

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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GODBERSON-SMITH CONSTRUCTION COMPANY  
d/b/a GOMACO CORPORATION,  
Petitioner,

v.

GUNTERT & ZIMMERMAN CONST. DIV., INC.,  
Patent Owner.

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IPR2024-00835  
Patent 11,535,318 B2

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Before PATRICK R. SCANLON, HYUN J. JUNG, and  
JAMES J. MAYBERRY, *Administrative Patent Judges*.

JUNG, *Administrative Patent Judge*.

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

## I. INTRODUCTION

### A. *Background and Summary*

Godbersen-Smith Construction Company d/b/a GOMACO Corporation (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting institution of an *inter partes* review of claims 1–8 of U.S. Patent No. 11,535,318 B2 (Ex. 1001, “the ’318 patent”). Guntert & Zimmerman Const. Div., Inc. (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Prelim. Resp.”).

Under 35 U.S.C. § 314, an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Upon consideration of the Petition and for the reasons explained below, we determine that Petitioner has shown a reasonable likelihood of prevailing with respect to at least one of the challenged claims.

Thus, we institute an *inter partes* review of claims 1–8 of the ’318 patent on all presented challenges. 37 C.F.R. § 42.108(a) (“When instituting . . . review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”); *see also SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

### B. *Real Parties in Interest*

Petitioner identifies itself as a real party in interest. Pet. 85. Patent Owner identifies itself as the real party in interest. Paper 4, 1.

### C. *Related Matters*

The parties identify *Guntert & Zimmerman Construction Division, Inc. v. Gomaco Corp.*, 5:20-cv-04007-CJW-KEM (N.D. Iowa) as a related matter. Pet. 85; Paper 4, 1. The parties also state that, in the related matter,

Patent Owner filed a motion to amend its pleading to add the '318 patent and a related patent. Pet. 87; Paper 4, 1. Petitioner also identifies IPR2020-01698, IPR2021-00050, IPR2021-00135, IPR2021-00136, IPR2021-00161, IPR2021-00234, and IPR2021-00235. Pet. 85–87. A related patent is presently challenged in PGR2024-00026.

*D. The '318 Patent (Ex. 1001)*

The '318 patent issued on December 27, 2022, from an application filed on March 16, 2020, that is a continuation of several previously filed continuation and continuation-in-part applications, the earliest of which was filed on March 22, 2011. Ex. 1001, codes (22), (45), (63), 1:8–21. The '318 patent also claims priority to a provisional application filed on March 26, 2010. *Id.* at code (60), 1:21–23. One of the continuation applications issued as U.S. Patent No. 10,029,749 B2 (Ex. 1033, “the '749 patent”) that was challenged in IPR2020-01698. *Id.* at code (63).

The '318 patent is directed to “concrete slipform paving machines.” Ex. 1001, 1:28–29. Figure 1 from the '318 patent is below reproduced.

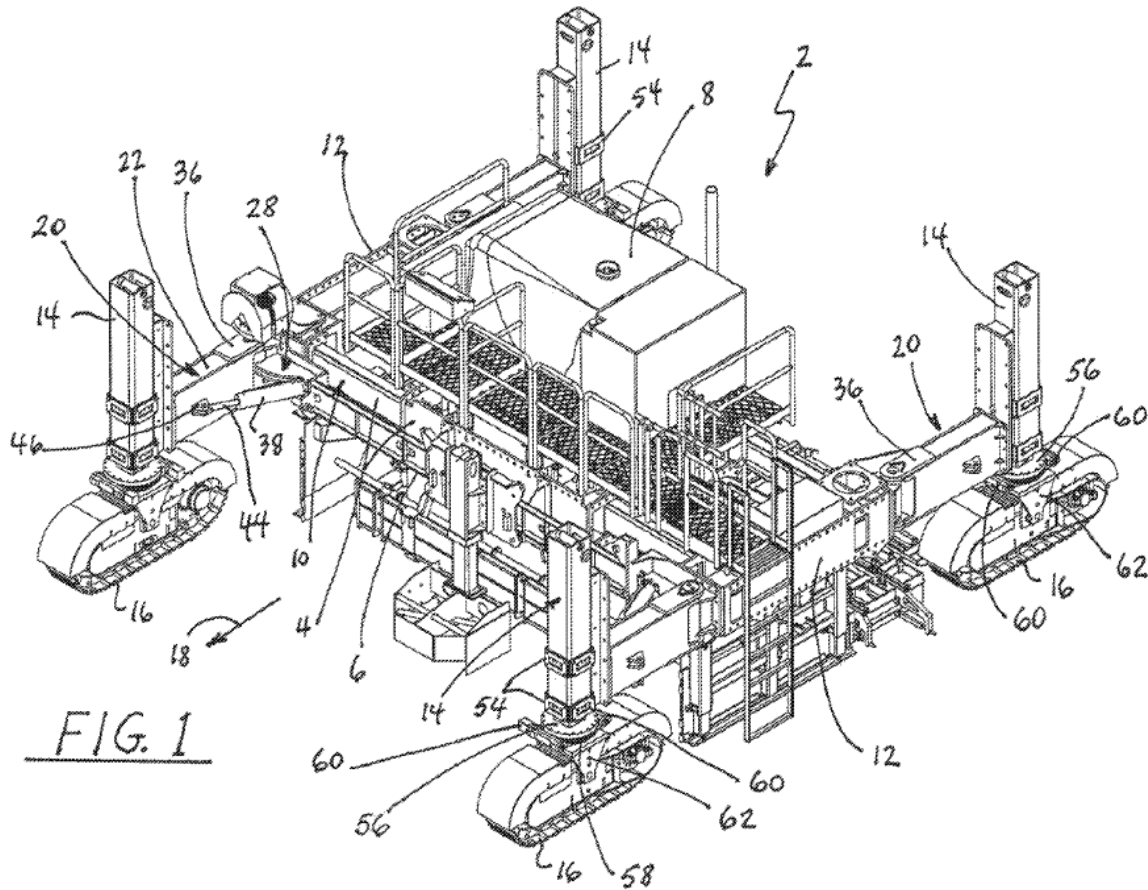


Figure 1 depicts “a front elevational, perspective view of a complete paving machine having pivotable swing legs with a jacking column and a crawler.” Ex. 1001, 7:61–63. Paving machine 2 includes tractor frame 4, which is defined by center module 6. *Id.* at 8:53–55. Side bolsters 12 are secured to support beams 10, and upright jacking columns 14 are mounted near the ends of the bolsters. *Id.* at 8:58–61. Crawlers 16 are mounted to the lower ends of the jacking columns, and the crawlers “are rotatable relative to the jacking columns about vertical axes, an arrangement that is known in the art.” *Id.* at 8:61–63, 8:65–67.

Each crawler 16 and its associated jacking column 14 are mounted to one of four swing legs 20. Ex. 1001, 9:30–32. Swing legs 20 are mounted to side bolsters 12 using hinge brackets 28, which allow the swing legs to

move relative to the side bolsters, with hydraulic actuator 38 used to pivot the swing legs. *Id.* at 9:32–59; Figs. 2, 3; *see also id.* at 7:42–45 (stating that the “hinge bracket is interposed between each swing leg and an associated surface of the bolsters and includes a fixed, upright pivot shaft that pivotally engages the swing leg for pivotal movements”). “A slew or worm gear or other rotary actuator 60” is at the lower end of each jacking column. *Id.* at 11:40–42, Fig. 4.

Each swing leg assembly includes two angular position transducers 70, 78. Ex. 1001, 11:62–65, 12:13–15, Figs. 4A, 5. These transducers generate signals indicating any changes in the angular orientation of crawler yoke 62 relative to jacking column 14 or the swing leg relative to the side bolster. *Id.* at 12:6–9, 12:28–36. The ’318 patent describes using transducers 70, 78 in a feedback loop to automatically adjust the angular orientation of the crawler tracks without having to stop the machine or manually adjust the tracks or swing legs. *Id.* at 12:37–13:2.

*E. Illustrative Claim*

The ’318 patent includes 18 claims, all of which Petitioner challenges. Claim 1, reproduced below, is the only independent claim.

1. A swing leg assembly configured to be coupled to a paving machine configured to move in a paving direction for spreading, leveling, and finishing concrete into a form having a generally upwardly exposed, finished concrete surface and terminating in lateral concrete sides, the swing arm assembly comprising:

- a swing leg configured to be coupled to the paving machine, and configured to pivot about a first axis to a first angular orientation relative to the paving machine;
- a jacking column coupled to the swing leg;
- a crawler track rotatably coupled to the jacking column, wherein the crawler track is configured to rotate about a second

axis to a second angular orientation relative to the jacking column;

a slew drive coupled to the jacking column and the crawler track, wherein the slew drive is configured to cause rotation of the crawler track relative to the jacking column;

a first sensor configured to emit a first signal corresponding to the first angular orientation;

a second sensor configured to emit a second signal corresponding to the second angular orientation; and

a processor configured to:

receive the first signal from the first sensor, and the second signal from the second sensor;

determine a change of the first angular orientation based on the first signal;

in response to determining the change of the first angular orientation, determine a target second angular orientation based on the determined change of the first angular orientation and the second angular orientation based on the second signal; and

send a control signal to the slew drive in order to cause the second angular orientation of the crawler track to rotate to the target second angular orientation.

Ex. 1001, 22:41–23:8.

*F. Asserted Prior Art and Proffered Testimonial Evidence*

Petitioner identifies the following references as prior art in the asserted grounds of unpatentability:

| Name     | Reference                                                                                                          | Exhibit |
|----------|--------------------------------------------------------------------------------------------------------------------|---------|
| Smolders | US 6,481,924 B1, issued Nov. 19, 2002                                                                              | 1021    |
| Rio      | US 7,523,995 B2, filed July 14, 2005, issued Apr. 28, 2009                                                         | 1006    |
| CIII     | GOMACO, Corp., “Commander III New Generation Trimmer/Paver Operator Service Manual, G21 Controls,” Rev. 1.4 (2002) | 1005    |

Petitioner contends that CIII is prior art under § 102(a)(1) and that Rio and Smolders are prior art under § 102(a)(1) and (2). Pet. 6. Petitioner also

contends that CIII is a printed publication. *Id.* at 20–22. Petitioner further provides a Declaration of William Singhose. Ex. 1002.

*G. Asserted Grounds*

Petitioner asserts that claims 1–8 are unpatentable on the following grounds:

| Claims Challenged | 35 U.S.C. § | References/Basis    |
|-------------------|-------------|---------------------|
| 1–8               | 103(a)      | CIII, Rio           |
| 2–7               | 103(a)      | CIII, Rio, Smolders |

Pet. 10.

## II. 35 U.S.C. § 325(d)

Petitioner argues that we should not use our discretion under § 325(d) to deny institution because, although the references asserted in this proceeding were cited during prosecution, the Examiner did not apply those references, did not indicate why the claims of the '318 patent were allowable over the same references, and erred in allowing the claims. Pet. 82–85.

Patent Owner argues that the references were presented and considered previously by the Office, and that Petitioner fails to show the Examiner erred in a manner material to patentability. Prelim. Resp. 17–25.

Pursuant to 35 U.S.C. § 325(d), in determining whether to institute an *inter partes* review, “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” In evaluating arguments under § 325(d), we use

[a] two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of

the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

*Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential); *see also Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to Section III.C.5, first paragraph) (listing factors (a)–(f) to consider in evaluating the applicability of § 325(d)).

*A. Whether the Same or Substantially the Same Prior Art or Arguments were Previously Presented to the Office*

The parties agree that CIII, Rio, and Smolders were previously presented to the Office. Pet. 83 (stating that “the applicant submitted CIII, Rio, Smolders, and the Board’s Final Written Decisions holding all claims in related patents obvious based on these references”); Prelim. Resp. 18–19; Ex. 1001, code (56).

*B. Whether the Office Erred in Evaluating the Art or Arguments*

Petitioner argues that (1) CIII, Rio, and Smolders were not applied during prosecution, (2) there is no indication that these references were considered other than signed Information Disclosure Statements, (3) Patent Owner never informed the Examiner that similar claims were found obvious, and (4) the Examiner never explained why the claims were allowable over these references. Pet. 83–84 (citing Ex. 1004, 164–167, 293–296, 308–310, 419–421, 479–481, 530–533, 548–550).

Petitioner also argues that its “Petition sufficiently demonstrates how CIII and Rio render each claim of the ’318 patent obvious, meaning the examiner erred in allowing the claims.” Pet. 85. Petitioner further argues that, because “the Board has already evaluated this combination for

substantially similar claims and found the claims obvious, this combination warrants reconsideration.” *Id.*

Patent Owner argues that Petitioner fails to show that Examiner erred in a manner material to patentability, Petitioner has the burden to demonstrate error, and the Examiner confirmed that documents from the related Board proceedings were reviewed. Prelim. Resp. 20 (citing Ex. 1004, 555). Patent Owner also argues that “it would be unreasonable to conclude that the Examiner did not consider the [Final Written Decisions of related proceedings]” because those decisions were cited in Information Disclosure Statements and that “silence regarding references presented to and considered during prosecution does not establish material error by the Examiner.” *Id.* (citing Ex. 1004, 328–329, 415–421, 432–433, 478–483, 532–533, 544–558, 561).

Patent Owner further argues that Petitioner failed to show that the Examiner overlooked relevant teachings from CIII, Rio, and Smolders and that Petitioner’s assertion of a reasonable likelihood of prevailing on its challenges does not show material error by the Examiner and does not satisfy Petitioner’s burden. Prelim. Resp. 21–22 (citing Pet. 85). Patent Owner contends that Petitioner confuses its burden to show material error with its burden to establish reasonable likelihood of prevailing. *Id.* at 22.

Petitioner’s reliance on collateral estoppel to show material error, Patent Owner argues, fails because the issues raised in this proceeding and previous proceedings materially differ. Prelim. Resp. 22 (citing Pet. 85). Patent Owner also argues that, even if the references were assumed incorrectly to show all the claim elements, that does not show material error because the Examiner determined that the prior art does not disclose or suggest claimed features or render obvious the claims, and that Petitioner

identifies no error in the Examiner's determination. *Id.* at 22–23 (citing Ex. 1004, 485, 548–550). Patent Owner further argues that, because Petitioner has not established material error, the Board should defer to the Examiner's evaluation of the same evidence. *Id.* at 23–24. In Patent Owner's view, no additional evidence or facts warrant reconsideration, such as Petitioner's attorney arguments and declaration regarding estoppel. *Id.* at 24–25. Patent Owner additionally argues that, if such attorney arguments and declaration were sufficient, "then discretionary denials under § 325(d) would be nonexistent." *Id.* at 25.

*Becton, Dickinson* identifies the following non-exclusive factors: (a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which petitioner relies on the prior art; (e) whether petitioner has pointed out sufficiently how the examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the petition warrant reconsideration of the prior art or arguments. *See Becton, Dickson*, Paper 8 at 17–18 (§ III.C.5, first paragraph).

*Advanced Bionics* stated that:

If, after review of factors (a), (b), and (d), it is determined that the same or substantially the same art or arguments previously were presented to the Office, then factors (c), (e), and (f) relate to whether the petitioner has demonstrated a material error by the Office. Factor (c) focuses on the record developed by the Office in previously reviewing the art or arguments. It informs, therefore, the petitioner's showing under factors (e) and

(f), which focus on the petitioner’s evidence of previous Office error regardless of the context in which the same or substantially the same art or arguments were previously presented. For example, if the record of the Office’s previous consideration of the art is not well developed or silent, then a petitioner may show the Office erred by overlooking something persuasive under factors (e) and (f). On the other hand, if the alleged error is a disagreement with a specific finding of record by the Office, then ordinarily the petitioner’s required showing of material error must overcome persuasively that specific finding of record. That is, although *Becton, Dickinson* factor (c) evaluates “the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection,” the focus should be on the record when determining whether the Office erred in evaluating such art or arguments.

*Advanced Bionics*, Paper 6 at 10–11.

*Becton, Dickinson* factors (c) and (f) weigh against exercising our discretion under § 325(d).<sup>1</sup> We agree with Petitioner that claim 1 of the ’318 patent is substantially similar to claim 1 of the ’749 patent. *Compare* Ex. 1001, 22:41–23:8, *with* Ex. 1033, 22:40–67. Under factor (c), Petitioner shows that the Office’s previous consideration of CIII, Rio, and Smolders was not well developed. Pet. 83–84; Ex. 1004, 164–167, 293–296, 308–310, 419–421, 479–481, 530–533, 548–550. For example, none of these references were applied, and no statement was made to explain why the claims of the ’318 patent were deemed allowable over these references. *See id.* at 308–310, 419–421, 479–481, 548–550.

Petitioner persuasively shows, under factor (f), that the additional evidence and facts presented in its Petition warrant reconsideration of CIII,

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<sup>1</sup> The parties do not dispute that the same or substantially the same art or arguments previously were presented to the Office, so we move to the second part of the *Advanced Bionics* framework.

Rio, and Smolders. Pet. 85. In particular, we agree that, because “the Board has already evaluated this combination [of CIII and Rio] for substantially similar claims and found the claims obvious [in IPR2020-01698], this combination warrants reconsideration.” *Id.*

Thus, *Becton, Dickinson* factors (c) and (f) show that the Office erred in a manner material to the patentability of challenged claims. *Advanced Bionics*, Paper 6 at 8. Accordingly, we decline to exercise our discretion under § 325(d).

### III. ANALYSIS

#### A. Legal Standards

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent [claim] it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). This burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). The Board may authorize an *inter partes* review if we determine that the information presented in the Petition shows that there is a reasonable likelihood that Petitioner will prevail with respect to at least one of the claims challenged in the Petition. 35 U.S.C. § 314(a).

Petitioner contends that the challenged claims of the ’318 patent are unpatentable under § 103. Pet. 6–7. A claim is unpatentable under § 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. *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) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). When evaluating a combination of teachings, we must also “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)). Whether a combination of elements produces a predictable result weighs in the ultimate determination of obviousness. *Id.* at 416–417.

*B. Level of Ordinary Skill in the Art*

Petitioner argues that a person of ordinary skill in the art “would have had at least a four-year degree in mechanical engineering or a closely related field and at least two years of experience designing, developing, or operating heavy machinery, including their components and control systems.” Pet. 8–9 (citing Ex. 1002 ¶¶ 22–24). Petitioner also argues that “[a]dditional experience could substitute for a formal degree, and an advanced degree could substitute for experience.” *Id.* at 9 (citing Ex. 1002 ¶¶ 22–25). Petitioner states that “[t]he Board adopted this definition of the level of ordinary skill for the related ’749 patent.” *Id.* (citing *Godbersson-Smith Const. Co. v. Guntert & Zimmerman Const. Div., Inc.*, IPR2020-01698, Paper 80, 21–24 (PTAB Apr. 12, 2022) (Final Written Decision)).

For purposes of its Preliminary Response, Patent Owner applies Petitioner’s proposed level of ordinary skill in the art. Prelim. Resp. 13 (quoting Pet. 8–9).

Based on the preliminary record, we adopt Petitioner’s asserted level of ordinary skill to determine whether there is a reasonable likelihood that

Petitioner would prevail with respect to at least one of the claims challenged in the Petition. Pet. 8–9; *Godbersson-Smith*, Paper 80 at 21–24 (determining level of ordinary skill after considering the parties’ competing proposals and evidence).

### C. Claim Construction

In an *inter partes* review, the claims are construed

using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

37 C.F.R. § 42.100(b) (2021); *see Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc).

Petitioner contends that “the Board need not construe the claims in this proceeding.” Pet. 9 (citing Ex. 1002 ¶ 20). Petitioner also indicates that, in related litigation, the parties dispute the interpretation of certain terms of the ’318 patent, but “the asserted prior art discloses embodiments within the scope of both parties’ constructions.” *Id.* (citing Ex. 1002 ¶ 20).

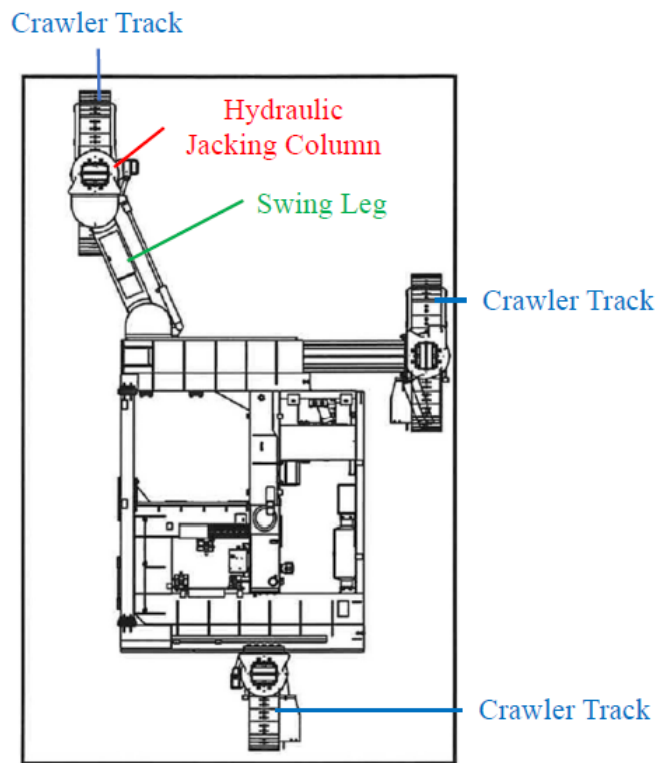
Patent Owner does not propose an interpretation for any claim term. *See generally* Prelim. Resp.

At this preliminary stage, we determine that express claim interpretation is not necessary to determine whether Petitioner shows a reasonable likelihood of prevailing. *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)).

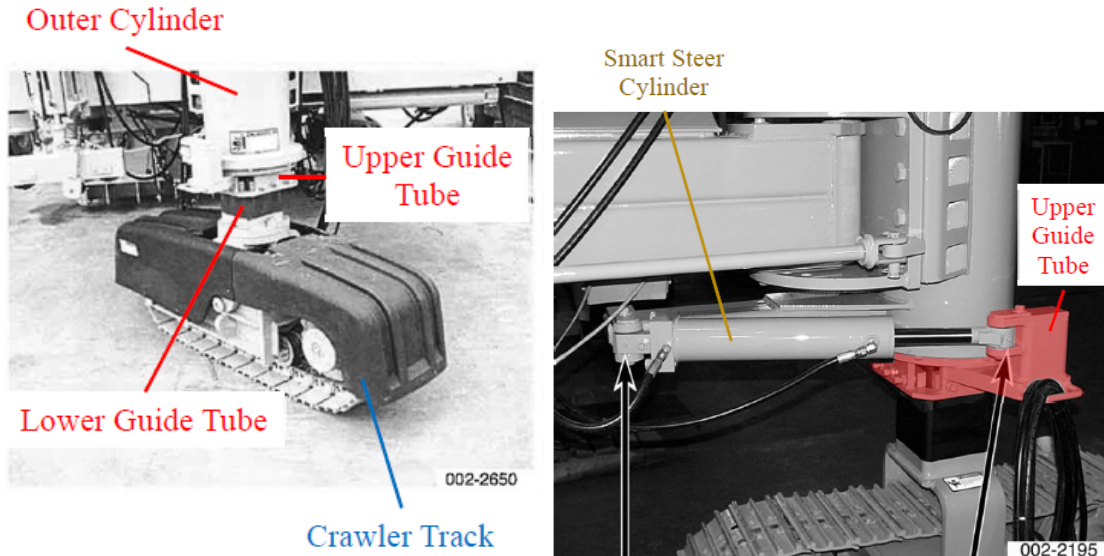
*D. Asserted Obviousness of Claim 1 Based on CIII and Rio*

*1. CIII (Ex. 1005)*

CIII, titled “Commander III New Generation Trimmer/Paver Operator Service Manual, G21 Controls,” is an operating manual for the Gomaco Commander III (“CIII paver”), one of Petitioner’s paving machines. *See* Ex. 1005, 4. We reproduce an annotated version of a drawing of the CIII paver, below.



Pet. 11. This image depicts a plan view of a three-crawler version of the CIII paver, with annotations added by Petitioner that identify the crawler tracks, jacking column, and swing leg. We reproduce two additional images from CIII bearing Petitioner’s annotations below.

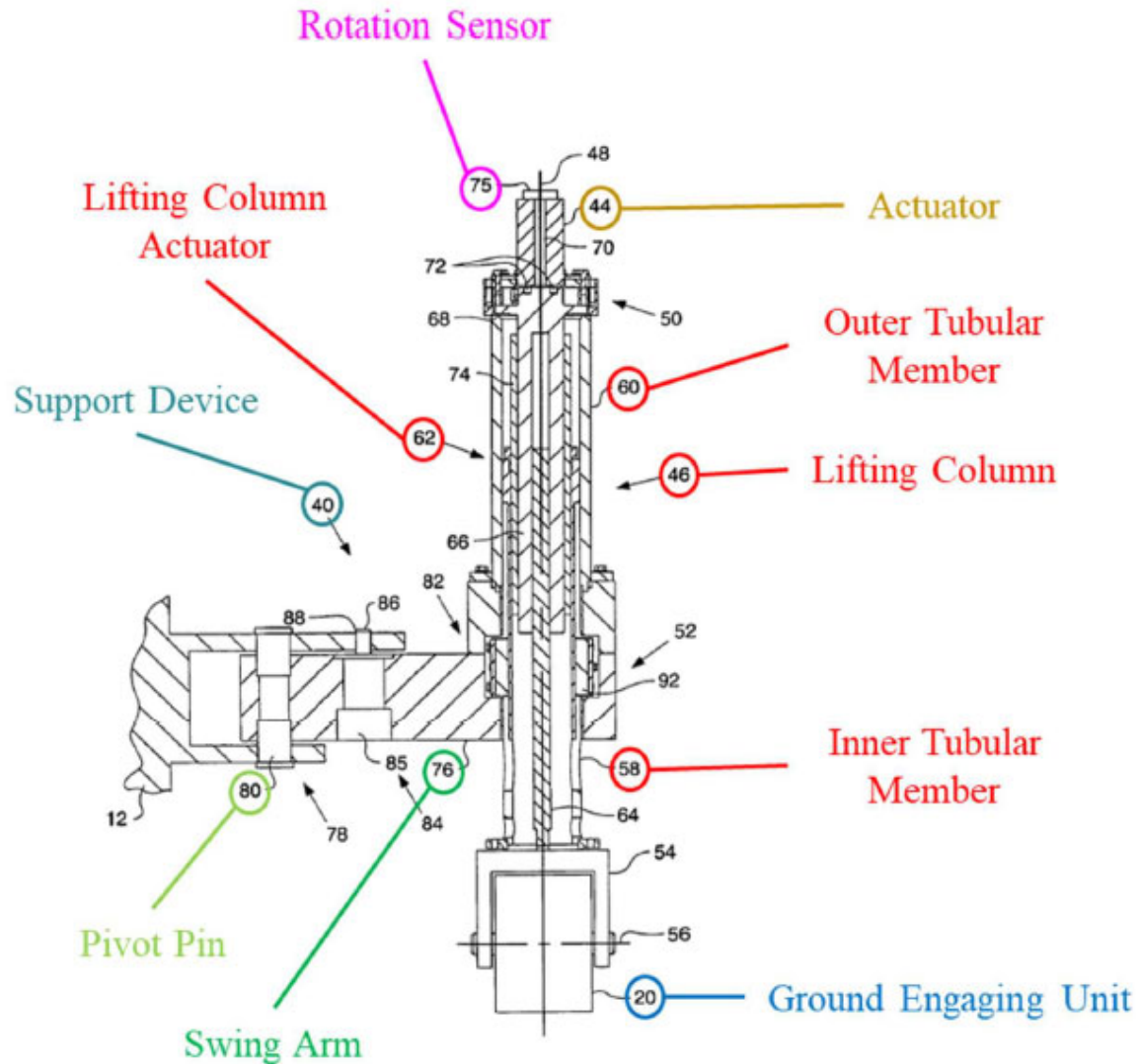


*Id.* at 13, 14. The image on the left depicts an annotated image of a crawler and lower portion of a jacking column of CIII, and the image on the right depicts a “smart steer cylinder” attached to the lower portion of the jacking column. *Id.* at 13–14 (citing Ex. 1005, 165, 407–409). “[T]he steering cylinder, when actuated, rotates the guide tubes and crawler connected to the lower guide tube together relative to the outer cylinder.” *Id.* at 13 (referencing Ex. 1005, 193–195, 373–374, 407–409).

CIII includes an electronic steering system that includes a sensor, feedback potentiometer, servo valve, and control loop. Ex. 1005, 407. “The feedback pot[entiometer] measures the position of the track and sends a continuous signal to the [controller], indicating the track position” and the controller compares the steer and feedback potentiometer signals and causes the track to rotate to the desired orientation. *Id.* at 408.

## 2. *Rio* (Ex. 1006)

Rio is generally directed to machines that treat road surfaces, “and more particularly to a road planer or milling machine.” Ex. 1006, 1:5–7. We reproduce Rio’s Figure 2, as annotated in the Petition, below.



Pet. 23. Figure 2 depicts a longitudinal section of a portion of Rio's cold planer, showing a swing arm, lifting column, and ground engaging unit. Ex. 1006, 3:29–30, 3:62–64, 4:51–53, 6:12–15. Annotations identify ground engaging unit 20, support device 40, actuator 44, lifting column 46, inner tubular member 58, outer tubular member 60, lifting column actuator 62, rotation sensor 75, swing arm 76, and pivot pin 80.

Actuator 42 (not depicted above) connects to support device 40 and pivots swing arm 76 relative to frame 12. Ex. 1006, 4:40–44; *see id.*, Fig. 3 (depicting actuator 42). Actuator 44 rotates ground engaging unit 20 to

maintain it in the proper orientation in response to swing arm 76 pivoting. *Id.* at 4:44–47. Controller 32 controls the movement of actuators 42, 44. *Id.* at 4:47–50. Support device 40 includes lifting column 46, which is associated with ground engaging unit 20. *Id.* at 4:51–53. Actuator 44 is connected to lifting column 46 and causes at least a portion of the lifting column 46 to rotate about axis 48 to change the orientation of ground engaging unit 20. *Id.* at 4:56–59.

Preferably, at least one of actuators 42, 44 is a rotary actuator, such as “a double helix sliding spline design to produce high torque rotary motion in a compact device.” Ex. 1006, 4:61–5:1. “[O]ther rotary actuators such as worm or sun gear designs . . . may also be employed with good result. Such use of a rotary actuator provides a compact apparatus to achieve rotary motion without the need for complicated and bulky linkages, and . . . provide[s] fine rotary steering control.” *Id.* at 5:1–7. Rio discloses that “actuator 44 [may be] positioned on the lifting column 46 at a location spaced apart from . . . actuator 42 along . . . axis 48,” and, “[p]referably, . . . is located at an upper portion 50 of the lifting column 46.” *Id.* at 5:8–12.

Controller 32 receives ground engaging unit pivot position signal 122 and ground engaging unit rotational position signal 124. Ex. 1006, 6:65–7:13. Pivot sensor 83 generates signal 122 to indicate the instantaneous angular position of swing arm 76 relative to frame 12. *Id.* at 7:19–23. Rotation sensor 75 generates signal 124 to indicate the instantaneous rotation angle of the ground engaging unit 20. *Id.* at 7:23–27. Controller 32 sends control signals to actuators 42, 44. *Id.* at 7:28–30.

In operation, for example, controller 32 actuates actuator 42 to move swing arm 76. Ex. 1006, 8:18–32. “[P]ivot sensor 83 tracks this motion and sends responsive pivot position signals 122 to . . . controller 32,” which

“responsively actuates . . . actuator 44 to counter-rotate . . . ground engaging unit 20 to maintain it in the same running direction as [swing arm 76] moves toward the retracted position.” *Id.* at 8:32–37.

3. *Claim 1*

For “[a] swing leg assembly configured to be coupled to a paving machine configured to move in a paving direction for spreading, leveling, and finishing concrete into a form having a generally upwardly exposed, finished concrete surface and terminating in lateral concrete sides, the swing arm assembly comprising,” Petitioner argues that, if limiting, CIII discloses the preamble. Pet. 35–40 (citing Ex. 1002 ¶¶ 82–83; Ex. 1005, 199, 204–206, 209, 211, 240–245, 253–254, 265). Petitioner also argues that the Board previously found that CIII discloses similar recitations in the claims of the ’749 patent. *Id.* at 35–36 (citing *Godbersen-Smith*, Paper 80 at 95–96).

For “a swing leg configured to be coupled to the paving machine, and configured to pivot about a first axis to a first angular orientation relative to the paving machine,” Petitioner argues that CIII discloses four swing legs coupled to its four-track configuration paving machine and that the angular orientation of CIII’s swing legs can be adjusted to change between paving and transport modes. Pet. 40–41 (citing Ex. 1002 ¶ 84; Ex. 1005, 204–206, 209, 253–254). Petitioner also argues that the Board previously found that CIII discloses a similar limitation recited by the claims of the ’749 patent. *Id.* at 40 (citing *Godbersen-Smith*, Paper 80 at 64, 66–68, 95–96).

For “a jacking column coupled to the swing leg,” Petitioner argues that CIII discloses a jacking column with a lower guide tube that can telescope in and out of an upper guide tube to raise or lower a crawler track. Pet. 42–43 (citing Ex. 1002 ¶¶ 85–86; Ex. 1005, 38–39, 44, 74–75, 79, 173,

204–206, 209, 265). Petitioner also argues that the Board previously found that CIII discloses a similar limitation recited by the claims of the ’749 patent. *Id.* at 40 (citing *Godbersen-Smith*, Paper 80 at 64–65, 95–96).

For “a crawler track rotatably coupled to the jacking column, wherein the crawler track is configured to rotate about a second axis to a second angular orientation relative to the jacking column,” Petitioner argues that CIII discloses that its crawler track rotates around an axis relative to its jacking column. Pet. 43–45 (citing Ex. 1002 ¶ 87; Ex. 1005, 165, 193, 195, 204–206, 265, 373–374). Petitioner also argues that Rio discloses rotary actuator 44 on lifting column 46 along lifting column axis 48 to rotate a crawler track. *Id.* at 45 (citing Ex. 1002 ¶ 88; Ex. 1006, 4:56–5:16, 5:32–34, 6:2–6). Petitioner further argues that it would have been obvious to modify CIII’s swing leg assemblies to include rotary actuator 44 between the jacking column and crawler track. *Id.* (citing Ex. 1002 ¶ 89). According to Petitioner, the Board previously found that CIII and Rio would have rendered obvious a similar limitation recited by the claims of the ’749 patent. *Id.* at 43 (citing *Godbersen-Smith*, Paper 80 at 64–66, 95–96).

For “a slew drive coupled to the jacking column and the crawler track, wherein the slew drive is configured to cause rotation of the crawler track relative to the jacking column,” Petitioner argues that Rio discloses rotary actuator 44 can use a worm gear that would have been understood to be a slew drive. Pet. 46–47 (citing Ex. 1001, 11:40–61’ Ex. 1002 ¶ 91; Ex. 1006, 4:61–5:3; Ex. 1032, 84:12–86:17). Petitioner also argues that CIII and Rio would have rendered obvious the required slew drive. *Id.* at 46 (citing Ex. 1002 ¶¶ 90–92), 47 (citing Ex. 1002 ¶ 92; Ex. 1006, 5:8–11, 6:26). Petitioner further argues that the Board previously found that CIII and Rio would have rendered obvious a similar limitation recited by the claims of the

'749 patent. *Id.* at 46 (citing *Godbersen-Smith*, Paper 80 at 68–79, 95–96, 102).

For “a first sensor configured to emit a first signal corresponding to the first angular orientation,” Petitioner argues that Rio discloses pivot sensor 83 that emits pivot position signal 122 indicating the angular position of swing arm 76 relative to machine frame 12. Pet. 48–49 (citing Ex. 1002 ¶ 93; Ex. 1006, 6:22–26, 7:19–23, 8:32–34, Fig. 3). Petitioner also argues that it would have been obvious to use Rio’s pivot sensor 83 in CIII and that the Board previously found that CIII and Rio would have rendered obvious a similar limitation recited by the claims of the '749 patent. *Id.* at 47–48 (citing Ex. 1002 ¶¶ 93–94; *Godbersen-Smith*, Paper 80 at 66–67, 95–96), 49 (citing Ex. 1002 ¶ 94).

For “a second sensor configured to emit a second signal corresponding to the second angular orientation,” Petitioner argues that Rio discloses rotation sensor 75 that emits rotational position signal 124 associated with the angular position of the crawler track. Pet. 49–50 (citing Ex. 1002 ¶ 96; Ex. 1006, 6:6–11, 7:23–27, 8:38–39, Fig. 2). Petitioner also argues that signal 124 would have been understood to indicate the angular orientation of the crawler track relative to outer tubular member 60 of lifting column 46. *Id.* at 50–51 (citing Ex. 1002 ¶ 97; Ex. 1006, 5:54–56, 6:6–11, 8:39–47, Fig. 2). Petitioner further argues that one of ordinary skill in the art would have understood signals 122 and 124 are used so that ground engaging unit 20 remains parallel to machine frame 12. *Id.* at 51 (citing Ex. 1002 ¶ 98; Ex. 1006, 7:23–27, 8:38–47). Petitioner preemptively argues that, if Patent Owner asserts that sensor 75 does not emit a signal corresponding to the second angular orientation, then it would have been obvious for sensor 75 to do so. *Id.* at 51–52 (citing Ex. 1002 ¶ 99; Ex. 1005,

408, 412). Petitioner, thus, argues that it would have been obvious to implement Rio's rotation sensor 75 in CIII's swing-leg assembly. *Id.* at 52 (citing Ex. 1002 ¶ 100).

For "a processor configured to," Petitioner argues that CIII's controller and Rio's controller 32 would have rendered obvious the limitation. Pet. 52–53 (citing Ex. 1002 ¶¶ 101–110; Ex. 1005, 193–194, 407–408; Ex. 1006, 4:16–20, 4:47–50, 6:56–7:42, 8:31–9:14, Fig. 5). Petitioner also argues that the Board previously found that CIII and Rio would have rendered obvious a similar limitation recited by the claims of the '749 patent. *Id.* at 52 (citing *Godbersen-Smith*, Paper 80 at 67–68, 95–96).

For the processor configured to "receive the first signal from the first sensor, and the second signal from the second sensor," Petitioner argues that CIII modified by Rio's control system would receive pivot position signal 122 and rotational position signal 124. Pet. 53–54 (citing Ex. 1002 ¶ 103; Ex. 1006, 6:65–66, 7:11–13, 8:32–34, 8:38–39, Fig. 5). Petitioner also argues that the Board previously found that CIII and Rio would have rendered obvious a similar limitation recited by the claims of the '749 patent. *Id.* at 53–54 (citing *Godbersen-Smith*, Paper 80 at 67–68, 95–96).

For the processor configured to "determine a change of the first angular orientation based on the first signal," Petitioner argues that CIII modified by Rio would have rendered obvious the limitation because the combination sends a signal to rotate ground engaging unit 20 so that it remains parallel to machine frame 12. Pet. 54–55 (citing Ex. 1002 ¶¶ 104–105; Ex. 1006, 6:65–66, 7:11–12, 7:19–23, 8:31–47). Petitioner also argues that the Board previously found that CIII and Rio would have rendered obvious a similar limitation recited by the claims of the '749 patent. *Id.* at

54–55 (citing *Godbersen-Smith*, Paper 80 at 67–68, 95–96; Ex. 1002 ¶¶ 53, 104).

For the processor configured to, “in response to determining the change of the first angular orientation, determine a target second angular orientation based on the determined change of the first angular orientation and the second angular orientation based on the second signal,” Petitioner argues that Rio’s controller 32 receives signals 122 and 124 and then sends control signals to actuators 42, 44 to maintain ground engaging unit 20 in the running direction. Pet. 57 (citing Ex. 1002 ¶ 107; Ex. 1006, 7:19–33, 8:31–37, 8:38–47). According to Petitioner, Rio would have been understood to disclose the limitation. *Id.* at 57–58 (citing Ex. 1002 ¶ 108). Petitioner also argues that the Board previously found that CIII and Rio would have rendered obvious a similar limitation recited by the claims of the ’749 patent. *Id.* at 56–57 (citing *Godbersen-Smith*, Paper 80 at 67–68, 95–96; Ex. 1002 ¶¶ 53, 106).

For the processor configured to “send a control signal to the slew drive in order to cause the second angular orientation of the crawler track to rotate to the target second angular orientation,” Petitioner argues that Rio discloses controller 32 sending control signals to worm-gear rotary actuator 44 so that ground engaging unit 20 stays in the running direction and that the disclosure would have been understood to disclose the limitation. Pet. 58–59 (citing Ex. 1002 ¶¶ 109–110; Ex. 1006, 2:52–57, 3:5–22, 4:47–50, 4:61–5:3, 7:19–36, 8:31–9:14). Petitioner also argues that the Board previously found that CIII and Rio would have rendered obvious a similar limitation recited by the claims of the ’749 patent. *Id.* at 58 (citing *Godbersen-Smith*, Paper 80 at 67–68, 95–96).

*a) Petitioner's Asserted Reason for Modifying*

Petitioner argues with citations to the record that CIII and Rio are analogous art because they are in the same field of endeavor as the '318 patent and reasonably pertinent to the problems addressed by the '318 patent. Pet. 26–27.

According to Petitioner, “[i]t would have been obvious to use Rio’s rotary actuator instead of CIII’s steering cylinder to rotate each crawler track and to incorporate Rio’s teaching of a control system that maintains the track in a desired orientation as the corresponding swing leg pivots.” Pet. 27. Petitioner argues that one of ordinary skill in the art “would have been motivated to modify CIII by replacing each steering cylinder with Rio’s rotary actuator 44 (e.g., worm-gear design)” to provide “greater rotational range of motion,” have “greater maneuverability,” have “faster adjustments in crawler-track position,” “eliminate CIII’s manual adjustment,” and reduce risk during adjustment. *Id.* at 27–28 (citing Ex. 1002 ¶¶ 57, 58; Ex. 1005, 209; Ex. 1006, 9:37–45, Figs. 3, 4; Ex. 1008, 2:51–53, 7:36–60, Fig. 7; Ex. 1013 ¶¶ 41, 44).

Petitioner also argues that proposed modification would have provided “a compact apparatus,” “high torque,” “fine rotary steering control,” and “rotary motion without the need for complicated and bulky linkages.” Pet. 28 (citing Ex. 1002 ¶ 59; Ex. 1006, 4:66–5:7). Petitioner further argues that Rio provides a solution for CIII’s “bulky linkage[,]” and that rotary actuators were known in the art. *Id.* at 28–29 (citing Ex. 1002 ¶ 59; Ex. 1005, 408; Ex. 1007, 3:31–5:52; Ex. 1008, 2:51–53, 7:36–60, Fig. 7; Ex. 1009 ¶ 20, Fig. 2; Ex. 1010, 3; Ex. 1011, 4:7–16, Fig. 3).

Petitioner additionally argues that both Rio and CIII disclose angular position sensors and controllers for rotating crawler tracks. Pet. 29 (citing

Ex. 1002 ¶ 60; Ex. 1005, 407–408; Ex. 1006, 6:6–11, 8:39–47, 9:37–42). In Petitioner’s view, “[c]ombining aspects of these swing-leg assemblies would have involved substituting one known element for another according to known methods to yield predictable results.” *Id.* (citing Ex. 1002 ¶ 60).

According to Petitioner, one of ordinary skill in the art “would have known to mount Rio’s rotary actuator 44 on the bottom of CIII’s jacking column between the jacking column and crawler track” because such a mounting would have been a “design choice,” because of “the finite number of places to mount a rotary actuator with a worm-gear design,” and because it was a known design that provides maneuverability. *Id.* at 29–31 (citing Ex. 1002 ¶¶ 61–67; Ex. 1006, 5:8–11; Ex. 1007, 5:14–59, Figs. 4, 5; Ex. 1008, 7:35–53, Figs. 7, 20; Ex. 1009 ¶¶ 5, 19–20, Fig. 2; Ex. 1011, 4:7–16, Fig. 3; Ex. 1013 ¶¶ 41, 44–45).

Petitioner argues that one of ordinary skill in the art “would have been motivated to mount Rio’s rotary actuator with a worm-gear design in this way because it would have simplified CIII’s jacking column design,” “been routine and obvious,” been a known design, simplified manufacturing and maintenance, and reduced required rotating power. Pet. 31 (citing Ex. 1002 ¶¶ 68–74; Ex. 1010, 3:65–4:16, Fig. 3).

Petitioner also argues that one of ordinary skill in the art “would have been motivated to implement Rio’s control system in the CIII machine to automate rotation of each swing leg and crawler track” to eliminate manual adjustment, reduce cost, save time, and reduce risk of injury to operators. Pet. 32 (citing Ex. 1002 ¶¶ 75, 76; Ex. 1005, 79–80, 193–195, 209–211, 253, 407–408; Ex. 1006, 6:65–66, 7:11–13, 8:31–59). Petitioner further argues that it would have been “obvious to use the feedback system described in

Rio to simultaneously control the angles of the swing legs and crawler tracks in the CIII machine.” *Id.* (citing Ex. 1002 ¶ 76).

Petitioner additionally argues that it would have been “obvious to implement Rio’s rotation sensor to measure the rotation of the crawler track relative to the jacking column” because it would have been a routine substitution of known sensors. Pet. 33 (citing Ex. 1002 ¶ 77; Ex. 1006, 6:6–11). According to Petitioner, it was known to place a rotation sensor at the bottom of the jacking column to sense crawler track rotation. *Id.* (citing Ex. 1002 ¶ 77; Ex. 1006, 6:6–11; Ex. 1007, 5:34–42, 6:12–26, Figs. 4–6; Ex. 1008, 12:23–46, Fig. 3; Ex. 1009 ¶ 21).

Petitioner argues that one of ordinary skill in the art would have known to implement pivot sensor 83 as a rotary encoder or a linear sensor from Rio. Pet. 33 (citing Ex. 1002 ¶ 78; Ex. 1005, 79, 85; Ex. 1006 6:22–26). Petitioner also argues that one of ordinary skill in the art would have had a reasonable expectation of success in making the proposed combination. Pet. 34–35 (citing Ex. 1002 ¶ 81; Ex. 1009 ¶ 20, Fig. 2; Ex. 1013 ¶¶ 41, 44–45).

*b) Objective Indicia of Nonobviousness*

“Petitioner is unaware of any secondary considerations that would undermine obviousness here.” Pet. 81. Petitioner also argues that, in a previous proceeding, issues regarding nexus, purported long-felt need, industry praise, copying, and commercial success were decided against Patent Owner. *Id.* (citing *Godbersen-Smith*, IPR2020-01698, Paper 80, 82, 83, 85–86, 90, 93). Petitioner, thus, argues that Patent Owner should be estopped from raising the same issues in this proceeding. *Id.* 21–24.

*c) Patent Owner's Preliminary Response*

Patent Owner responds that neither CIII nor Rio disclose “a crawler track rotatably coupled to the jacking column” and “configured to rotate . . . relative to the jacking column.” Prelim. Resp. 25. Patent Owner argues that CIII and Rio both disclose a crawler track rotating with a component of the jacking column, and thus not rotating relative to the jacking column. *Id.* at 25–26 (citing Ex. 1001, 11:20–39; Ex. 1005, 378; Ex. 1006, 5:32–6:6), 27 (citing Pet. 45; Ex. 1006, 5:25–6:2). Patent Owner also argues that Petitioner does not address how one of ordinary skill in the art would have been motivated to combine the references as proposed. *Id.* at 27–28 (citing Pet. 31, 43–45). Patent Owner further argues that, unlike the claims of the ’749 patent, claim 1 here “requires that ***only the crawler track rotate relative to the jacking column.***” *Id.* at 26–27 (citing Pet. 42–45; *Godbersen-Smith*, IPR2020-01698, Paper 80 at 36–37, 64–65, Paper 24 (Decision Granting Institution), 23–26).

Patent Owner also responds that neither CIII nor Rio discloses “a slew drive coupled to the jacking column and the crawler track, wherein the slew drive is configured to cause rotation of the crawler track relative to the jacking column” because both are silent about using a slew drive to rotate only the crawler track relative to the jacking column. Prelim. Resp. 28 (citing Pet. 46–47). According to Patent Owner, Rio discloses rotating its inner tubular member 58 of its jacking column and would not have motivated an ordinarily skilled artisan to use a slew drive to rotate only a crawler track and no other part of a jacking column. *Id.* at 28–29 (citing Ex. 1006, 4:56–60, 5:11–14, 5:25–53). Patent Owner also argues that Petitioner relies on a broader interpretation of “between” from an earlier proceeding. *Id.* at 29 (citing Pet. 27–31, 46–47).

Patent Owner further responds that the proposed combination does not disclose “a processor used to determine a target angular orientation for the crawler track based upon changes in the angular orientation of the swing leg” and “us[ing] a control signal sent to a slew drive to match the orientation of the crawler track to the target angular orientation determined by the processor.” Prelim. Resp. 30. Patent Owner argues that it would not have been obvious to combine both

because *CIII* . . . only relies upon its processor without manual intervention when in STRING STEER to maintain crawler tracks along the guide line while *Rio* only discloses using its controller for limited steering of only one of the four ground engaging units preferably while the machine is stopped and its track raised off the ground.

*Id.* at 30–33 (citing Pet. 32–35, 52–59; Ex. 1005, 44, 52, 54–55, 77–80, 106–107, 277–281; Ex. 1006, 7:61–8:37, 9:15–42).

*d) Petitioner Shows a Reasonable Likelihood of Prevailing*

Based on the preliminary record, Petitioner shows a reasonable likelihood of prevailing in its challenge that *CIII* and *Rio* teach, suggest, or would have been understood to disclose the limitations of claim 1 and that one of ordinary skill in the art would have combined the references in the manner asserted with a reasonable expectation of success.

Turning to Patent Owner’s responsive argument regarding “a crawler track” that “is configured to rotate . . . relative to the jacking column,” Petitioner proposes modifying *CIII* in view of *Rio* “by positioning *Rio*’s rotary actuator 44 between the jacking column and crawler track, and using that rotary actuator *to rotate CIII’s crawler track relative to the entire jacking column*, rather than just its outer cylinder.” Pet. 45 (citing Ex. 1002 ¶ 89) (emphasis added); *see also id.* at 47 (citing Ex. 1002 ¶ 92; Ex. 1006,

5:8–11, 6:2–6). Petitioner argues such a modification would have been a design choice, one of a finite number of alternatives, obvious to try, and a known design that provides maneuverability. *Id.* at 29–31 (citing Ex. 1002 ¶¶ 61–67; Ex. 1006, 5:8–11; Ex. 1007, 5:14–59, Figs. 4–5; Ex. 1008, 7:35–53, Figs. 7, 20; Ex. 1009 ¶¶ 5, 19–20, Fig. 2; Ex. 1011, 4:7–16, Fig. 3; Ex. 1013 ¶¶ 41, 44–45). At this stage, Petitioner’s arguments and cited evidence sufficiently support for institution that the modification would have been made so that the proposed combination would have had “a crawler track” that “is configured to rotate . . . relative to the jacking column.”

Regarding claim 1’s “slew drive,” as discussed above, Petitioner proposes modifying CIII so that rotary actuator 44, the asserted slew drive, would be between the jacking column and crawler track. *See* Pet. 29–31. Petitioner also argues that, in the proposed combination, “actuating the rotary actuator causes the crawler track to rotate relative to the entire jacking column.” *Id.* at 47 (citing Ex. 1002 ¶ 92). The present record supports Petitioner’s argument that Rio’s worm gear actuator would have been understood to disclose a slew drive with support from the ’318 patent itself, the opinion of its declarant, and deposition testimony of Patent Owner’s expert in related litigation. *Id.* at 46–47 (citing Ex. 1001, 11:40–61; Ex. 1002 ¶ 91; Ex. 1006, 4:61–5:3; Ex. 1032, 84:12–86:17). At this stage, the cited evidence sufficiently supports for purposes of institution Petitioner’s argument that the proposed combination would have included the recited “slew drive.”

As for the recited processor, Petitioner relies on Rio, not CIII as argued by Patent Owner, for determining a target angular orientation for a crawler track based upon changes in the swing leg’s angular orientation and using a control signal sent to a slew drive to match the crawler track’s

orientation to the target angular orientation. *See* Pet. 55–59; Prelim. Resp. 31–32. Petitioner also proposes modifying CIII’s manual positioning of a swing leg to attach a turnbuckle and does not appear to be proposing to modify CIII’s string steer, as argued by Patent Owner. *See* Pet. 32; Prelim. Resp. 30–31, 32. Furthermore, Patent Owner’s argument that Rio must stop and lift a crawler track to adjust its angular rotation does not show a deficiency in Petitioner’s challenge, at this stage, because claim 1 does not appear to require that the adjustment must be done while the machine is running or while the crawler track is on the ground. For these reasons, on the preliminary record, Petitioner shows adequately for institution that the proposed combination of CIII and Rio would have had the processor of claim 1.

The parties also dispute whether collateral estoppel applies in this proceeding based on the Final Written Decision of IPR2020-01698. Pet. 7–8; Prelim. Resp. 11–12, 29–30. At this stage, even if collateral estoppel did not apply, for the reasons above, Petitioner shows a reasonable likelihood of prevailing in its challenge to claim 1. That said, we note for the parties that, for any issue we determine to be substantively the same as an issue in IPR2020-01698, we will analyze that issue in light of our previous findings and determinations.

#### *E. Remaining Challenges*

Claims 2–7 depend ultimately from claim 1. Ex. 1001, 23:9–24:16. Petitioner argues with citations to the record that CIII and Rio would have rendered obvious claims 2–7. Pet. 59–76. In another challenge, Petitioner argues with citations to the record that claims 2–7 are unpatentable over CIII, Rio, and Smolders. *Id.* at 77–81.

For the reasons above, we preliminarily determine that Petitioner demonstrates a reasonable likelihood of prevailing with respect to its challenge to claim 1 as unpatentable over CIII and Rio. We, therefore, institute review on all challenged claims on all grounds set forth in the Petition. 37 C.F.R. § 42.108(a); *see also SAS*, 138 S. Ct. at 1354.

#### IV. CONCLUSION

After considering the evidence and arguments presented in the Petition and the cited evidence, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing in proving that at least one of claims 1–8 of the ’318 patent is unpatentable, and thus, we institute an *inter partes* review of all challenged claims on all presented challenges. 37 C.F.R. § 42.108(a).

At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claim or any underlying factual and legal issues.

#### V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–8 of U.S. Patent No. 11,535,318 B2 is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 11,535,318 B2 shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

IPR2024-00835  
Patent 11,535,318 B2

For PETITIONER:

Jason E. Stach  
Luke J. McCammon  
David K. Mroz  
Sonja W. Sahlsten  
Robert K. High  
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER, LLP  
jason.stach@finnegan.com  
luke.mccammon@finnegan.com  
david.mroz@finnegan.com  
sonja.sahlsten@finnegan.com  
robert.high@finnegan.com  
Gomaco-IPRs@finnegan.com

FOR PATENT OWNER:

James Hannah  
Jeffrey H. Price  
Jenna Fuller  
KRAMER LEVIN NAFTALIS & FRANKEL LLP  
jhannah@kramerlevin.com  
jprice@kramerlevin.com  
jfuller@kramerlevin.com  
svdocketing@kramerlevin.com