

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DEERE & COMPANY,
Petitioner,

v.

DAVID'S DOZER V-LOC SYSTEM, INC.,
Patent Owner.

IPR2024-01442
Patent 10,533,300 B1

Before JAMES A. TARTAL, RICHARD H. MARSCHALL, and
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

SILVERMAN, *Administrative Patent Judge*.

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

Petitioner Deere & Company (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–4 of U.S. Patent No. 10,533,300 B1 (Ex. 1001, “the ’300 patent”). Paper 1 (“Pet.”), 1. Petitioner identifies itself as a real party in interest, but “also identifies John Deere Construction & Forestry Company, Dobbs Equipment, LLC, and EFE, Inc., solely because Patent Owner named these entities in its second amended complaint filed on March 29, 2024 and without admitting that they are in fact real parties-in-interest.” *Id.* at 80.

David’s Dozer V-Loc System, Inc. (“Patent Owner”) states that it is the owner of the ’300 patent and a real party in interest and also identifies David Armas, owner and President of Patent Owner, as a real party in interest. Paper 5, 2. Patent Owner filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

With our prior authorization (*see* Paper 7), Petitioner filed a Reply to Patent Owner’s Preliminary Response (Paper 8, “Reply”) and Patent Owner filed a Sur-reply to Petitioner’s Reply (Paper 9, “Sur-reply”), which concern issues of claim construction and discretionary denial.

After considering the Petition, the Preliminary Response, the Reply, the Sur-reply, and all of the evidence of record submitted by the parties, we determine that Petitioner does not demonstrate a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of at least one of the challenged claims of the ’300 patent, thus failing to satisfy the standard for institution set forth in 35 U.S.C. § 314(a).

Accordingly, we do not institute an *inter partes* review of any of claims 1–4 of the ’300 patent, under any of the grounds asserted in the Petition. Further, we do not address Patent Owner’s argument that the

present circumstances warrant exercise of discretion to deny institution in this matter. *See* Prelim. Resp. 58–61, Sur-reply 10.

I. BACKGROUND

A. Related Matters

The '300 patent is a subject of a district court action, *David's Dozer V-Loc System, Inc., v. Deere & Company*, 2:24-cv-1023 (N.D. Iowa), filed June 28, 2024.

B. The '300 Patent

The '300 patent, which is titled “Automatic Grader Stabilizer,” issued on January 14, 2020, from U.S. Application No. 16/055,094 (filed August 4, 2018), naming David Armas as the inventor. Ex. 1001, codes (21), (22), (45), (54), (72).

The Specification of the '300 patent states that the “invention relates to earth moving equipment, and more particularly, to an improved earth moving grader stabilizer.” Ex. 1001, 1:7–9. The Specification and claims refer to implementing the disclosed techniques with “small to mid-sized skid steer vehicles.” *Id.* at Abstract.

The Specification explains that “[g]rade control systems, such as laser automation, are commonly commercially available.” Ex. 1001, 3:44–45.

Many early systems worked with a laser reference beacon erected on an edge of a job site at a known location and elevation established by survey. A laser receiver is attached to earthmoving equipment, typically onto the ground contacting blade, and sends a signal to a computer accessible to the operator of the earthmoving equipment. The computer is able to determine if the blade is above or below the desired grade and make adjustments as necessary to the blade height by

controlling the hydraulics that move the blade. However, the automatic grade control systems have evolved to utilize highly accurate GPS signals in combination with computer control modules to automate the height of the dozer blade as the vehicle moves over the job site. Laser control masts are no longer needed to maintain the accuracy of earlier machines.

Id. at 3:46–60.

The '300 patent discloses techniques for automatic control of a dozer blade's position and orientation during a grading process, aspects of which are illustrated in Figures 1 and 2, which are reproduced below.

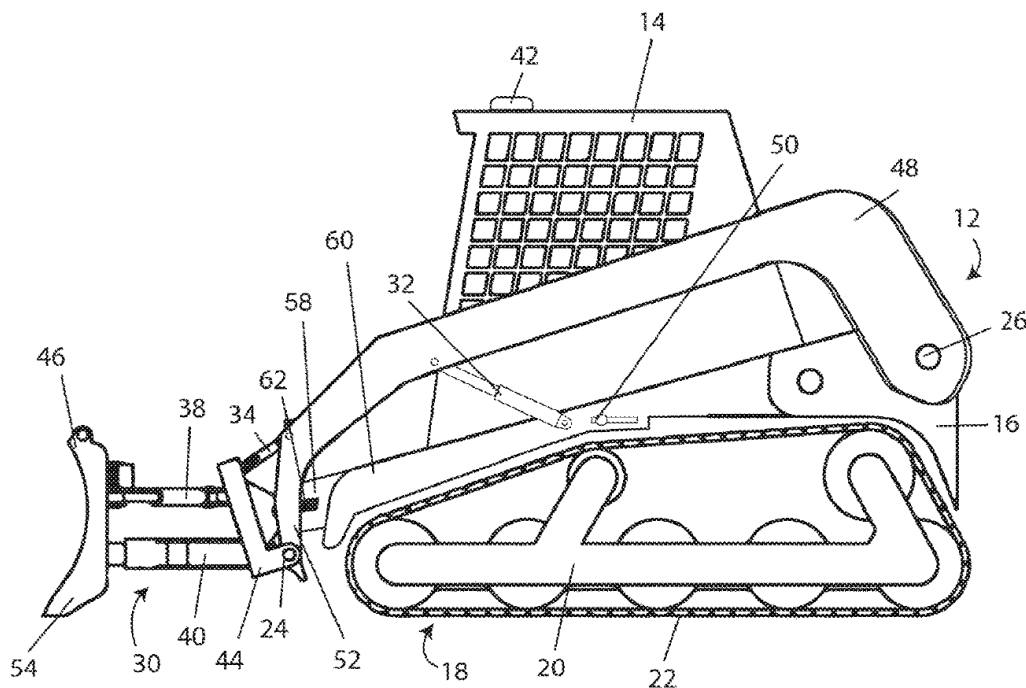


FIG. 1

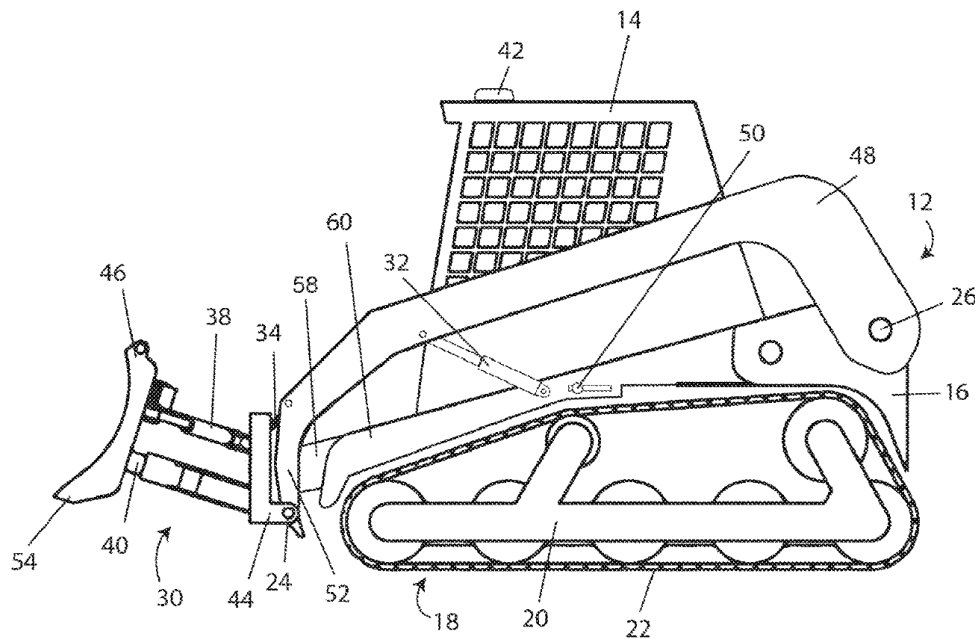


FIG. 2

Figures 1 and 2 are side elevation drawings of a skid steer vehicle, having blade assembly 30, including blade 46, in a lower position and in an upper position, respectively. *See* Ex. 1001, 2:62–65, 5:17–22, 6:17–24. This skid steer vehicle includes first hydraulic 32 that raises and lowers main arm 48 about first hinge 26 and second hydraulic 34 that tilts dozer blade 46 about second hinge 24. *Id.* at 4:39–48, 5:67–6:54, 7:1–25. The height of the bottom of dozer blade 46 relative to the ground “controls the depth of the cut” during grading, and the blade height is “manipulated by [an] automatic grading computer” that selectively actuates second hydraulic 34. *Id.* at 6:17–36, 8:21–26.

In operation, as second hydraulic 34 tilts blade 46, main arm 48 is immobilized, resting against stop 58 in a lowered position, and may also be locked against the stop with lock 62 and, additionally, valve 50 (which providing hydraulic pressure to the hydraulic 32 to move the arm) may be

closed, thus effectively stopping any movement of main arm 48. Ex. 1001, 5:23–45, 8:4–20, 8:26–39.

Further aspects of the subject matter disclosed in the '300 patent, relating to the present Decision, are addressed below.

C. The Challenged Claims

Petitioner alleges that claims 1–4 of the '300 patent (the “challenged claims”) are unpatentable. Pet. 1.

Claim 1, the sole independent claim of the '300 patent, reproduced below, including Petitioner’s added sub-numbering (*see, e.g.*, Pet. 11–20) in boldface, illustrates the subject matter at issue:

1. **[1.pre]** A method for controlling a dozer blade controlled by an automatic grade control system on a skid steer vehicle comprising:

[1.1] providing a skid steer vehicle having a main arm with a front side operably coupled to a dozer blade assembly;

[1.2] providing a stop connected to the skid steer vehicle upon which a point of the main arm rests thereby defining a lower limit of movement of the main arm;

[1.3] positioning the point of the main arm against the stop;

[1.4] preventing the ability of the main arm from providing any lifting force by restricting the ability of a hydraulic that lifts the main arm;

[1.5] operably connecting the automatic grade control system to a hydraulic that controls a pitch axis of movement of the dozer blade to affect a height of the dozer blade relative to a ground surface.

Ex. 1001, 8:48–63.

D. The Asserted Grounds and Evidence

Petitioner contends that claims 1–4 of the '300 patent are unpatentable based on the following grounds (Pet. 1):

Ground	Claims Challenged	35 U.S.C. §	Basis
1A	1–4	103	Funk, ¹ Lewis ²
1B	1–4	103	Funk, Lewis, Stratenko ³
1C	2, 4	103	Funk, Lewis, Orser ⁴
1D	2, 4	103	Funk, Lewis, Stratenko, Orser
2A	1–4	103	Eckrote, ⁵ Lumpkins ⁶
2B	1–4	103	Eckrote, Lumpkins, Stratenko
2C	2, 4	103	Eckrote, Lumpkins, Orser
2D	2, 4	103	Eckrote, Lumpkins, Stratenko, Orser

In addition to the foregoing identified prior art references, Petitioner relies upon other cited exhibits, including the Declaration of Dr. James Glancey (Ex. 1003). *See* Pet. 1.

¹ U.S. Pub. No. 2016/0273196 A1, published Sept. 22, 2016 (Ex. 1004).

² U.S. Patent No. 11,111,646 B2, issued Sept. 7, 2021 (Ex. 1005).

³ U.S. Patent No. 4,185,539, issued Jan. 29, 1980 (Ex. 1008).

⁴ U.S. Patent No. 5,169,277, issued Dec. 8, 1992 (Ex. 1009).

⁵ U.S. Patent No. 10,662,614 B2, issued May 26, 2020 (Ex. 1006).

⁶ U.S. Pub. No. 2006/0070746 A1, published April 6, 2006 (Ex. 1007).

In addition to various cited exhibits, Patent Owner relies upon the Declaration of Douglas S. Prairie (Ex. 2001). *See* Prelim. Resp. 2.

II. ANALYSIS

A. Evaluating the Petition

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). Under 35 U.S.C. § 314(a), we may not authorize an *inter partes* review unless the information in the Petition and the Preliminary Response (including any other authorized submissions) “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.”

For the reasons that follow, and solely for the purposes of this Decision, we determine that none of Petitioner’s asserted grounds satisfies the standard for institution, with regard to any of the challenged claims of the ’300 patent.

1. Legal Standards

“In an IPR, 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”)); *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). Although this Decision might appear to indicate that certain Patent

Owner arguments would not be persuasive, we do not shift the ultimate burden away from Petitioner.

The asserted grounds of unpatentability are based upon obviousness under 35 U.S.C. § 103. *See* Pet. 1.

A claim is unpatentable under 35 U.S.C. § 103 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. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (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 skill in the art; and (4) when in evidence, objective evidence of obviousness or non-obviousness (i.e., so-called secondary considerations).⁷ *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We also recognize that prior art references must be “considered together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

The Supreme Court has explained that an obviousness determination may consider, the teachings of multiple prior art references, the knowledge and capabilities of persons having ordinary skill in the art (at the relevant time), as well as “the effects of demands known to the design community or

⁷ The present record does not include any evidence of any proposed objective evidence of non-obviousness.

present in the marketplace,” “in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds 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.” (alteration in original))). As the Federal Circuit has stated, “[w]ithout any explanation as to how or why the references would be combined to arrive at the claimed invention, we are left with only hindsight bias that *KSR* warns against” and “we cannot allow hindsight bias to be the thread that stitches together prior art patches into something that is the claimed invention.” *Metalcraft of Mayville, Inc., v. The Toro Co.*, 848 F.3d 1358, 1367 (Fed. Cir. 2017). “Whether an ordinarily skilled artisan would have been motivated to modify the teachings of a reference is a question of fact.” *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317, 1327 (Fed. Cir. 2016) (citations omitted).

However, a sufficient reason to combine reference teachings is absent, if a reference teaches away from its combination with another source. *Tec Air, Inc. v. Denso Manufacturing Mich. Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999). A reference teaches away from a combination, if “a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.” *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). For example, our reviewing court has held that “references teach away from the combination,” if the “combination would produce a ‘seemingly inoperative device.’” *McGinley v. Franklin*

Sports, Inc., 262 F.3d 1339, 1354 (Fed. Cir. 2001) (quoting *In re Sponnoble*, 405 F.2d 578, 587 (CCPA 1969)); *see also Tec Air*, 192 F.3d at 1360 (teaching away based upon a combination that “would be inoperable for its intended purpose”), *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984) (inoperable modification teaches away).

2. *Level of Ordinary Skill in the Art*

With respect to the level of ordinary skill in the art of the '300 patent, in the time frame appropriate for the present analysis, Petitioner argues:

The range of qualifications for a POSITA would have included (1) a bachelor's degree in mechanical engineering or a comparable field, and (2) at least two years of professional experience working with hydraulic systems and/or earthmoving equipment and vehicles. EX1003, ¶¶ 40–72. Additional years of experience could substitute for an advanced-level degree (and vice versa). *Id.*

Pet. 4–5.

Patent Owner's proposal for the level of ordinary skill in the art differs from that of Petitioner, primarily because Patent Owner contends that such a person of ordinary skill would have a certain degree of experience relating specifically to skid steers, or similar machinery, and their hydraulic systems. *See* Prelim. Resp. 8–10 (citing Ex. 2001 ¶ 31).

Insofar as we understand the significance of Patent Owner's concerns about the differences between the parties' proposals, these differences do not bear upon the issues addressed herein. Accordingly, for the purposes of the present Decision, we adopt Petitioner's proposed definition of the relevant level of ordinary skill in the art. Further, with regard to the issues addressed in this Decision, Petitioner's proposed description of the level of ordinary

skill in the art appears to be consistent with the level of skill indicated by the '300 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

3. Claim Construction

In an *inter partes* review, we construe claims using the same standard applied in a district court. *See* 37 C.F.R. § 42.100(b). Under this standard, claim terms are generally given their plain and ordinary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). The sources available for guidance, when undertaking claim construction, “include both intrinsic evidence (*e.g.*, the patent specification and file history) and extrinsic evidence (*e.g.*, expert testimony).” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

The Petition did not include any explicit constructions of claim limitations of the '300 patent. *See* Pet. 5. After the Preliminary Response identified certain claim constructions (*see* Prelim. Resp. 12–17), Petitioner addressed certain claim constructions (*see* Reply 1–10) and Patent Owner responded (*see* Sur-Reply 1–10).

We address only the claim construction disputes that bear upon the present Decision and only to the extent needed for the present purposes. *See Realtime Data*, 912 F.3d at 1375.

a. “a hydraulic that lifts the main arm” and “a hydraulic that controls a pitch axis of movement of the dozer blade”

Patent Owner argues that the recitations in claim 1 of “a hydraulic that lifts the main arm” (in limitation [1.4]) and “a hydraulic that controls a pitch axis of movement of the dozer blade” (in limitation [1.5]) are not one and the same, but refer, instead, to distinct structures. *See* Prelim. Resp. 16–17; Sur-reply 7–8. Mr. Prairie’s testimony supports this position. Ex. 2001 ¶¶ 52–54.

Petitioner argues: “Because the claim language does not dictate otherwise, the hydraulic of Element [1.4] can be the same as or different from the hydraulic of Element [1.5].” Reply 7.

We agree with Patent Owner.

Petitioner argues that “Patent Owner made the deliberate choice to claim broadly,” eschewing “structural limitations that would have expressly or implicitly required the hydraulic of Element [1.4] to differ from the hydraulic of Element [1.5].” Reply 7. Further, Petitioner argues that “Patent Owner chose to generically recite ‘a hydraulic’ in each of Elements [1.4] and [1.5] without distinguishing labels, identifiers, or qualifiers.” *Id.*

To the contrary, the two recited “hydraulic[s]” are distinguished by the language surrounding and modifying each instance in the method of claim 1. Indeed, the recitations of distinct operations performed by each “hydraulic,” in the claimed method, further support the understanding these are distinct and different structures.

Additionally, as Patent Owner contends (*see* Prelim. Resp. 16), each instance of “hydraulic” is introduced with the indefinite article “a” — a signal that the two instances of “a hydraulic” do not refer to the same structure. *See Becton, Dickinson and Co. v. Tyco Healthcare Group, LP*, 616 F.3d 1249, 1254 (Fed. Cir. 2010) (“Where a claim lists elements separately, ‘the clear implication of the claim language’ is that those elements are ‘distinct components’ of the patented invention.”) (quoting *Gaus v. Conair Corp.*, 363 F.3d 1284, 1288 (Fed. Cir. 2004)); *see also CAE Screenplates, Inc. v. Heinrich Fiedler GmbH & Co.*, 224 F.3d 1308, 1317 (Fed. Cir. 2000) (“In the absence of any evidence to the contrary, we must presume that the use of . . . different terms in the claims connotes different meanings.”); *Engel Indus., Inc. v. Lockformer Co.*, 96 F.3d 1398, 1404–05 (Fed. Cir. 1996) (concluding that where a claim provides for two separate elements, a “second portion” and a “return portion,” these two elements “logically cannot be one and the same”).

Petitioner argues that “Patent Owner misunderstands the role of indefinite articles,” because “[i]ndefinite articles do not specify or distinguish nouns; they instead introduce nouns in an unspecific way.” Reply 7. “This is why,” Petitioner continues, “the indefinite article ‘a’ has been ‘uniformly’ interpreted in patent law as being unspecific as to the number of claimed objects; it broadly embraces ‘one or more’ objects.” *Id.* (citing *KCJ Corp. v. Kinetic Concepts, Inc.*, 223 F.3d 1351, 1355–56 (Fed. Cir. 2000)).

However, the relevant issue, in the present dispute, is not whether “a hydraulic that lifts a main arm,” for example, refers to a single or to multiple

structures. Rather, the present dispute concerns whether the two recited “hydraulic[s]” may both refer to the *same* structure(s).

Petitioner also contends that Patent Owner’s interpretation “impermissibly narrow[s] the claims to a preferred embodiment.” Reply 6; *see also id.* at 7–8.

To the contrary, although the Specification shows the “hydraulic that lifts the main arm” and the “hydraulic that controls a pitch axis of movement of the dozer blade” as different structures (*see* Ex. 1001, 5:54–6:54, Figs. 1, 2, 7, 8), the claim language itself also demonstrates that the two “hydraulic[s]” of claim 1 are not the same structure(s).

b. Temporal Aspects of Claim 1

Patent Owner states that “[p]erforming the entirety of the method of claim 1 is a matter of timing,” referring to the steps of claim 1 as requiring a particular “sequence,” with certain recitations being performed simultaneously — “namely that the arm is positioned against a stop **while** restricting the ability of a hydraulic that lifts the arm **and** still being able to control a pitch axis of movement of the dozer blade.” Prelim. Resp. 25–26 (citing Ex. 1001, 5:36–45; Ex. 2001 ¶¶ 103–105).

Petitioner disagrees, contending that “[c]laim 1 is bereft of any temporal or logical limitations that could reasonably be said to require as much.” Reply 9. “The ‘general rule,’” Petitioner argues, “is well established that, ‘unless the steps of a method [claim] actually recite an order, the steps are not ordinarily construed to require one.’” *Id.* (quoting *Mformation Techs., Inc. v. Rsch. in Motion Ltd.*, 764 F.3d 1392, 1398 (Fed. Cir. 2014) (in turn quoting *Interactive Gift Express, Inc. v. Compuserve Inc.*,

256 F.3d 1323, 1342 (Fed. Cir. 2001))). According to Petitioner, “[t]he record gives no reason to diverge from this sound legal presumption.” *Id.*

Although claim 1 may lack explicit temporal cues, indicating that various recitations are performed, e.g., sequentially or concurrently, Patent Owner correctly points out that the record supports such an understanding, because “the whole point of the invention of the ’300 Patent, as described in the Summary of the Invention and the Detailed Description,” involves “controlling the pitch axis of the dozer blade *while* the main arm is restricted to prevent any lift force from moving the main arm off of the stop.” Sur-reply 9 (citing Ex. 1001, 4:20–36).

The Specification of the ’300 patent is particularly helpful in ascertaining the temporal structure of claim 1. Indeed, “[c]laims must be read in view of the specification, of which they are a part.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir 1995) (en banc), *aff’d*, 517 U.S. 370 (1996). The Federal Circuit has emphasized the role of the Specification in claim construction:

The specification contains a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use it. Thus, the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.

Vitronics, 90 F.3d at 1582.

As Patent Owner remarked, the Specification illustrates “the whole point of the invention of the ’300 Patent” (Sur-reply 9), including an account of the development and operation of the technology, elucidating why the steps of claim 1 follow a particular sequence. Notably, the Specification

discusses various shortcomings of technology that is the subject of an earlier patent obtained by the named inventor (David Armas) of the '300 patent—U.S. Patent No. 8,118,111 (*see* Ex. 1010, code (76)). *See* Ex. 1001, code (72), 1:19–63. Among its distinctions from the '300 patent, the technique of Mr. Armas's predecessor patent “maintains the full movement of the main arm of the vehicle to raise and lower the attachment assembly including the dozer blade.” *Id.* at 1:26–28. The '300 patent goes on to explain why “maintain[ing] full movement of the main arm” created operational problems:

The limitations of this [prior] method rests in the requirement for the automatic grading system to finely adjust the grade height of the blade by using the large hydraulics of the main arm to lift and lower the entire dozer blade assembly along with the up and down movements of the main arm. This creates a lot of weight being moved continually up and down as the blade automatically is adjusted by the automatic grade system which has the limitations of using significant power, imparting stress on the greater structure of the skid steer vehicle, slows movement with greater mass being moved and reduces the fineness of the resolution that the cutting edge of the blade can be held during automatic grading operations.

Id. at 1:26–27, 1:29–42. Such a technique, with “the height of the dozer blade . . . controlled by the vertical movement of the main arm that also carried the entire dozer blade assembly” “uses substantial energy to move and has a potential for slowed and jerky movements that can affect the precision and smoothness of the grade.” *Id.* at 4:3–12. Further, the '300 patent Specification explains:

[I]t has been determined through much trouble and experimentation that when the main arm is available to control the height of the bottom of the dozer blade while the pitch axis

of the blade is simultaneously adjusting the height of the bottom of the blade that a consistent grade cannot be consistently achieved. This is particularly so when there are varying densities of soil substrates that are being graded with the dozer blade.

Id. at 4:20–27. Therefore, the Specification explains that the identified obstacles were overcome, in part, by “secur[ing] the height of the main arm”:

A solution at the heart of the present invention is to secure the height of the main arm so that when the dozer blade is vertical the bottom of the dozer blade is at a predetermined height relative to the preexisting grade as generally defined as the plane on which the dozer tracks ride.

Id. at 4:28–32. “In the prior art the main arm had to lift the whole blade assembly 30 to move the bottom 54 up and down.” *Id.* at 6:27–29. “Now,”

with the main arm 48 locked only the pitch up of the blade 46 affects how deep the blade 46 cuts the soil. The GPS computer controls this depth and thereby controls the grade that the machine levels the soil. Notice how the weight of the main arm 48 no longer is needed to move with the rest of the blade assembly 30 when the height of the bottom 54 is manipulated by the automatic grading computer.

Id. at 6:29–36; *see also id.* at 3:64–4:2 (“The present device and method stabilizes the dozer blade attachment assembly by limiting the main arm of the vehicle axis of movement. This provides a stable platform for the dozer blade attachment assembly that in turn which permits greater control of the blade and stabilizes the blade for more precise control.”)

Further, a “stop . . . to hold the main arm . . . at the required position” is implemented during the automatic grading process:

The use of the bracket 56 and stop 58 allow any brand, shape or configuration of skid steer to have a means to hold the

main arm 48 at the required position to in turn hold the blade assembly 30 at the right height so that only the pitch axis of movement of the blade 46 affects how deep the blade 46 cuts and the automatic grading computer can effectively cut throughout the range of blade height needed.

Id. at 7:26–32.

The foregoing disclosures of the '300 patent's Specification emphasize the technological significance of securing the main arm, e.g., against a stop, and adjusting the height of the dozer blade by changing its pitch axis, during an automatic grading process. Accordingly, claim 1, properly construed, requires limitations [1.3], [1.4], and [1.5] to be performed sequentially or simultaneously, so that the “automatic grade control system” is “operably connect[ed]” “to a hydraulic that controls a pitch axis of movement of the dozer blade to affect a height of the dozer blade relative to a ground surface” (limitation [1.5]), while “the point of the main arm” is “position[ed] . . . against the stop” (limitation [1.3]), and while “the ability of the main arm” is “prevent[ed] . . . from providing any lifting force by restricting the ability of a hydraulic that lifts the main arm” (limitation [1.4]).

*4. The Prior Art Relied Upon*⁸

a. Funk

Funk is a published U.S. patent application titled “Automatic Leveling Control System.” Ex. 1004, code (54).

⁸ For the reasons discussed below, the Stratienco (Ex. 1008) and Orser (Ex. 1009) references, which Petitioner relies upon in Grounds 1B–1D and 2B–2D, do not bear upon our resolution of the issues addressed herein. Accordingly, we omit summaries of these references.

Funk describes a skid-steer vehicle featuring an “automatic leveling control system for a machine having a work attachment adapted for leveling as the machine is propelled about a worksite.” Ex.1004, Abstract. Funk’s technology involves a laser plane generator that defines a reference for the grading process. *Id.* ¶ 11. A laser receiver mounted to one of the lift arms of the machine detects the relative position of the laser plane and provides a corresponding height signal. *Id.*

Funk also employs a tilt sensor that is configured to sense a fore-and-aft tilt angle of a work attachment (such as a dozer blade), as well as a lateral tilt of the machine and to provide a tilt signal and a lateral tilt signal.

Ex. 1004 ¶ 12.

In addition, Funk discloses a controller that is configured for generating a control signal — based on the height signal, the tilt signal, and the lateral tilt signal — in order to adjust at least one of a height of the lift arms and the tilt angle of the work attachment mounting structure, such that a grading edge of the work attachment is maintained at a proper elevation as the machine is propelled about the worksite, during the grading process.

Ex. 1004 ¶ 13.

Other aspects of Funk’s disclosure, relating to the present Decision, are addressed below.

b. Lewis

Lewis is a U.S. patent titled “System and Method for Controlling an Arm of a Work Vehicle.” Ex. 1005, code (54).

Lewis relates, in part, to techniques for blocking movement of the vehicle's arms, "e.g., via contact with the chassis, via contact with a stop, etc." Ex. 1005, 5:27–33.

Other aspects of Lewis's disclosure, relating to the present Decision, are addressed below.

c. Eckrote

Eckrote is a U.S. patent titled "Vertically Adjustable Adaptor for a Work Vehicle Implement." Ex. 1006, code (54). The disclosed adaptor includes a track system having a slot, and a slider disposed on the work implement portion, "wherein the slider is configured to move along the slot, and at least one actuator configured to actuate the work implement portion with respect to the work vehicle portion along a guide path." *Id.* at 1:49–54.

Other aspects of Eckrote's disclosure, relating to the present Decision, are addressed below.

d. Lumpkins

Lumpkins is a published U.S. patent application titled "Bulldozer Autograding System." Ex. 1007, code (54).

Lumpkins uses "a blade position sensor to provide a signal indicative of a position of the blade and an electronic controller coupled to the blade and to the at least one lift cylinder." Ex. 1007 ¶¶ 11, 60. The controller automatically adjusts the blade position "in response to position signals received from the blade position sensor." *Id.*

Other aspects of Lumpkins's disclosure, relating to the present Decision, are addressed below.

5. Analysis of Petitioner's Asserted Grounds

a. Grounds 1A–1D

i. Ground 1A

Petitioner does not demonstrate a reasonable likelihood that it would establish, at trial, the unpatentability of any of claims 1–4 challenged in Ground 1A, because Petitioner does not adequately show that the identified Funk and Lewis references may be properly combined. To the contrary, Petitioner's proposed combination of Funk and Lewis teaches away from the subject matter of claim 1.

Petitioner's proposed combination of the elements of Funk and Lewis conflicts with the claim language requiring, as explained above, the concurrent performance of the following actions: “the point of the main arm” “position[ed]” “against the stop” (limitation [1.3]); “preventing the ability of the main arm from providing any lifting force by restricting the ability of a hydraulic that lifts the main arm” (limitation [1.4]); and “operably connecting the automatic grade control system to a hydraulic that controls a pitch axis of movement of the dozer blade to affect a height of the dozer blade relative to a ground surface” (limitation [1.5]).

Petitioner argues that Funk teaches, e.g., limitation [1.5] (“operably connecting the automatic grade control system to a hydraulic that controls a pitch axis of movement of the dozer blade to affect a height of the dozer blade relative to a ground surface”). According to Petitioner, Funk discloses a skid steer vehicle having an “automatic grade control system,” per claim 1 of the '300 patent. *See* Pet. 11 (citing Ex. 1004 ¶¶ 28, 31, Figs. 1a, 5). Petitioner also argues that Funk discloses hydraulic cylinders 18 (for raising and lowering lift arms 14) and hydraulic cylinder 28 (for adjusting the tilt

angle of the dozer blade). *Id.* at 21 (citing Ex. 1004 ¶ 33, Fig. 1a; Ex. 1003 ¶¶ 116–117). These elements are shown in Funk’s Figure 1a, which is reproduced below.

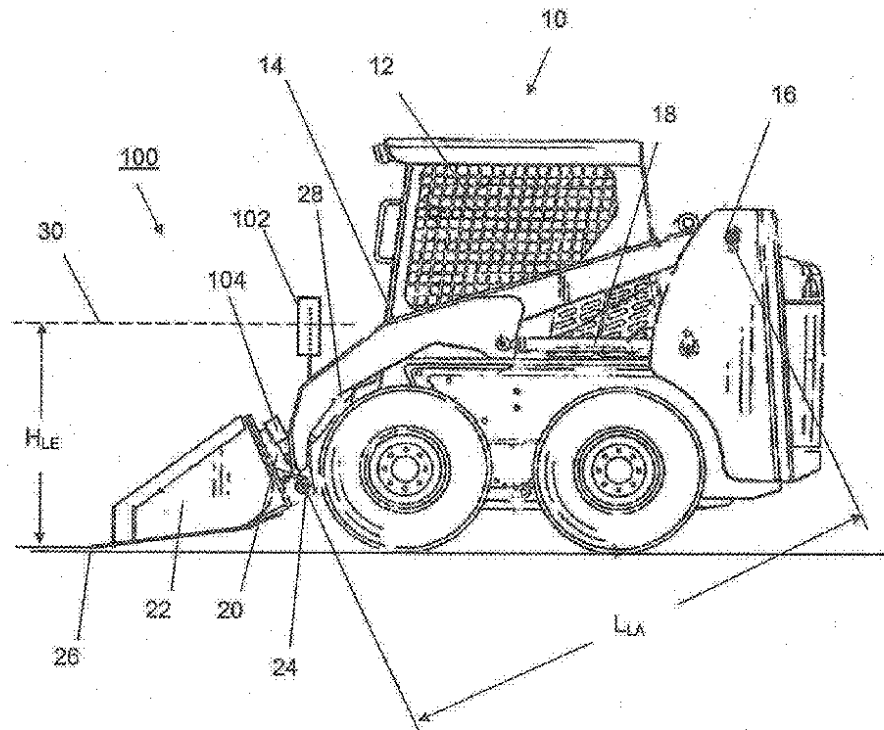


Figure. 1a

Figure 1a of Funk shows a side view of skid steer machine 10 having lift arms 14 and associated hydraulic cylinders 18, and work attachment mounting structure 20 mounted to digging bucket 22 having grading edge 26, with associated hydraulic cylinders 28. Ex. 1004 ¶¶ 31–33.

In addition to Funk, Petitioner relies upon Lewis for teaching the limitations of “providing a stop . . . upon which a point of the main arm rests thereby defining a lower limit of movement of the main arm” (limitation [1.2]), “positioning the point of the main arm against the stop” (limitation [1.3]), and “preventing the ability of the main arm from providing any lifting

force by restricting the ability of a hydraulic that lifts the main arm” (limitation [1.4]). *See* Pet. 6–7, 15–20 (citing Ex. 1003, ¶¶ 51–62, 77, 102–112; Ex. 1005, 4:19–5:6, 5:20–58, 6:54–7:5, 9:34–53, Figs. 1, 2A, 3).

Proposing to combine the identified features of Funk and Lewis, Petitioner argues:

In the Funk-Lewis combination, the main arms are held still, leaving the pitch axis hydraulic as the lone mechanism by which blade height is controlled. EX1004, [0033], [0043]; EX1005, 5:20–39, 6:54–7:5; EX1003, ¶ 119. Given that the automatic grade control system issues control instructions (i.e., signals) for actuating the pitch axis hydraulic, a POSITA would have understood that the system is *operably connected* to the hydraulic. EX1004, [0015], [0016], [0033], [0043]; EX1003, ¶ 119.

Pet. 23–24.

As to the alleged reason for combining the identified teachings of Funk and Lewis, Petitioner argues that “[a] POSITA would have been motivated to pursue the Funk-Lewis combination and possessed a reasonable expectation of its success in arriving at the claimed invention for at least” certain identified reasons. Pet. 9.

“First,” Petitioner argues,

a POSITA would have understood that the integration of Lewis’s teaching to block upward movement of the main arm with Funk’s skid-steer vehicle would have the predictable advantage of maximizing the horizontal load rating of the arm assembly during grading (just as Lewis teaches).

Pet. 9 (citing EX1003 ¶¶ 80–83; EX1005, 4:34–37, 5:22–35, 6:54–7:5, 5:59–6:15, 11:5–24).

“Second,” Petitioner argues,

a POSITA would have understood that Funk invites the proposed Funk-Lewis combination by explaining that automatic grade control can be achieved with adjustments to “at least one” of lift arm height or blade tilt.

Pet. 9 (citing Ex. 1003 ¶ 84; Ex. 1004, Abstract, ¶¶ 13, 33). “In this way,” Petitioner argues, “Funk encourages the POSITA to seek out and explore the predictable result of integrating the supplemental teaching from Lewis to immobilize the main arm, leaving just ‘one’ of Funk’s two adjustment mechanisms — blade tilt — available for grade control.” Pet. 9–10 (citing Ex. 1003, ¶ 84).

“Third,” Petitioner argues,

a POSITA would have appreciated that Lewis’s teaching to increase the horizontal load rating by simply preventing movement of the main arm aligns with Funk’s desire to provide systems that are easily implemented “as a retro-fit to a pre-existing skid steer unit.”

Pet. 10 (citing Ex. 1004 ¶ 6; Ex. 1003 ¶ 85).

“Fourth,” Petitioner argues,

a POSITA would have understood that Lewis’s teaching to prevent movement of the skid-steer’s main arm during use would enhance the accuracy of Funk’s automatic leveling control system by narrowing the degrees of freedom.

Pet. 10 (citing Ex. 1003 ¶¶ 87–89; Ex. 1004, Abstract, ¶¶ 13, 33; Ex. 1005, 4:34–5:6, 6:54–7:5). Further, Petitioner contends, “[b]y moving only the dozer blade during grading operations, the blade position can be adjusted more quickly than it would be if both the main arm and blade were adjusted.” *Id.* at 10–11. In addition, Petitioner argues, “the POSITA would have recognized that holding the main arm fixed during grading would

facilitate additional benefits such as” “[i]ncreasing the speed with which grading can be accomplished,” “[r]educing power usage, and thus fuel consumption, by limiting the movement of the heavier main arm,” and “[e]xtending the life of the main arm hydraulic by reducing the number of cycles required of the hydraulic during grading operations.” *Id.* at 11 (citing Ex. 1003 ¶¶ 90, 71–72).

On the other hand, Patent Owner, with the support of Mr. Prairie’s testimony (Ex. 2001), argues that “[t]he automatic control system of Funk teaches away from ‘preventing the ability of the main arm from providing *any lifting force*’ as recited in independent claim 1 and as Petitioner argues is disclosed by Lewis.” Prelim. Resp. 30 (citing Ex. 2001 ¶ 113).

Notably, Funk states that an “object of the present invention is to provide an automatic leveling control system that is sufficiently accurate for preparing the ground prior to the construction of concrete floors and foundations.” Ex. 1004 ¶ 7. Funk further states that “[a] level grade is achieved by movement of the unit around the work surface by maintaining the working edge of the work attachment in a desired plane in relation to a laser plane projected at the worksite.” *Id.* ¶ 14. Funk’s leveling control system involves sensors that detect variations in the vehicle’s orientation, and these sensors provide corresponding “height,” “tilt angle,” and “lateral tilt” signals to a controller. *Id.* ¶¶ 11–13. Relatedly,

[t]he controller 106 is configured for generating a control signal based on the height signal, the tilt angle signal and the lateral tilt signal and for communicating the control signal to the skid-steer hydraulic control controlling actuation of hydraulic cylinders 18, 28 to adjust at least one of a height of the lift arms 14 and the tilt angle of the work attachment mounting structure 20 such that the grading edge 26 is maintained at an

elevation substantially corresponding to the predetermined level 31 as the machine is propelled about the worksite.

Id. ¶ 33.

In view of Funk’s disclosures, Mr. Prairie explains that operating Funk’s technology to control the work attachment’s orientation requires the ability to actuate *both* hydraulic cylinder 18 (for raising and lowering lift arms 14) *and* hydraulic cylinder 28 (for adjusting the tilt angle of the dozer blade):

Funk does contemplate adjusting “at least one of a height of the lift arms and the tilt angle of the work attachment” to maintain elevation. Exhibit 1004, Abstract, ¶ [13]. However, for the automatic system of Funk, adjusting the arm height is ***necessary*** to correct the lateral tilt signal (since it occurs when one arm height is different than another), and adjusting the arm height is a possible solution to correcting the height signal. Conversely, adjusting the blade tilt can ***only*** correct the tilt angle signal and possibly the height signal.

Ex. 2001 ¶ 114. Accordingly, under Mr. Prairie’s analysis, Petitioner’s proposed “Funk-Lewis combination,” wherein “the main arms are held still, leaving the pitch axis hydraulic as the lone mechanism by which blade height is controlled” (Pet. 23), would be inoperable. “[P]reventing ‘any lifting force’ as recited in claim 1 would deactivate, and render inoperable, half of the control corrections contemplated by Funk.” Ex. 2001 ¶ 114.

Therefore, Mr. Prairie explains, “Funk teaches away from any such modification allegedly for ‘preventing the ability of the main arm from providing any lifting force’ as recited in claim 1” *Id.* Further, Funk’s technique of “[a]djusting the arm heights necessarily requires providing ‘a lifting force’ in contravention of the recited claim language.” *Id.* ¶ 113.

Consequently, “a POSITA would not be motivated to combine the teachings

of Funk and Lewis as it would render Funk’s automatic control system inoperable for correcting the lateral tilt and height.” *Id.*

As Patent Owner argues, Petitioner’s proposed combination of Funk and Lewis “would interfere with the intended operation of the Funk control system to move the lift arms up and down in response to *inter alia* changes in the height signal.” Prelim. Resp. 20. This scenario is similar to that in *Tec Air*, 192 F.3d at 1356, which involved a claimed injection-molding technique that used screw-threaded adjustable plugs accessed from the inner, cavity-facing, side of the mold. The proposed combination included a prior art reference disclosing adjustment members accessed from the opposite, outer, side of the mold, and having a non-threaded smooth tip that extended through the mold and into the cavity. *Id.* at 1360. The Federal Circuit held that the prior art reference was properly determined to teach away from the claimed invention, because “no screw driver would be able to turn the smooth-headed screws from the cavity-side of the mold,” hence the proposed “combination would be inoperable for its intended purpose.” *Id.* Likewise, the proposed combination in the present matter teaches away from the subject matter of claim 1, because it would “immobilize [Funk’s] main arm,” and its associated hydraulic cylinder 18, “leaving just ‘one’ of Funk’s two adjustment mechanisms — blade tilt — available for grade control” (Pet. 10), thereby decreasing the system’s accuracy (*see* Ex. 2001 ¶¶ 113–14) and negating the very technique that Funk relies upon to achieve its stated goal. *See* Ex. 1004 ¶ 7 (“[O]ne object of the present invention is to provide an automatic leveling control system that is sufficiently accurate for preparing the ground prior to the construction of concrete floors and foundations.”)

Indeed, Funk’s controller 106 receives all of the height, tilt angle, and lateral tilt signals and generates a control signal based on all of these inputs:

Controller 106 is connected to the laser receiver 102 and the tilt sensor 104. The controller 106 is configured for generating a control signal based on the height signal, the tilt angle signal and the lateral tilt signal and for communicating the control signal to the skid-steer hydraulic control controlling actuation of hydraulic cylinders 18, 28 to adjust at least one of a height of the lift arms 14 and the tilt angle of the work attachment mounting structure 20 such that the grading edge 26 is maintained at an elevation substantially corresponding to the predetermined level 31 as the machine is propelled about the worksite.

Ex. 1004 ¶ 33.

By contrast with Funk, the technology disclosed in the ’300 patent obviates any such need to move the main arms, during grading, by providing additional angular adjustment techniques (in regard to the “roll axis” and “yaw axis”) to correct for variations in the surface being traversed.

Ex. 1001, 6:55–67, Figs. 3–6.

Thus, Petitioner’s proposed modification of Funk, so as to perform the recited “preventing the ability of the main arm from providing any lifting force by restricting the ability of a hydraulic that lifts the main arm” (limitation [1.4]) — a teaching that Petitioner draws from Lewis — is antithetical to Funk’s operation. Funk’s main arm cannot be *both* movable to adjust the position of the work attachment *and* “prevent[ed] . . . from providing any lifting force,” per limitation [1.4]. For the foregoing reasons,

Funk teaches away from the identified claim limitation and from the proposed combination.⁹

Accordingly, Petitioner does not establish a reasonable likelihood of proving the unpatentability of independent claim 1 of the '300 patent. Nor does Petitioner establish a reasonable likelihood of proving the unpatentability of dependent claims 2–4, per the arguments presented in Ground 1A, which also rely upon the arguments discussed above. *See* Pet. 24–26.

ii. Grounds 1B–1D

In Grounds 1B–1D, Petitioner relies upon teachings of additional prior art references (Stratienko and/or Orser) to “provide an additional/alternative basis” for certain claim limitations. *See* Pet. 27, 35, 41.

However, these additional or alternative arguments do not overcome the deficiencies identified, above, concerning Ground 1A. Therefore, none of Petitioner’s arguments in Grounds 1B–1D can establish a reasonable likelihood that Petitioner would be able to demonstrate unpatentability of any challenged claim.

⁹ Even if we did not view the references as teaching away from Petitioner’s proposed combination, for the same reasons the Petitioner does not persuasively argue that there would have been a sufficient reason to combine the references’ teachings, such that Petitioner would not show a reasonable likelihood of prevailing on this issue.

b. Grounds 2A–2D

i. Ground 2A

Petitioner does not demonstrate a reasonable likelihood that it would establish, at trial, the unpatentability of any of claims 1–4 challenged in Ground 2A, because Petitioner does not adequately show that the combination of Eckrote and Lumpkins teaches or suggests at least limitation [1.5] of independent claim 1:

[1.5] operably connecting the automatic grade control system to a hydraulic that controls a pitch axis of movement of the dozer blade to affect a height of the dozer blade relative to a ground surface.

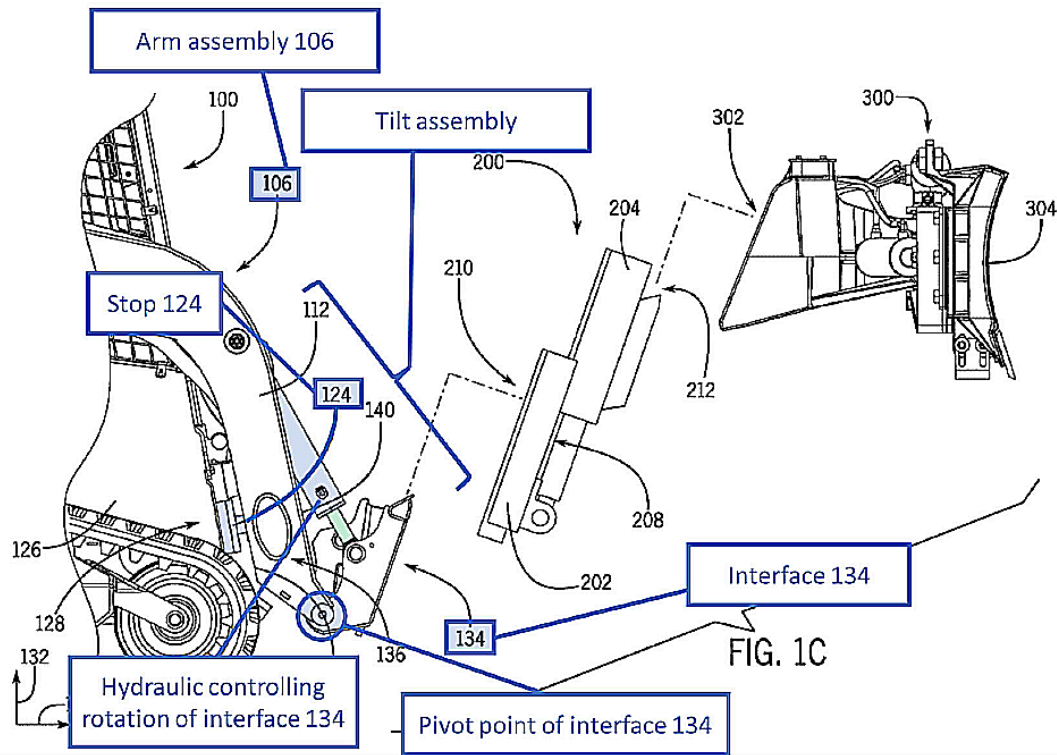
Ex. 1001, 8:60–63.

Petitioner presents “two alternative mappings” (Pet. 56) arguing that a person of ordinary skill in the art, at the relevant time, would have combined various features of Eckrote and Lumpkins, so as to achieve the technique of limitation [1.5]. *See id.* at 56–61. For the reasons below, neither mapping satisfies the requisite standard, in view of the present record.

As to the *first* mapping, Petitioner argues that Eckrote discloses limitation [1.5]’s recited “hydraulic that controls a pitch axis of movement of the dozer blade to affect a height of the dozer blade relative to a ground surface,” stating:

Mapping #1 relies on Eckrote’s disclosure that “the arm assembly 106 includes a tilt assembly configured to control rotation of the adaptor 200.” EX1006, 3:35–36, Figures 1A–1C. According to Eckrote, the components of the arm assembly 106 — which includes the tilt assembly — are driven by “hydraulic cylinder(s).” *Id.*, 3:25–46.

Pet. 56. Petitioner refers to an annotated version of Eckrote's Figure 1C, which is reproduced below. *Id.* at 57.



EX1006, Fig. 1C (annotated)

Petitioner's annotated version of Eckrote's Figure 1C adds color shading and labels to a partial exploded perspective view of Eckrote's work vehicle 100 having a connector interface 134 configured for coupling with a receiver interface 210 of adaptor 200, which supports implement 300 (e.g., a dozer blade). *See* Ex. 1006, 4:48–55. Among Petitioner's labels, added to annotated Figure 1C, is the description “Tilt assembly,” which Petitioner characterizes as follows:

[T]his tilt assembly for rotating the adaptor includes a hydraulic cylinder attached to the connector interface 134 that connects the main arms 112, 114 and the adaptor 200. [Ex. 1006], 3:25–46, 4:48–5:11. Figure 1C also shows that the tilt

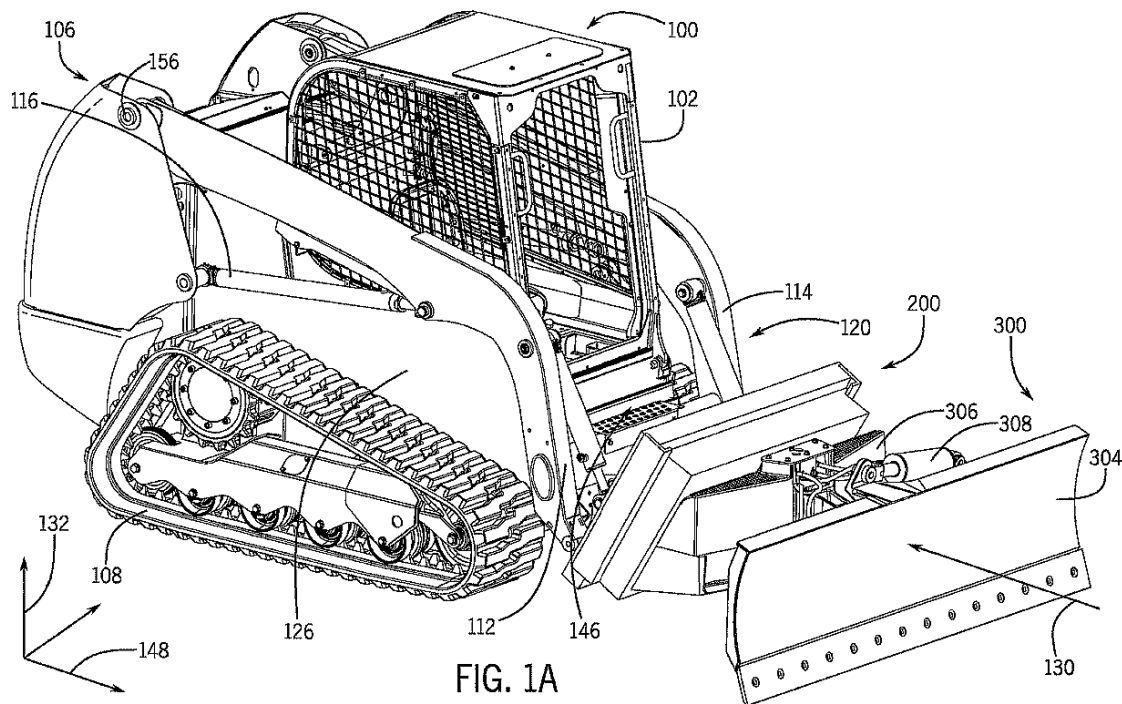
assembly further includes a pivot joint as the connection between the arms and the connector interface. *Id.*

Pet. 56–57. Thus, Petitioner contends that the elements of the “tilt assembly” of annotated Figure 1C embody and perform the function of limitation [1.5] of the ’300 patent.

However, the only “tilt assembly” described in Eckrote (in text immediately following the portion quoted from Eckrote on page 56 of the Petition) refers to an altogether different portion of Eckrote’s embodiment and discloses nothing that might accomplish the function recited in limitation [1.5] — i.e., “affect[ing] a height of the dozer blade relative to a ground surface.” Eckrote’s full disclosure of the “tilt assembly” states (with the portion cited on page 56 of the Petition in italics):

[T]he arm assembly 106 includes a tilt assembly configured to control rotation of the adaptor 200. In some embodiments, the work vehicle implement 300 includes the tilt assembly 306 coupled to the adaptor 200. The tilt assembly 306 includes a hydraulic cylinder 308 configured to drive rotation of the work implement.

Ex. 1006, 3:35–40 (emphasis added). The “tilt assembly 306” and its associated “hydraulic cylinder 308” are shown in Eckrote’s Figure 1A, which is reproduced below.



Eckrote's Figure 1A is a perspective view of work vehicle 100 having, in the lower right-hand portion of the drawing, "tilt assembly 306" with "hydraulic cylinder 308" proximate implement 300. *See id.* at 2:63–3:40.

Petitioner does not address the operation of "tilt assembly 306" — the sole "tilt assembly" described in Eckrote. However, Patent Owner's expert, Mr. Prairie, states that "the hydraulic cylinder 308 in tilt assembly 306 on the attachment 300 is positioned laterally to control the yaw of the dozer blade around axis 130, not the pitch." Ex. 2001 ¶ 148.

By contrast, the portion of Figure 1C that Petitioner calls a "tilt assembly" (*see* Pet. 57) is not identified or discussed in Eckrote. Nor does Petitioner identify any disclosure, in Eckrote, describing the functionality of what Petitioner designates as a "tilt assembly" in annotated Figure 1C.

Further, the feature shown in Eckrote that raises and lowers implement 300 (e.g., a dozer blade) does not involve the technique recited in

limitation [1.5] of the '300 patent — i.e., altering “a pitch axis of movement of the dozer blade to affect a height of the dozer blade relative to a ground surface.” Rather, Eckrote — which is titled “Vertically Adjustable Adaptor for a Work Vehicle Implement” — discloses a *linear* track system for raising and lowering a dozer blade, explaining:

The adaptor . . . includes a track system comprising a slot disposed within the work vehicle portion and a slider disposed on the work implement portion, wherein the slider is configured to move along the slot, and at least one actuator configured to actuate the work implement portion with respect to the work vehicle portion along a guide path.

Ex. 1006, code (54), 1:48–54. Eckrote’s Figures 3A and 3B, reproduced below, show an embodiment of the disclosed adaptor 200.

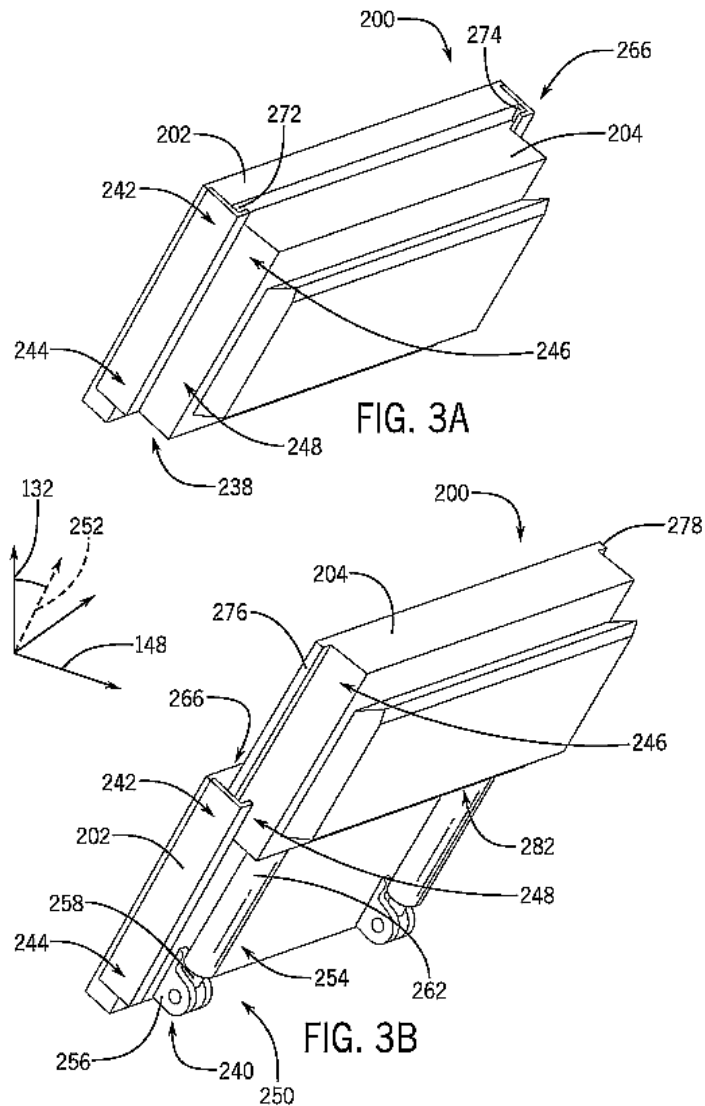


Figure 3A is a perspective view of Eckrote’s adaptor 200, in a fully retracted position 238, and Figure 3B is a perspective view of adaptor 200, in a fully extended position 240. *See* Ex. 1006, 8:16–46. “The adaptor 200 is configured to move the work implement portion 204 in a substantially vertical direction 132 with respect to the work vehicle portion 202 of the adaptor 200.” *Id.* at 8:21–24.

Patent Owner argues that the structure that Petitioner mis-identifies as Eckrote’s “tilt assembly” not only fails to disclose elements of claim 1’s

“automatic grade control system” that “controls a pitch axis of movement of the dozer blade” with the “main arm against the stop” and “preventing the ability of the main arm from providing any lifting force,” but also would be inoperable for doing so — thus teaching away from Petitioner’s proposed combination in the first mapping. Prelim. Resp. 45–51 (citing Ex. 2001 ¶¶ 168–173).

In one aspect, as Mr. Prairie explains, if Eckrote’s system were applied “to vertically raise or lower blade assembly 300, per Petitioner’s first mapping,

it would independently change the distance or radius between [Petitioner’s] identified pivot point and the bottom of the blade. The radius (measured from the rotation hinge to the bottom of the dozer blade) is variable because it changes dependent on the vertical movement of the dozer blade on the adaptor. In other words, the distance between the hinge that provides the axis of rotation . . . and the bottom of the dozer blade . . . would increase as the height of the dozer blade on the adaptor 200 increased. Any system for automatic grade control would have to do real time adjustments based on the position of the blade on the adaptor and the angle maintained by this hinge. Eckrote does not begin to address this issue because it does not disclose any grading control system. This would make the control of the grading system incredibly complicated, and unmanageable to most existing systems, and is certainly neither taught nor disclosed by three sentences about “tilt assemblies.” [See Ex. 1006, 3:35–40.] Thus, if Eckrote was able to operate for automatic grading (again, Patent Owner disagrees that it even can), a POSITA would understand that titling identified in Mapping #1 of the Petition would be restrained or disabled, not operably controlled.

Ex. 2001 ¶ 170.

In addition, Mr. Prairie contends that applying Eckrote’s system, according to Petitioner’s first mapping, would violate Eckrote’s object of “ensur[ing] that the arm 112 is maintained against the stop,” which is critical to Eckrote’s “primary goal [of] provid[ing] an adaptor that can withstand elevated horizontal forces.” Ex. 2001 ¶ 171 (citing Ex. 1006, 1:21–31, 3:48–62). Mr. Prairie’s declaration provides force diagrams (annotating Eckrote’s Figures 1B and 1C), illustrating torques and a “Force Displacement” (identified with a blue arrow) whereby, under Petitioner’s first mapping, “horizontal forces pushing on the blade attachment generate torque that could pull arm 112 away from its stop.” *Id.* One of Mr. Prairie’s force diagrams is reproduced below.

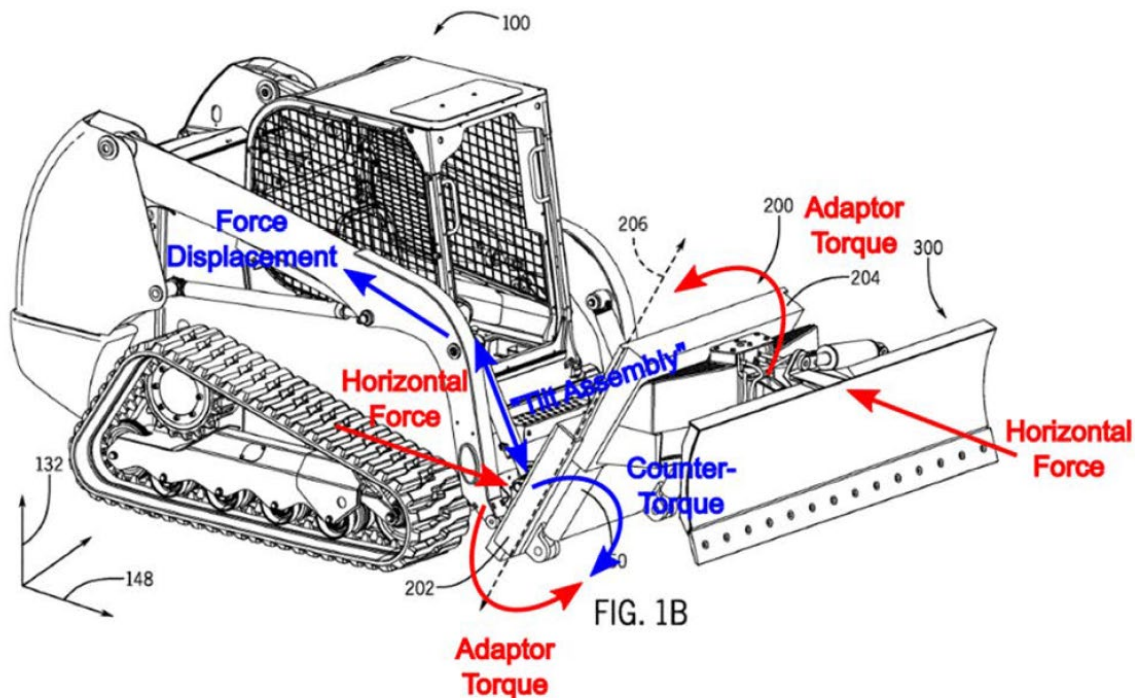


Exhibit 1006, Fig. 1B (annotated)

The above illustration, from Mr. Prairie's declaration, adds labels and arrows to Eckrote's Figure 1B, so as to show how the forces and torques would act

on Eckrote's embodiment, if implemented according to Petitioner's first mapping. According to Mr. Prairie, the "tilt assembly" of the Eckrote reference

is *not* provided to "control a pitch axis of movement of the dozer blade" as alleged in the Petition, but rather exists to prevent the torque generated by the bottom end of adaptor 200 from pulling the arm away from its stop. Nowhere in the Eckrote disclosure is it contemplated that whatever structure is there, and not described in any detail, is operable to control a pitch axis of movement to affect a height of the dozer blade, as recited in claim 1.

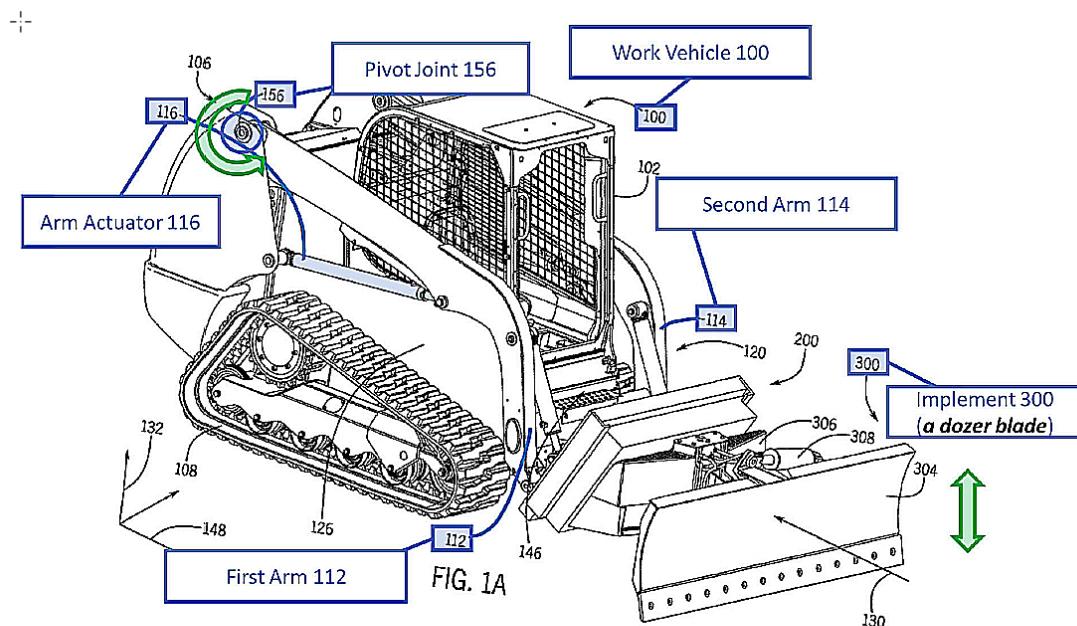
Id. ¶ 172. Thus, applying the Eckrote-Lumpkins combination to meet limitation [1.5], of the '300 patent, "would render . . . Eckrote less efficient, not more, for its primary purpose of providing an adaptor to withstand elevated horizontal forces." *Id.* ¶ 173.

Patent Owner's arguments, together with Mr. Prairie's supporting testimony, are persuasive, as to Petitioner's first mapping.

In view of the foregoing, as well as all of the parties' related arguments and evidence, Petitioner's first mapping of the Eckrote-Lumpkins combination does not establish a reasonable likelihood that Petitioner would be able to demonstrate satisfaction of limitation [1.5] and, hence, claim 1. The Eckrote reference, under the first mapping, does not disclose the features of limitation [1.5]. *See* Ex. 2001 ¶¶ 169, 172–73. As discussed above, Petitioner's first mapping is based on an interpretation of Eckrote's figures that is inconsistent with the textual portion of the reference. Moreover, even if Eckrote's system were implemented according to the first mapping, Mr. Prairie's unchallenged testimony shows that the first mapping would be inoperative and would contradict Eckrote's fundamental

operational goals, so as to teach away from the proposed combination and the subject matter of claim 1. *See Gordon*, 733 F.2d at 902 (explaining that, where a prior art reference’s modification — in order to satisfy the claim language — would render “inoperable for its intended purpose,” the reference “teaches away from the . . . proposed modification”).

As to the Petition’s *second* mapping of the Eckrote-Lumpkins combination to limitation [1.5], Petitioner relies on the rotation of Eckrote’s main arms 112, 114 about a respective pivot joint 156, as corresponding to the recited “pitch axis of movement of the dozer blade” of claim 1. *See* Pet. 59–60. Petitioner’s second mapping is illustrated in Petitioner’s annotated version of Eckrote’s Figure 1A, which is reproduced below.



EX1006, Fig. 1A (annotated)

Petitioner’s annotated Figure 1A adds labels and arrows showing Petitioner’s second mapping of the Eckrote-Lumpkins combination, in regard to claim limitation [1.5]. *See* Pet. 60–61

Petitioner's second mapping contravenes two claim constructions, which are addressed above.

First, as Petitioner points out, "Mapping #2 points to the same 'hydraulic' for both of Elements [1.4] and [1.5] — the hydraulic actuator that drives the main arms." Pet. 61. For the reasons discussed above, claim 1's "hydraulic that controls a pitch axis of movement of the dozer blade" of element [1.5] cannot *also* be the "hydraulic that lifts the main arm" of element [1.4].

Second, and relatedly, because Petitioner's second mapping relies upon the "hydraulic" associated with Eckrote's main arms, in order to "control[] a pitch axis of movement of the dozer blade," per limitation [1.5], this "hydraulic" cannot *also* satisfy limitation [1.4]'s condition of "preventing the ability of the main arm from providing any lifting force by restricting the ability of a hydraulic that lifts the main arm." *See* Pet. 61. For the reasons discussed, above, the temporal aspects of claim 1 require limitation [1.5]'s "controls a pitch axis of movement of the dozer blade to affect a height of the dozer blade relative to a ground surface" occur while "the point of the main arm" is "position[ed]" "against the stop," per limitation [1.3], and while "preventing the ability of the main arm from providing any lifting force by restricting the ability of a hydraulic that lifts the main arm," per limitation [1.4].

Because Petitioner's second mapping of the Eckrote-Lumpkins combination, with regard to limitation [1.5] of the '300 patent, is inconsistent with the claim constructions applied herein, Petitioner does not establish a reasonable likelihood that Petitioner would be able to

demonstrate satisfaction of limitation [1.5] and, so as to render claim 1 unpatentable.

Nor does Petitioner establish a reasonable likelihood of proving the unpatentability of dependent claims 2–4, per the arguments presented in Ground 2A, which also rely upon the arguments discussed above. *See* Pet. 62–63.

ii. Grounds 2B–2D

In Grounds 2B–2D, Petitioner relies upon teachings of additional prior art references (Stratienko and/or Orser) to “provide an additional/alternative basis” for certain claim limitations. *See* Pet. 63, 71, 76.

However, these additional or alternative arguments do not overcome the deficiencies identified above, concerning Ground 2A. Therefore, none of Petitioner’s arguments in Grounds 2B–2D can establish a reasonable likelihood that Petitioner would be able to demonstrate unpatentability any challenged claim.

B. Discretionary Denial

Patent Owner argues that the Board should exercise its delegated discretion to deny the Petition, under 35 U.S.C. § 325(d). *See* Prelim. Resp. 58–61; Sur-reply 10.

In view of our decision to deny the Petition on the merits, we do not address this issue.

III. CONCLUSION

After considering the evidence and arguments presented in the current record, we determine that Petitioner has not demonstrated a reasonable likelihood that it would prevail with respect to at least one claim of the ’300

patent challenged in the Petition. Therefore, we do not institute *inter partes* review. Accordingly, as stated above, we need not address Patent Owner's position that we should exercise discretion under 35 U.S.C. § 325(d) to deny institution.

IV. ORDER

Accordingly, it is
ORDERED that the Petition is denied and no *inter partes* review is instituted.

IPR2024-01442
Patent 10,533,300 B1

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