_3 , MP_4 ; operating voltage U_b detected by a measurement device MU_b ; temperature T measured by a temperature measurement device; and external

control instructions I_{soll} . EX-1005, 4:25-51, FIG. 1.



EX-1005, FIG. 1 (annotated). Sudhaus's controller RG controls two current sources using various inputs, which does not necessarily require an amplifier output stage with a slew-rate controller. For example, LED drivers that include a microcontroller, a programmable logic device (PLD), a microprocessor, an application specific integrated circuit (ASIC), a digital signal processor (DSP), a field programmable gate arrays (FPGA) as the control circuit are well-known in the field. *See, e.g.*, TI-2003, [0041]; TI-2004, [0111]. Such control circuits would

perform calculations using the inputs such that the second current gradually takes over a part of the total current without the use of a slew-rate controller. *See, e.g.*, TI-2003, [0041]-[0045]; TI-2004, [0044]-[0046], [0057], [0083]-[0086], [0111].

Further, Petitioner also has not shown that Sudhaus renders obvious that Sudhaus's controller RG includes an amplifier output stage with a slew-rate controller. As explained above in Sections V.A-V.C, neither Petitioner nor Dr. Glösekötter provides any explanation how Sudhaus's controller RG would be modified to include an amplifier output stage with a slew-rate controller, why a POSITA would have found it obvious to include an amplifier output stage with a slew-rate controller in Sudhaus's controller RG, and how Sudhaus would still function as intended and continue to control current sources using all the measurement values when the controller RG is modified to include an amplifier output stage with a slew rate controller.

Thus, Petitioner's assertion that "Sudhaus discloses slew rate control of the second current output" (Pet., 42) is not supported by the Petition. Petitioner's interpretation of Sudhaus appears to be extremely strained, which could be made only by hindsight. *In re Rosenberger*, 386 F.2d at 1018. Accordingly, institution should be denied as Petitioner has not demonstrated a reasonable likelihood that it will prevail on its assertion that claims 1, 11, and 16 are obvious over Sudhaus.

G. Grounds 2-5 – Petitioner fails to show that the combination of Sudhaus and Ryoichi, the combination of Sudhaus, Ryoichi, Praxis, and Wu, or the combination of Sudhaus, Ryoichi, Praxis, Provost, TI Paper, and UK Paper renders obvious “the amplifier output stage comprising a slew-rate controller” as required by claims 1, 11, and 16

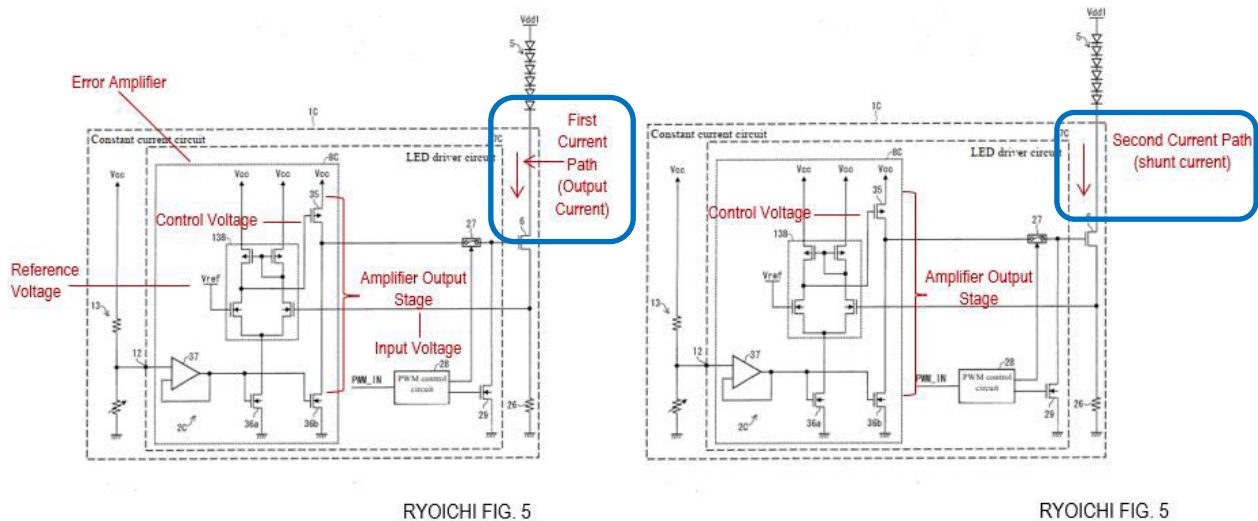
Petitioner states that “[t]o the extent the Board finds that Sudhaus does not disclose slew rate control, Ryoichi discloses multiple variations of slew rate control of which three are presented here, and Wu presents a fourth alternative to slew rate control,” and “the combination of Provost, TI Paper and UK Paper discloses a fifth approach to slew rate control.” Pet., 35-36. Petitioner contends that “[a]dditionally (and alternatively) [to] Sudhaus, Ryoichi includes slew rate control,” “[a]ditionally (and alternatively), to Sudhaus/Ryoichi/Praxis, Wu includes a slew-rate controller to control an output supplying current to a load,” and “[a]lternatively, the combination of Provost, TI Paper and UK Paper provide a slew-rate controller.” Pet., 42-44.

Other than Petitioner’s attorney argument, Petitioner has not shown that the combination of Sudhaus and Ryoichi, the combination of Sudhaus, Ryoichi, Praxis, and Wu, or the combination of Sudhaus, Ryoichi, Praxis, Provost, TI Paper, and UK Paper renders obvious a LED system that includes an amplifier output stage with a slew-rate controller. *See supra*, Sections V.A-V.C and V.E. Neither Petitioner nor Dr. Glösekötter provides any explanation how Sudhaus would be

modified to include an amplifier output stage with a slew-rate controller as allegedly taught by Ryoichi, Wu, Provost, TI Paper, and UK Paper, why a POSITA would have found it obvious to include an amplifier output stage with a slew-rate controller in Sudhaus, and how Sudhaus would still function as intended and continue to control current sources using all the measurement values when modified to include an amplifier output stage with a slew-rate controller.

Further, Ryoichi does not teach a slew-rate controller configured to control a slew-rate of the shunt current through the second current path, which is a different current path than the first current path that provides the output current. As shown in Petitioner's annotations to Ryoichi below, Ryoichi's system controls one current output through a single current path, which Petitioner identifies as both the "First Current Path" and "Second Current Path." Ryoichi does not contemplate dual parallel current paths including one path serving as a shunt current path, as allegedly disclosed in Sudhaus.

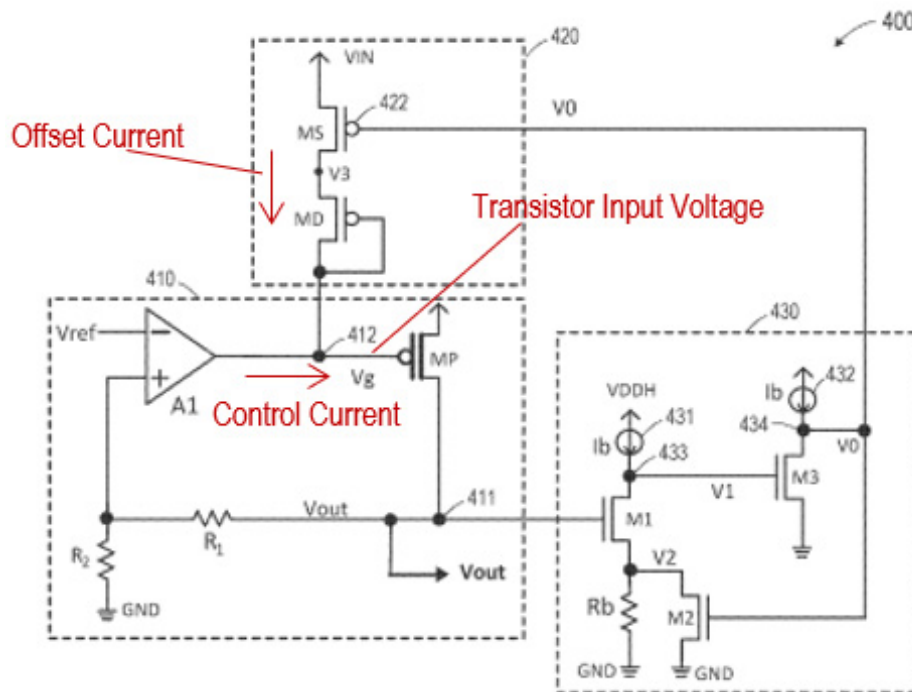
Ryoichi
only one current path



EX1006, FIG. 5 (as annotated in red at Pet., 39, 40; Patent Owner’s additional annotations in blue). Petitioner does not explain how or why Ryoichi’s control of a single current path teaches a slew-rate controller configured to control a slew-rate of the shunt current through the second current path, and how or why a POSITA would combine Sudhaus and Ryoichi such that the single current path of Ryoichi would serve as the two current paths, including both the output current path and shunt current path, of Sudhaus. Rather, a POSITA would not have had reason to combine the teachings of Sudhaus and Ryoichi because of these significant design and functional differences between Sudhaus’s and Ryoichi’s systems.

Wu also does not teach a slew-rate controller configured to control a slew-rate of the shunt current through the second current path. Petitioner alleges that “Wu includes a slew-rate controller [420] to control an output supplying current to

a load” and to control “a voltage rise on the gate of an output transistor.” Pet., 43. But Petitioner provides no explanation as to how or why controlling slew rate of the output current teaches controlling slew rate of the shunt current. Wu makes clear that the slew-rate controller 420 controls only the output current because the slew-rate controller 420 is disabled when transistors M1 and M2 are turned on. EX1009, 7:52-64. Indeed, Petitioner does not identify the shunt current in its annotated version of Wu’s FIG. 4 below.



WU FIG. 4

EX1009, FIG. 4 (as annotated at Pet., 43). Petitioner does not explain how or why a POSITA would incorporate Wu’s slew-rate control of the output current in

Sudhaus's controller RG to provide slew-rate control of the shunt current. Rather, a POSITA would not have had reason to combine the teachings of Sudhaus and Wu because of these significant design and functional differences between Sudhaus's and Wu's systems.

With respect to the combination with Provost, TI Paper, and UK Paper, Petitioner does not explain why a POSITA would even look to Provost's analog ramp generator "intended for time-domain analog testing, monotonicity and histogram-based tests of ADCs" (EX1010, Abstract) in the context of Sudhaus's LED system. Provost does not teach that its analog ramp generator is configured to control a slew-rate of the shunt current through the second current path of a LED system. Petitioner provides no explanation as to how or why a POSITA would incorporate the combination of Provost's analog ramp generator, TI Paper's voltage-to-current converter circuit, and UK Paper's MOSFET current mirror in Sudhaus's controller RG to provide slew-rate control of the shunt current. Petitioner seemingly "plucked" Provost, TI Paper, and UK Paper "out of the sea of prior art" for a combination with Sudhaus without any stated reason or benefit for doing so and left it to the Board to try and piece together the Petitioner's obviousness theory with these references. *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1337 (Fed. Cir. 2016). In *WBIP*, the Federal Circuit highlighted this erroneous logic underlying such a theory:

Too often the obviousness analysis is framed as an inquiry into whether a person of skill, with two (and only two) references sitting on the table in front of him, would have been motivated to combine (or, in [challenger's] view, could have combined) the references in a way that renders the claimed invention obvious.

The real question is whether that skilled artisan would have plucked one reference out of the sea of prior art [] and combined it with conventional [] elements to address some need present in the field []. Whether a skilled artisan would be motivated to make a combination **includes whether he would select particular references** in order to combine their elements.

Id. (emphasis added). Given such legal error, Petitioner's combination should be rejected.

In sum, Petitioner has not provided the required analysis of explaining, based on facts and evidence, **why** a POSITA would have been motivated to make the suggested modification, **how** the asserted combination would have worked, and **why** it would have been an obvious combination to a POSITA—instead relying upon Petitioner's hindsight assumptions. *See KSR*, 550 U.S. at 418; *Arkie Lures*, 119 F.3d at 956 (Fed. Cir. 1997). Accordingly, institution should be denied as Petitioner has not demonstrated a reasonable likelihood that it will prevail on its assertion that claims 1, 11, and 16 are obvious over the combination of Sudhaus and Ryoichi, the combination of Sudhaus, Ryoichi, Praxis, and Wu, or the

combination of Sudhaus, Ryoichi, Praxis, Provost, TI Paper, and UK Paper.

H. Grounds 3-5 – Petitioner fails to provide an affidavit attesting to the accuracy of the translation of Praxis

Praxis (EX1008) is an English translation of an article originally published in German. In order to rely on Praxis as a reference, Petitioner is required to provide “a translation of the document into English and an affidavit attesting to the accuracy of the translation must be filed with the document.” 37 C.F.R. § 42.63(b). Petitioner has provided no such attesting affidavit, and therefore Praxis should not be considered as a reference. *See, e.g., Shenzhen Aurora Tech. Co. Ltd. v. Putco, Inc.*, IPR2020-00670, Paper 10, 5-6 (PTAB Aug. 27, 2020) (“We deny the Petition and do not institute *inter partes* review because Petitioner has not filed affidavits attesting to the accuracy of foreign language references relied upon to show unpatentability.”).

I. Grounds 3-5 – Petitioner fails to show that Praxis, Provost, TI Paper, and UK Paper qualify as prior art “printed publications”

Petitioner critically fails to address the public accessibility of each of Praxis, Provost, TI Paper, and UK Paper. Petitioner relies on the dates identified on the faces of the documents as evidence of publication and the dates of publication. Pet., 11-14. Petitioner makes no attempt to justify or provide any evidence as to why it believes these dates refer to the dates the documents were publicly accessible. Public accessibility is critical to Petitioner’s case, because it is well

established that “at the institution stage, the petition must identify, with particularity, evidence sufficient to establish a reasonable likelihood that [a] reference was publicly accessible before the critical date of the challenged patent and therefore that there is a reasonable likelihood that it qualifies as a printed publication.” *Hulu, LLC v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29, 13 (PTAB Dec. 20, 2019) (precedential). Accordingly, Petitioner has not established a prima facie case of public accessibility for each of Praxis, Provost, TI Paper, and UK Paper, and thus has not established Praxis, Provost, TI Paper, and UK Paper as prior art.

VI. CONCLUSION

For the foregoing reasons, Patent Owner respectfully requests that the Board deny institution of Grounds 1-5 of the Petition, and thus decline to institute *inter partes* review of any claim of the '432 Patent.

Respectfully submitted,

Date: August 29, 2024

/Joshua A. Griswold/

Joshua A. Griswold, Reg. No. 46,310

Patrick Bisenius, Reg. No. 63,893

Fish & Richardson P.C.

60 South Sixth Street, Suite 3200

Minneapolis, MN 55402

T: 214-747-5070

F: 877-769-7945

Attorneys for Patent Owner

CERTIFICATION UNDER 37 C.F.R. §42.24(d)

Under the provisions of 37 C.F.R. §42.24(d), the undersigned hereby certifies that the word count for the foregoing Patent Owner's Preliminary Response to Petition totals 9,026, which is less than the 14,000 allowed under C.F.R. §42.24(b)(1).

Respectfully submitted,

Date: August 29, 2024

/Joshua A. Griswold/
Joshua A. Griswold, Reg. No. 46,310
Patrick Bisenius, Reg. No. 63,893
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
T: 214-747-5070
F: 877-769-7945

Attorneys for Patent Owner

CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e)(4) and 42.205(b), the undersigned certifies that on August 29, 2024, a complete and entire copy of this Patent Owner's Preliminary Response and accompanying exhibits were provided by email to the Petitioner by serving the correspondence email address of record as follows:

Michael McCandlish
MINDFUL IP PLLC
28175 Haggerty Rd.
Novi, MI 48377

Joseph P. Kincart
TRACNIK LAW PLLC
5923 Saxony Woods Lane
Jacksonville, FL 32211

E-mail: mmccandlish@mindfuliplaw.com; jkincart@tracnik.com

/Diana Bradley/
Diana Bradley
Fish & Richardson P.C.
60 South Sixth Street, Suite 3200
Minneapolis, MN 55402
(858) 678-5667