

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

POSCO CO., LTD.,
Petitioner,

v.

ARCELORMITTAL,
Patent Owner.

IPR2025-00371
Patent 11,326,227

Before BARRY L. GROSSMAN, JULIA HEANEY, and
BRIAN D. RANGE, *Administrative Patent Judges*.

RANGE, *Administrative Patent Judge*.

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

I. INTRODUCTION

POSCO Co., Ltd. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–25 of U.S. Patent No. 11,326,227 (Ex. 1001, “the ’227 patent”). Paper 3 (“Pet.”). ArcelorMittal (“Patent Owner”) did not file a Preliminary Response regarding the merits of the Petition.

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless 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.” The following findings of fact and conclusions of law are not final, but are made for the sole purpose of determining whether Petitioner meets the threshold for initiating review. Any final decision shall be based on the full trial record, including any response timely filed by Patent Owner. Any arguments not raised by Patent Owner in a timely-filed response may be deemed waived.

For the reasons stated below, we determine that Petitioner has established a reasonable likelihood that it would prevail with respect to at least one claim. We hereby institute an *inter partes* review as to claims 1–25 of the ’227 patent based upon Petitioner’s asserted grounds of unpatentability.

II. BACKGROUND

A. *Real Parties in Interest*

Petitioner identifies itself, as well as VinFast Auto, LLC, VinFast Auto Ltd., VinFast USA Distribution, LLC, Vingroup USA, LLC, and VinFast Trading and Production JSC, as the real parties in interest. Pet. 91. Patent Owner identifies itself as the real party in interest. Paper 4, 1.

B. Related Matters

The parties identify the following matters as related to this proceeding:

Certain High-Strength Aluminum or Aluminum Alloy-Coated Steel, and Automotive Products and Automobiles Containing Same, Inv. No. 337-TA-1402 (ITC) (filed Apr. 17, 2024); and *ArcelorMittal v. VinFast Auto, LLC et al.*, No. 2:24-cv-03128 (C.D. Cal.) (filed Apr. 16, 2024); and *POSCO Co. Ltd. v. ArcelorMittal*, IPR2024-01377 (PTAB) (filed Sep. 6, 2024).

Pet. 91–92; Paper 4, 1.

C. The '227 patent

The '227 patent, titled “Coated Steel Strips, Coated Stamped Products and Methods,” issued May 10, 2022, with claims 1–25. Ex. 1001, codes (45), (54), 14:59–16:61. The '227 patent claims priority as a

[c]ontinuation of application 16/413,825, filed on May 16, 2019, now Pat. No. 11,041,226, which is continuation of application No. 15/606,770, filed on May 26, 2017, now Pat. No. 10,550,447, which is a continuation of application No. 13/621,015, filed on Sep. 15, 2012, now Pat. No. 9,708,683, which is a division of application No. 12/447,777, filed as application No. PCT/IB2006/004019 on Oct. 30, 2006, now Pat. No. 8,307,680.

Id. at code (60). The '227 patent explains that “the use of pre-coated steels in hot-stamping processes for the shaping of parts has become important, especially in the automotive industry,” with the fabrication including “[p]re-coating of a steel sheets by hot dipping; [t]rimming or cutting for obtaining blanks; [h]eating the blanks in order to obtain alloying of the steel substrate with the pre-coating . . . and [h]ot forming followed by rapid cooling of the

part.” *Id.* at 1:41–51. The blanks having “an alloying of the pre-coating with the steel substrate, which has the effect of creating intermetallic alloys with high melting temperature . . . may be heated in a temperature range where austenitizing of the metallic substrate takes place, allowing further hardening by quenching.” *Id.* at 1:54–59. “Heat treatments of the blanks . . . are most frequently performed in furnaces, where blanks are traveling on rollers,” but problems “are experienced with the furnace operation” because “the rollers may become fouled by metallic deposits which come from the pre-coating of the blanks” and “[i]f these deposits are excessive, maintenance of the rollers has to be performed and productivity is decreased.” *Id.* at 1:60–63, 2:2–6. The parts that are “obtained after heating and rapid cooling display very high mechanical resistance and may be used for structural applications, for example or automotive industry applications,” and “[t]hese parts must be frequently welded with others and high weldability is required.” *Id.* at 2:7–11.

The ’227 patent aims to provide “coated steels which may be conveniently used to prepare shaped parts by a stamping process” and “which may be used to prepare shaped parts by a stamping process which are suitable for welding,” as well as “processes for preparing such coated steels and stamped parts.” *Id.* at 2:31–37. Figure 1 of the ’227 patent, reproduced below, illustrates a “coated part, after heat treatment and stamping,” that “is particularly favorable for the further welding of the part.” *Id.* at 3:54–59.

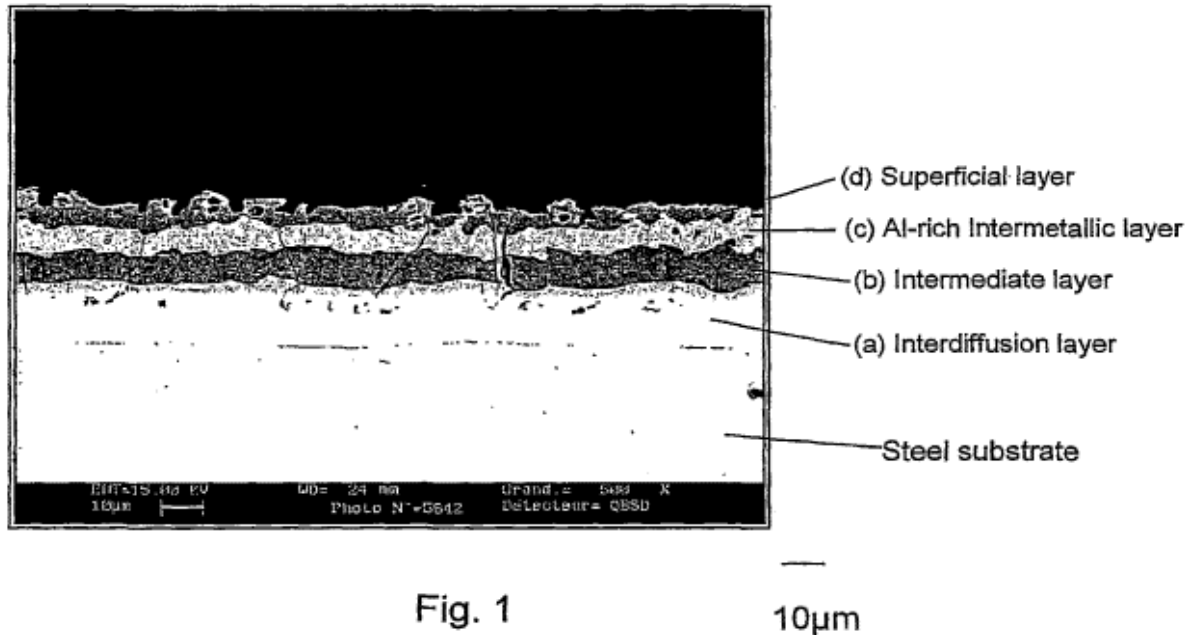


Figure 1 illustrates the “succession of layers of the coating on the steel substrate is: (a) interdiffusion layer; (b) intermediate layer; (c) intermetallic layer; and (d) superficial layer.” *Id.* at 3:55–58; *see id.* at 6:12–7:2.

D. Illustrative Claims

Claim 1 is the only independent claim. The other challenged claims (claims 2–25) depend, directly or indirectly, from claim 1. *See* Ex. 1001, 14:59–15:10, 15:11–16:61.

Claim 1 (with identifiers of claim elements, *see, e.g.*, Pet. vii) is illustrative and is reproduced below.

[1pre] A hot stamped coated steel product, which comprises:

[1a] (a) a strip of base steel having a first side and a second side; and

[1b] (b) a coating on at least one of said first side of said strip of base steel and said second side of said strip of base steel, wherein:

[1c] (i) said coating results from interdiffusion between said base steel and an aluminum or aluminum alloy pre-coating, and

[1d] (ii) wherein said coating comprises, proceeding from the base steel outwards:

[1e] (a) an Interdiffusion layer,

[1f] (b) an Intermediate layer,

[1g] (c) an Intermetallic layer, and

[1h] (d) a Superficial layer,

[1i] wherein layers (a), (b), (c), and (d) each have a different mean composition from one another,

[1j] wherein said coating of the hot stamped coated steel product has a thickness greater than 30 micrometers.

Ex. 1001, 14:59–15:10.

E. Asserted Grounds of Unpatentability

Petitioner, supported by the declaration of Dr. Michael Miles (Ex. 1003), asserts the following grounds of unpatentability (Pet. 1–2):¹

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–15, 18–25	103(a)	Takagi ² , Cornette ³
16, 17	103(a)	Takagi, Cornette, Laurent ⁴
15	103(a)	Takagi, Cornette, Vaissiere ⁵

¹ The relevant sections of the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, took effect on March 16, 2013. The ’227 patent claims priority before this date. *See* Ex. 1001, code (60). For the purposes of this Decision, pre-AIA statutes apply.

² US 2004/0009366 A1, published Jan. 15, 2004, Ex. 1016 (“Takagi”).

³ *High Strength Steels for Automotive Safety Parts*, SAE Technical Paper Series, published 2001, Ex. 1014 (“Cornette”).

⁴ US 6,296,805 B1, issued Oct. 2, 2001, Ex. 1023 (“Laurent”).

⁵ *Development of Pre-Coated Boron Steel for Applications on PSA Peugeot*

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–11, 15–25	103(a)	Takagi, GMW14400 ⁶
16, 17	103(a)	Takagi, GMW14400, Laurent
15	103(a)	Takagi, GMW14400, Vaissiere
1, 2, 4–15, 18–25	103(a)	Suehiro ⁷ , Cornette
3	103(a)	Suehiro, Cornette, Takagi
16, 17	103(a)	Suehiro, Cornette, Laurent
15	103(a)	Suehiro, Cornette, Vaissiere
1, 2, 4–25	103(a)	Suehiro, GMW14400
3	103(a)	Suehiro, GMW14400, Takagi
16, 17	103(a)	Suehiro, GMW14400, Laurent
15	103(a)	Suehiro, GMW14400, Vaissiere

III. ANALYSIS

A. Legal Standard

A patent claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and “the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406

Citroen and RENAULT Bodies in White, SAE Technical Paper Series, published 2002, Ex. 1021 (“Vaissiere”).

⁶ *Low Carbon, Heat-Treatable Boron Steel – Uncoated or Aluminized Pre-Coated*, GM Worldwide Engineering Standards, Material Specification Metals, published Nov. 2005, Ex. 1026 (“GMW14400”).

⁷ *Properties of Aluminum-coated Steels for Hot-forming*, Nippon Steel Technical Report No. 88, published July 2003, Ex. 1053 (“Suehiro”)

(2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

B. Level of Ordinary Skill in the Art

In order to determine whether an invention would have been obvious at the time the application was filed, we consider the level of ordinary skill in the pertinent art at the critical time. *Graham*, 383 U.S. at 17. The resolution of this question is important because it allows us to “maintain[] objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu–Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). In assessing the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (quotation omitted). Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art. *Innovation Toys, LLC v. MGA Entm’t, Inc.*, 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”).

Petitioner contends that a person of ordinary skill in the art (POSITA) “would have had an undergraduate degree in materials science, manufacturing engineering, mechanical engineering, or equivalent

knowledge, training, or experience, with two years of experience working in metallurgy.” Pet. 6 (citing Ex. 1003 ¶ 15).

For purposes of this Decision, we adopt Petitioner’s proposal as reasonable and consistent with the ’227 patent specification and the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art may reflect an appropriate level of skill in the art).

C. Claim Construction

In *inter partes* reviews, the Board interprets claim language using the district-court-type standard, as described in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b). Under that standard, we generally give claim terms their ordinary and customary meaning, as would be understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1313–14. Although extrinsic evidence, when available, may also be useful when construing claim terms under this standard, extrinsic evidence should be considered in the context of the intrinsic evidence. *See id.* at 1317–19.

Petitioner does not propose any claim constructions. Pet. 3.

We do not discern a need to construe explicitly any claim language at this juncture because doing so would have no effect on our analyses below of Petitioner’s asserted grounds and will not assist in resolving the present controversy between the parties. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’”) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

D. Overview of the Asserted Art

1. Takagi (Ex. 1016)

Takagi relates to “an aluminum-coated structure member, such as a structural member used for motor vehicles, produced by applying heat treatment and forming operation to aluminum-coated steel sheet, and coated with an alloy layer of an Al–Si–Fe alloy for improvement in formability, weldability and corrosion resistance.” Ex. 1016 ¶ 1. The Al–Si–Fe “alloy layer includes a softer region having a hardness smaller than or equal to a hardness of the steel substrate layer” and “extends from the surface of the steel substrate layer toward a surface of the alloy layer, over a depth range greater than or equal to 50% of a thickness of the alloy layer.” *Id.*, Abstract.

2. Cornette (Exhibit 1014)

Cornette generally relates to “high strength steels (HSLA, DP, TRIP, etc.)” and “testing and different design solutions associated with these steel grades.” Ex. 1014, Abstract. Cornette’s “high and ultra high strength steels (TRIP and Boron steels)” offer “strength and formability.” *Id.* at 3.

3. Laurent (Ex. 1023)

Laurent “relates to a coated, hot- and cold-rolled steel sheet comprising a very high resistance after thermal treatment.” Ex. 1023, 1:6–8. Laurent describes “produc[ing] a hot- or cold-rolled steel sheet of a desired thickness, coated, and affording extensive shaping possibilities and which, after thermal treatment performed on the finished casing, makes it possible to obtain” a desired “mechanical resistance . . . a substantial resistance to shocks, fatigue, abrasion and wear, while retaining a good resistance to corrosion as well as a good capacity for painting and gluing.” *Id.* at 1:37–44.

4. *Vaissiere (Ex. 1021)*

Vaissiere relates to “Pre-coated USIBOR 1500,” which “has been developed to reply to the weight reduction needs for structural and reinforcement parts of automobiles.” Ex. 1021, 3. Vaissiere explains that USIBOR 1500 has “high hot forming possibilities” that “make it possible, after heat treatment, to obtain very high mechanical characteristics, with exception impact resistance,” with “heat treatment . . . carried out after forming in order to obtain a high tensile strength level.” *Id.* at 4. Vaissiere explains further that USIBOR 1500 is a “carbon/manganese steel micro-alloyed with boron.” *Id.*

5. *GMW14400 (Ex. 1026)*

GMW14400 relates to “the requirements for low carbon, heat-treatable boron steel used in the manufacture of structural parts requiring heat treatments to achieve high strength.” Ex. 1026, 1. GMW14400 explains “austenitizing a pre cut blank or pre-stamped part, hot stamping the heated blank or pre-stamped part, and rapid cooling (quenching) the stamped part in the die” or “austenitizing a pre cut blank, hot stamping the heated blank and rapid cooling (quenching) the stamped part in the die or via water quenching.” *Id.*

6. *Suehiro (Ex. 1053)*

Suehiro relates to “[p]roduction of parts with high strength by means of hot-forming process” with the “[a]pplication of aluminized steel with good hardenability.” Ex. 1053, Abstract. The result is steel showing “good spot weldability due to the stable surface layer at high temperature.” *Id.*

E. Unpatentability Grounds

1. Unpatentability over Takagi and Cornette (Ground 1)

Petitioner asserts that claims 1–15 and 18–25 are unpatentable under 35 U.S.C. § 103(a) as obvious over Takagi and Cornette, citing the Declaration of Dr. Miles for support. Pet. 1, 6–49 (citing Ex. 1003) (Petitioner’s Ground 1A).

a. Claim 1

Petitioner argues that Takagi and Cornette teach or suggest each recitation of claim 1. Pet. 6–31. Petitioner argues, for example, that the preamble of claim 1 is not limiting or, alternatively, imparts no structural distinction from Takagi. *Id.* at 20–23 (citing, e.g., Ex. 1003 ¶ 48). Petitioner further argues that Takagi and Cornette teach forming or hot stamping to arrive at their products. *Id.* at 23 (citing, e.g., Ex. 1016 ¶ 36 (Takagi referring to “form[ing]” its products shape); Ex. 1014, 9–11 (Cornette referring to “hot stamping”); Ex. 1003 ¶ 48. Petitioner argues that Takagi teaches a strip of base steel having a first and second side. *Id.* at 23–24 (citing, e.g., Ex. 1003 ¶ 49; Ex. 1016 ¶¶ 13, 36. Petitioner argues that Takagi teaches a coating that is a “diffusion layer” having five phases as depicted by Takagi Figure 2A and explained by Takagi Table 1 (Takagi Fig. 4). *Id.* at 24–30 (citing, e.g., Ex. 1003 ¶¶ 50–59; Ex. 1016 ¶ 20, Fig. 2A). Petitioner argues that Takagi alone or as modified by Cornette teaches a coating thickness greater than than 30 µm. *Id.* at 30–31; Ex. 1014, 9; Ex. 1016 ¶ 35; Ex. 1003 ¶¶ 60–61. Petitioner explains why a person having ordinary skill in the art would have had reason to combine teachings of Takagi and Cornette with a reasonable expectation of success. Pet. 11–20 (citing, e.g., Ex. 1003

¶¶ 31–47; Ex. 1016 ¶¶ 19–37, 47; Ex. 1014, 9; Ex. 1025, 5:17–20; Ex. 1026, 7; Ex. 1034 ¶ 13; Ex. 1055 ¶¶ 2, 7, 14–15, 18, Fig. 3).

Based on our review and consideration of the current record, we determine that the information presented sufficiently supports, for purposes of institution, Petitioner’s assertions that Takagi and Cornette teach or suggest each limitation of claim 1. *See* Pet. 6–31. We therefore determine Petitioner has met its burden to show a reasonable likelihood it would prevail in demonstrating that claim 1 would have been obvious over Takagi and Cornette.

b. Remaining Claims 2–15 and 18–25

Claims 2–15 and 18–25 depend from claim 1. Ex. 1001, 15:11–62, 16:29–61.

Petitioner accounts for the limitations recited by claims 2–15 and 18–25. Pet. 31–49 (citing Ex. 1003). Petitioner has sufficiently shown for purposes of this Decision that each element of claims 2–15 and 18–25 is taught or suggested by Takagi and Cornette. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claims 2–15 and 18–25 would have been obvious over Takagi and Cornette.

2. Unpatentability over Takagi, Cornette, and Laurent (Ground 2)

Petitioner asserts that claims 16 and 17 are unpatentable under 35 U.S.C. § 103(a) as obvious over Takagi, Cornette, and Laurent. Pet. 1, 49–51 (citing Ex. 1003) (Petitioner’s Ground 1B).

Petitioner accounts for the limitations recited in claims 16 and 17. Pet. 49–51. Petitioner has shown for purposes of this Decision that each element of claims 16 and 17 is taught or suggested by the teachings of Takagi,

Cornette, and Laurent, and shows reason to combine the references' teachings with rational underpinning and reasonable expectation of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claims 16 and 17 would have been obvious over Takagi, Cornette, and Laurent. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the '227 patent is unpatentable, we include this ground in the instituted *inter partes* review. See *SAS Inst., Inc. v. Iancu*, 584 U.S. 357, 362, 370–372 (2018); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018); 37 C.F.R. § 42.108(a).

3. *Unpatentability over Takagi, Cornette, and Vaissiere (Ground 3)*

Petitioner asserts that claim 15 is unpatentable under 35 U.S.C. § 103(a) as obvious over Takagi, Cornette, and Vaissiere. Pet. 1, 51–53 (citing Ex. 1003) (Petitioner's Ground 1C).

Petitioner accounts for the limitations recited in claim 15. Pet. 51–53. Petitioner has shown for purposes of this Decision that each element of claim 15 is taught or suggested by the combined teachings of Takagi, Cornette, and Vaissiere, and shows reason to combine the references' teachings with rational underpinning and reasonable expectation of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claim 15 would have been obvious in view of Takagi, Cornette, and Vaissiere. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the '227 patent is unpatentable, we include this ground in the

instituted *inter partes* review. *See SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

4. *Unpatentability over Takagi and GMW14400 (Ground 4)*

Petitioner asserts that claims 1–11 and 15–25 are unpatentable under 35 U.S.C. § 103(a) as obvious over Takagi and GMW14400. Pet. 1, 53–57 (citing Ex. 1003) (Petitioner’s Ground 1D).

Petitioner accounts for the limitations recited in claims 1–11 and 15–25. Pet. 53–57. Petitioner has shown for purposes of this Decision that each element of claims 1–11 and 15–25 is taught or suggested by the combined teachings of Takagi and GMW14400, and shows reason to combine the references’ teachings with rational underpinning and reasonable expectation of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claims 1–11 and 15–25 would have been obvious in view of Takagi and GMW14400. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the ’227 patent is unpatentable, we include this ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

5. *Unpatentability over Takagi, GMW14400, and Laurent (Ground 5)*

Petitioner asserts that claims 16 and 17 are unpatentable under 35 U.S.C. § 103(a) as obvious over Takagi, GMW14400, and Laurent. Pet. 1, 57 (citing Ex. 1003) (Petitioner’s Ground 1E).

Petitioner accounts for the limitations recited in claims 16 and 17. Pet. 57. Petitioner has shown for purposes of this Decision that each element of claims 16 and 17 is taught or suggested by the combined teachings of

Takagi, GMW14400, and Laurent, and shows reason to combine the references' teachings with rational underpinning and reasonable expectation of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claims 16 and 17 would have been obvious in view of Takagi, GMW14400, and Laurent. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the '227 patent is unpatentable, we include this ground in the instituted *inter partes* review. See *SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

6. *Unpatentability over Takagi, GMW14400, and Vaissiere (Ground 6)*

Petitioner asserts that claim 15 is unpatentable under 35 U.S.C. § 103(a) as obvious over Takagi, GMW14400, and Vaissiere. Pet. 1, 58 (citing Ex. 1003) (Petitioner's Ground 1F).

Petitioner accounts for the limitations recited in claim 15. Pet. 58. Petitioner has shown for purposes of this Decision that each element of claim 15 is taught or suggested by the combined teachings of Takagi, GMW14400, and Vaissiere, and shows reason to combine the references' teachings with rational underpinning and reasonable expectation of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claim 15 would have been obvious in view of Takagi, GMW14400, and Vaissiere. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the '227 patent is unpatentable, we include this ground in the instituted *inter partes* review. See *SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

7. *Unpatentability over Suehiro and Cornette (Ground 7)*

Petitioner asserts that claims 1, 2, 4–15, and 18–25 are unpatentable under 35 U.S.C. § 103(a) as obvious over Suehiro and Cornette, citing the Declaration of Dr. Miles for support. Pet. 1, 58–85 (citing Ex. 1003) (Petitioner’s Ground 2A).

Petitioner accounts for the limitations recited in claims 1, 2, 4–15, and 18–25. Petitioner sufficiently shows for purposes of this Decision that each element of claims 1, 2, 4–15, and 18–25 is taught or suggested by Suehiro and Cornette and shows reason to combine the references’ teachings with rational underpinning and reasonable expectation of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claims 1, 2, 4–15, and 18–25 would have been obvious over Suehiro and Cornette. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the ’602 patent is unpatentable, we include this ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

8. *Unpatentability over Suehiro, Cornette, and Takagi (Ground 8)*

Petitioner asserts that claim 3 is unpatentable under 35 U.S.C. § 103(a) as obvious over Suehiro, Cornette, and Takagi. Pet. 1, 85–86 (citing Ex. 1003) (Petitioner’s Ground 2B).

Petitioner accounts for the limitations recited in claim 3. Pet. 85–86. Petitioner has shown for purposes of this Decision that each element of claim 3 is taught or suggested by the teachings of Suehiro, Cornette, and Takagi, and shows reason to combine the references’ teachings with rational

underpinning and reasonable expectation of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claim 3 would have been obvious over Suehiro, Cornette, and Takagi. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the '227 patent is unpatentable, we include this ground in the instituted *inter partes* review. See *SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

9. *Unpatentability over Suehiro, Cornette, and Laurent (Ground 9)*

Petitioner asserts that claims 16 and 17 are unpatentable under 35 U.S.C. § 103(a) as obvious over Suehiro, Cornette, and Laurent. Pet. 1, 86–87 (citing Ex. 1003) (Petitioner’s Ground 2C).

Petitioner accounts for the limitations recited in claims 16 and 17. Pet. 86–87. Petitioner has shown for purposes of this Decision that each element of claims 16 and 17 is taught or suggested by the teachings of Suehiro, Cornette, and Laurent, and shows reason to combine the references’ teachings with rational underpinning and reasonable expectation of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claims 16 and 17 would have been obvious over Suehiro, Cornette, and Laurent. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the '227 patent is unpatentable, we include this ground in the instituted *inter partes* review. See *SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

*10. Unpatentability over Suehiro, Cornette, and Vaissiere
(Ground 10)*

Petitioner asserts that claim 15 is unpatentable under 35 U.S.C. § 103(a) as obvious over Suehiro, Cornette, and Vaissiere. Pet. 1, 87–88 (citing Ex. 1003) (Petitioner’s Ground 2D).

Petitioner accounts for the limitations recited in claim 15. Pet. 87–88. Petitioner for purposes of this Decision that each element of claim 15 is taught or suggested by the combined teachings of Suehiro, Cornette, and Vaissiere, and shows reason to combine the references’ teachings with rational underpinning and reasonable expectation of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claim 15 would have been obvious in view of Suehiro, Cornette, and Vaissiere. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the ’227 patent is unpatentable, we include this ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

*11. Unpatentability over Suehiro and GMW14400
(Ground 11)*

Petitioner asserts that claims 1, 2, and 4–25 are unpatentable under 35 U.S.C. § 103(a) as obvious over Suehiro and GMW14400. Pet. 2, 88–89 (citing Ex. 1003) (Petitioner’s Ground 2E).

Petitioner accounts for the limitations recited in claims 1, 2, and 4–25. Pet. 88–89. Petitioner for purposes of this Decision has shown that each element of claims 1, 2, and 4–25 is taught or suggested by the combined teachings of Suehiro and GMW14400, and shows reason to combine the references’ teachings with rational underpinning and reasonable expectation

of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claims 1, 2, and 4–25 would have been obvious in view of Suehiro and GMW14400. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the '227 patent is unpatentable, we include this ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

12. *Unpatentability over Suehiro, GMW14400, and Takagi (Ground 12)*

Petitioner asserts that claim 3 is unpatentable under 35 U.S.C. § 103(a) as obvious over Suehiro, GMW14400, and Takagi. Pet. 2, 90 (citing Ex. 1003) (Petitioner's Ground 2F).

Petitioner accounts for the limitations recited in claim 3. Pet. 90. Petitioner has shown for purposes of this Decision that each element of claim 3 is taught or suggested by the combined teachings of Suehiro, GMW14400, and Takagi, and shows reason to combine the references' teachings with rational underpinning and reasonable expectation of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claim 3 would have been obvious in view of Suehiro, GMW14400, and Takagi. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the '227 patent is unpatentable, we include this ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

13. Unpatentability over Suehiro, GMW14400, and Laurent (Ground 13)

Petitioner asserts that claims 16 and 17 are unpatentable under 35 U.S.C. § 103(a) as obvious over Suehiro, GMW14400, and Laurent. Pet. 2, 90 (citing Ex. 1003) (Petitioner’s Ground 2G).

Petitioner accounts for the limitations recited in claims 16 and 17. Pet. 90. Petitioner has shown for purposes of this Decision that each element of claims 16 and 17 is taught or suggested by the combined teachings of Suehiro, GMW14400, and Laurent, and shows reason to combine the references’ teachings with rational underpinning and reasonable expectation of success. Thus, we determine that Petitioner has sufficiently established a reasonable likelihood of establishing claims 16 and 17 would have been obvious in view of Suehiro, GMW14400, and Laurent. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the ’227 patent is unpatentable, we include this ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

14. Unpatentability over Suehiro, GMW14400, and Vaissiere (Ground 14)

Petitioner asserts that claim 15 is unpatentable under 35 U.S.C. § 103(a) as obvious over Suehiro, GMW14400, and Vaissiere. Pet. 2, 90 (citing Ex. 1003) (Petitioner’s Ground 2H).

Petitioner accounts for the limitations recited in claim 15. Pet. 90. Petitioner for purposes of this Decision that each element of claim 15 is taught or suggested by the combined teachings of Suehiro, GMW14400, and Vaissiere, and shows reason to combine the references’ teachings with rational underpinning and reasonable expectation of success. Thus, we

determine that Petitioner has sufficiently established a reasonable likelihood of establishing claim 15 would have been obvious in view of Suehiro, GMW14400, and Vaissiere. Furthermore, because Petitioner has demonstrated a reasonable likelihood of success in proving that at least one claim of the '227 patent is unpatentable, we include this ground in the instituted *inter partes* review. *See SAS*, 584 U.S. at 362, 370–372, 1359–60; *PGS Geophysical*, 891 F.3d at 1360; 37 C.F.R. § 42.108(a).

IV. CONCLUSION

For the reasons above, we determine that the information presented in the Petition establishes that there is a reasonable likelihood that Petitioner would prevail with respect to challenged claims 1–25 of the '227 patent. At this juncture in the proceeding, we have not made a final determination with respect to the patentability of the challenged claims, or with respect to claim construction.

V. ORDER

For the foregoing reasons, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–25 of the '227 patent is hereby instituted with respect to all grounds of unpatentability set forth in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this Decision.

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