

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NISSAN MOTOR CO., LTD.,

Petitioner,

v.

LONGHORN AUTOMOTIVE GROUP LLC,

Patent Owner.

Patent No. 7,513,238

Filing Date: October 15, 2004

Issue Date: April 7, 2009

Inventors: Ruediger Pfaff, Martin Schnabel, and Joachim Suess

Title: DIRECTLY INJECTING INTERNAL COMBUSTION ENGINE

PATENT OWNER'S PRELIMINARY RESPONSE

Case No. IPR2025-01089

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LIST OF EXHIBITS

Exhibit No.	Description of Document
2001	Second Amended Docket Control Order, Dkt. 69, <i>Longhorn Auto. Grp. LLC v. Hyundai Motor Corp.</i> , Case No. 2:24-cv-00554 (E.D. Tex. July 9, 2025)
2002	Fourth Amended Docket Control Order, Dkt. 58, <i>Longhorn Auto. Grp. LLC v. Volkswagen AG</i> , Case No. 2:24-cv-00933 (E.D. Tex. May 15, 2025)
2003	Longhorn Automotive Group LLC's Infringement Contentions and P.R. 3-1 and 3-2 Disclosures in <i>Longhorn Auto. Grp. LLC v. Hyundai Motor Corp.</i> , Case No. 2:24-cv-00554 (E.D. Tex.), dated July 25, 2025

I. INTRODUCTION

On June 3, 2025, Nissan Motor Co., Ltd. (“Petitioner”) submitted a petition (Paper 2, “Petition” or “Pet.”) to institute *inter partes* review (“IPR”) of U.S. Patent No. 7,513,238 (Ex. 1001, the “’238 Patent”), challenging Claims 1-14 (the “Challenged Claims”). The Petition asserts that the Challenged Claims are rendered obvious by twelve grounds based on the Ishida reference (Grounds 1-10 (Exhibit 1005, “Ishida”) and the Takatomo reference (Grounds 11-12) (Exhibit 1006, “Takatomo”). Pet. at 5-6.

Each proposed ground of invalidity relies heavily on purported POSITA knowledge to allege disclosure of missing elements.

The Board should deny the Petition because Petitioner’s fails to identify any element corresponding to the claimed “recess edge.” The Challenged Claims recite numerous limitations requiring a “recess edge,” including but not limited to “a surface of the piston recess adjoining the elevation in a recess edge direction is connected to the elevation via a radius so that an injection jet impinging the surface and injected as early as possible is distributed both in a elevation direction and in the recess edge direction, and the surface is substantially planar and has an ascending gradient in the recess edge direction such that an injection jet injected as late as possible impinges onto the surface, the last-mentioned injection jet being distributed both in the elevation direction and in the recess edge direction.” Rather than identify

a “recess edge” Petitioner identifies what Petitioner (not the prior art references) refers to as a “junction” and fails to explain how the alleged “junction” meets the recess edge limitations.

Petitioner appears to rely completely on expert testimony or POSITA knowledge to show the “recess edge” limitations. Petitioner’s proposed grounds are thus deficient for failure to comply with 37 C.F.R. § 42.104(b)(4), which requires that a petition for *inter partes* review “must specify where each element of the claim is found in the prior art patents or printed publications relied upon.” Accordingly, the Board should deny institution of the Petition.

II. CLAIM CONSTRUCTION

For the purposes of this Preliminary Response only, Patent Owner believes that claim construction is not required to resolve any issues. Pet. at 14-15.

III. LEVEL OF ORDINARY SKILL IN THE ART

For the purposes of this Preliminary Response only, Patent Owner utilizes Petitioner’s proposed level of skill in the art. Pet. at 14 (citations omitted).

IV. PETITIONER HAS NOT DEMONSTRATED A REASONABLE LIKELIHOOD OF SUCCESS FOR THE GROUNDS ADVANCED IN THE PETITION, AND THE PETITION SHOULD BE DENIED

The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill

in the art, and (4) so-called secondary considerations where in evidence. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966); *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1537 (Fed. Cir. 1983).

The Board has held that a failure to identify the differences between the claimed subject matter and the prior art is fatal to an obviousness challenge. *See, Apple, Inc. v. Contentguard Holdings, Inc.*, IPR2015-00355, Decision Denying Institution of *Inter Partes* Review, Paper 9 at 9-10 (P.T.A.B. June 26, 2015) (denying institution for failure to identify the differences between the claimed subject matter and the prior art).

In arriving at an obviousness determination, the Board must sufficiently explain and support the conclusions that the prior-art references disclose all the elements recited in the Challenged Claims and a relevant, skilled artisan not only could have made, but would have been motivated to combine all the prior art references in the way the patent claims and reasonably expected success. *Pers. Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017). That is, even if all the claim elements are found across a number of references, an obviousness determination must consider whether a person of ordinary skill in the art would have

the motivation to combine those references. *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1368 (Fed. Cir. 2016); *Los Angeles Biomedical Rsch. Inst. at Harbor-UCLA Med. Ctr. v. Eli Lilly & Co.*, 849 F.3d 1049, 1067 (Fed. Cir. 2017) (vacating and remanding an obviousness determination, in part, because the Board did not make factual finding as to whether there was an apparent reason to combine all three prior art references to achieve the claimed invention and whether a person of skill in the art would have had a reasonable expectation of success from such a combination). This combinability determination, as supported by an articulated motivation to combine, requires a plausible rationale as to why those prior art references would have worked together. *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1335 (Fed. Cir. 2013). Absent some articulated rationale, a “common sense” finding is no different than the conclusory statement “would have been obvious.” *In re Van Os*, 844 F.3d 1359, 1361 (Fed. Cir. 2017). Of additional importance, “knowledge of a problem and motivation to solve it are entirely different from motivation to combine particular references” *Innogenetics, N.V. v. Abbott Lab’ys*, 512 F.3d 1363, 1373 (Fed. Cir. 2008).

35 U.S.C. § 312(a)(3) requires that an IPR petition must identify, “in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim.” 35 U.S.C. § 312(a)(4) requires that a “petition filed under section 311

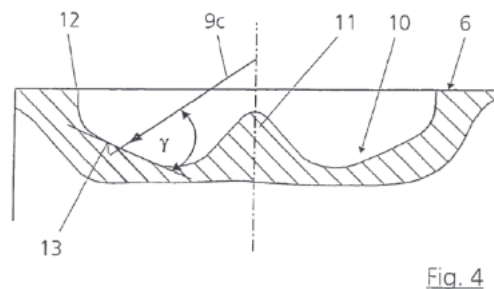
may be considered only if . . . the petition provides such other information as the Director may require by regulation.” 37 C.F.R. § 42.104(b)(4) requires that a petition for inter partes review “must specify where each element of the claim is found in the prior art patents or printed publications relied upon.” General knowledge, such as applicant admitted prior art, expert testimony, common sense, and other evidence, that is not prior art consisting of patents or printed publications may not be used to supply a missing claim limitation. *See* July 31, 2025 Memorandum from Acting Director Stewart Regarding Enforcement and Non-Waiver of 37 C.F.R. § 42.104(b)(4). The Board may deny an IPR petition that fails to comply with Rule 104(b)(4). *Id.*

A. The Petition Fails to Show How the Ishida and Takatomo References Disclose or Render Obvious the Recess Edge Limitations, i.e. “a surface of the piston recess adjoining the elevation in a recess edge direction is connected to the elevation via a radius so that an injection jet impinging the surface and injected as early as possible is distributed both in a elevation direction and in the recess edge direction, and the surface is substantially planar and has an ascending gradient in the recess edge direction such that an injection jet injected as late as possible impinges onto the surface, the last-mentioned injection jet being distributed both in the elevation direction and in the recess edge direction”

Claim 1 recites “a surface of the piston recess adjoining the elevation in a **recess edge direction** is connected to the elevation via a radius so that an injection jet impinging the surface and injected as early as possible is distributed both in a

elevation direction and in the **recess edge direction**, and the surface is substantially planar and has an ascending gradient in the **recess edge direction** such that an injection jet injected as late as possible impinges onto the surface, the last-mentioned injection jet being distributed both in the elevation direction and in the **recess edge direction**.” (emphasis added.) Petitioner fails to specify or sufficiently explain which element of each of the Ishida and Takatomo references meet the claimed element of a recess edge. This is a textbook failure to comply with Rule 104(b)(4).

Petitioner submits that Figure 4 of the '238 Patent identifies an example of a “recess edge” identified at element 12:



EX. 1001, FIG. 4.

However, Petitioner does not identify any corresponding element 12 or other “recess edge” in Ishida or Takatomo. For example, Petitioner identifies what it refers to as a “lip 2” in the Ishida reference.

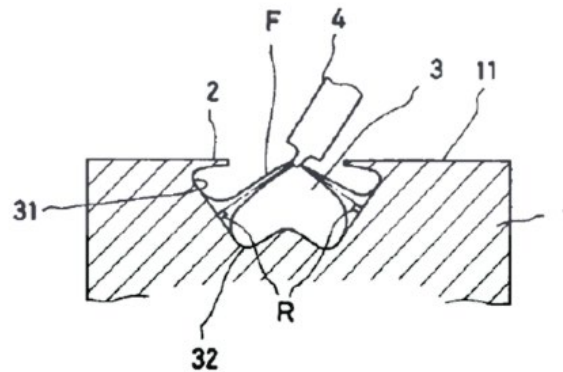
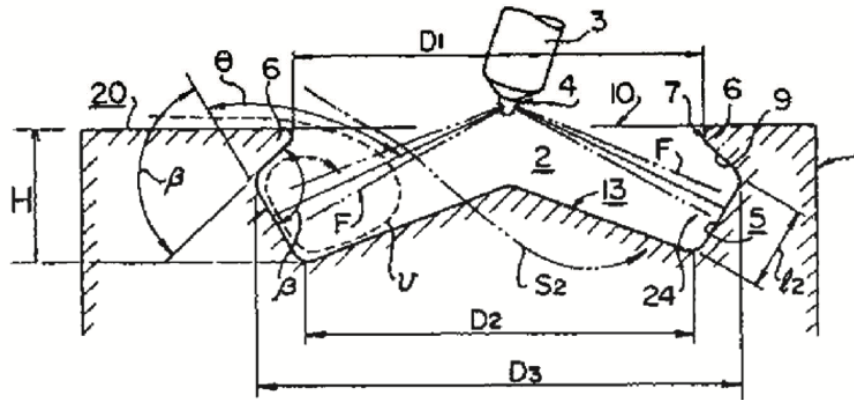


FIG. 2

EX. 1005, FIG. 2.

Petitioner makes clear that it is not relying on Ishida's "lip 2" as the claimed recess edge. Acknowledging that Ishida does not disclose a "recess edge," Petitioner nonetheless characterizes the reference as including a "junction between the lip 2 and the piston top 11." Pet. at 20, 28. This alleged "junction" is not described in the translation of Ishida; it is a purely contrived point in a figure in the middle of a concave curve. How this junction point relates to a "recess edge" remains unexplained. Petitioner ignores plain English when mapping a concave point in what it refers to as a junction to the claimed "recess edge." Accordingly, Petitioner cannot meet any of the Challenged Claims with its Ishida-based Grounds 1-10.

Petitioner's Takatomo-based Grounds 11-12 do not cure the deficiencies of Ishida-based Grounds 1-10. As a preliminary matter, the Takatomo translation and accompanying figures are even less clear than Ishida.



EX. 1006, FIG. 1.

While Petitioner uses the term “recess edge” to describe an area related to a surface, Petitioner never actually identifies the element corresponding to the recess edge. Pet. at 68. Similar to Ishida, Petitioner acknowledges that Takatomo discloses a “lip” but does not map the lip to the claimed “recess edge.” Pet. at 69. Takatomo itself does not disclose a recess edge. Other than reciting the claim term “recess edge,” Petitioner disregards the requirement to specify what element it contends to meet the “recess edge” claim element. Accordingly, Petitioner cannot meet any of the Challenged Claims with its Takatomo-based Grounds 11-12.

The Board should deny the Petition because none of the Grounds disclose or suggest any of the “recess edge” limitations, *e.g.*, “a surface of the piston recess adjoining the elevation in a recess edge direction is connected to the elevation via a radius so that an injection jet impinging the surface and injected as early as possible is distributed both in a elevation direction and in the recess edge direction, and the

surface is substantially planar and has an ascending gradient in the recess edge direction such that an injection jet injected as late as possible impinges onto the surface, the last-mentioned injection jet being distributed both in the elevation direction and in the recess edge direction.” Petitioner’s mapping constitutes a failure to comply with Rule 104(b)(4). As submitted, Petitioner has failed to show a reasonable likelihood of success.

V. CONCLUSION

For the foregoing reasons, Patent Owner respectfully requests that the Board deny institution of the Petition in its entirety.

Respectfully submitted,

Dated: September 25, 2025

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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that the portions of the above-captioned PATENT OWNER'S PRELIMINARY RESPONSE has 1,787 words in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24. This word count was prepared using Microsoft Word for Office 365.

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CERTIFICATE OF SERVICE

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