

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THE TORO COMPANY
Petitioner,

v.

MTD PRODUCTS INC.,
Patent Owner.

Case IPR2016-00219
Patent 8,136,613

Before WILLIAM V. SAINDON, RICHARD E. RICE, and
TIMOTHY J. GOODSON, *Administrative Patent Judges*.

SAINDON, *Administrative Patent Judge*.

FINAL WRITTEN DECISION

Finding the Sole Challenged Claim Unpatentable
35 U.S.C. § 318(a); 37 C.F.R. § 42.73
Denying Patent Owner's Motion to Exclude Evidence
37 C.F.R. § 42.64

I. INTRODUCTION

We have jurisdiction under 35 U.S.C. § 6. We enter this Final Written Decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

With respect to the grounds asserted in this trial, we have considered the papers submitted by the parties and the evidence cited therein. For the reasons discussed below, we determine that Petitioner has shown, by a preponderance of the evidence, that claim 28 of U.S. Patent No. 8,136,613 (Ex. 1001, “the ’613 patent”) is unpatentable. We also deny Patent Owner’s Motion to Exclude Evidence.

A. Procedural History

Petitioner requested an *inter partes* review of claim 28 of the ’613 patent. Paper 1 (“Pet.”). Patent Owner filed a Preliminary Response to the Petition. Paper 7 (“Prelim. Resp.”). Upon consideration of the Petition and Patent Owner’s Preliminary Response, we instituted a trial on the challenged claim on one of the two asserted grounds. Paper 10 (“Dec. on Inst.”).

During the trial, Patent Owner filed its Response (Paper 14, “PO Resp.”), and Petitioner filed its Reply (Paper 18, “Pet. Reply”). We also permitted Patent Owner to file a Sur-Reply (Paper 22, “Sur-Reply”) and Petitioner to file a Sur-Sur-Reply (Paper 31, “Sur-Sur Reply”). An oral hearing was held. Paper 37 (“Tr.”).

B. Related Matters

The parties represent that the ’613 patent is asserted in *MTD Products Inc. v. Toro Company et al.*, 1:15-cv-00766-PAG (N.D. Ohio). Pet. 1; Paper 6, 2. Petitioner also has filed a petition challenging Patent Owner’s U.S.

Patent No. 8,011,458 (IPR2016-00194). Patent Owner identifies U.S. Patent No. 8,944,191 as a related patent and U.S. Patent App. No. 14/613,102 as a related application. Paper 6, 2.

C. The '613 Patent

The '613 patent is directed to a steering and driving system. Ex. 1001, Abstract. In particular, the patent is directed to the steering systems of Zero Turn Radius (ZTR) lawn mowers. *Id.* at 1:6–14; 4:39–40. Figure 5 of the '613 patent, reproduced below with color added and extraneous labeling removed by the Board, depicts this steering system:

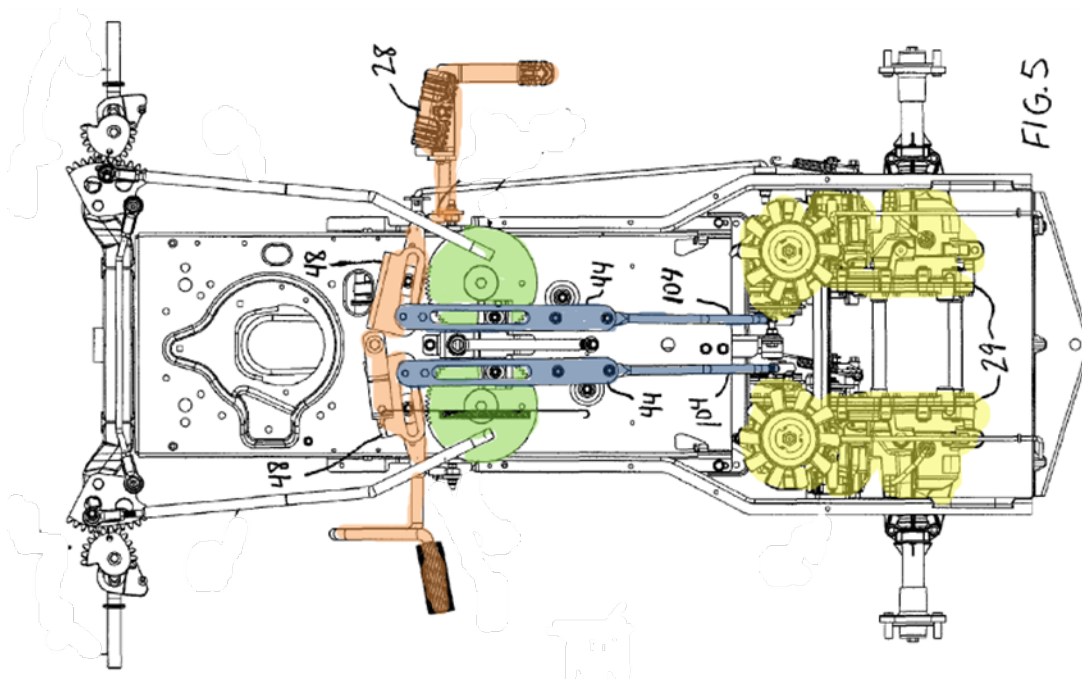


Figure 5 of the '613 patent shows speed control device 28 (in orange), left and right speed input members 48 (in orange), left and right control members 36 (item numbers not shown, colored in green), left and right integration links 44 and control rods 104 (in blue), and left and right drive units 29 (in yellow). Control rods 104 are connected to drive units 29 in a

manner such that the distance of the rod fore or aft of a neutral position causes the output of the corresponding drive unit to spin the wheel forward or backward with increasing speed. *See* Ex. 1001, 9:32–44; Fig. 14. Integration links 44 serve to integrate both speed control as well as steering control. *See, e.g., id.* at 9:57–10:21 (explaining how the linkages work as the vehicle is operated from straight forward movement to left forward movement). Although the vehicle may include steerable wheels, turning can also be facilitated by spinning the outside wheel faster than the inside wheel (relative to the radius of the turn). *See, e.g., id.* at 10:8–21. To do this, integration links 44 are connected in a manner such as to respond to forward and reverse speed inputs from speed input members 48 as well as steering inputs from control members 36. *See, e.g., id.* at 10:22–35 (providing an example of how the various components interact to make a full forward left turn), Fig. 9 (cited in this example); *see also* Figs. 5–13 (showing how the various components interact to make each forward/reverse/neutral and left/right/straight permutation).

D. Challenged Claim

Petitioner challenges claim 28, which is reproduced below.

28. A vehicle control system comprising:
a pair of integration links, each integration link having
a slot that is straight over substantially all of the
length of the slot, and each integration link being
movable in response to a speed input and configured
to:
lie in a plane parallel to any flat surface on which
a vehicle that incorporates the steering control
system is used; and

transmit a drive signal that is a product of any received steering input and any received speed input.

E. Prior Art and Instituted Grounds

We granted an *inter partes* review of the '613 patent on the question of whether claim 28 is anticipated by Seaberg.¹ Petitioner relies on the declaration of Fred P. Smith, a Professional Engineer with a background in mechanical engineering. Ex. 1004 ¶ 4.

II. PATENT OWNER'S MOTION TO EXCLUDE

Patent Owner moved to exclude Exhibits 1004 and 1025, the declarations of Petitioner's expert, Mr. Fred Smith. Paper 25 ("Mot."). Petitioner filed its Opposition (Paper 29), and Patent Owner filed its Reply (Paper 32).

Patent Owner's Motion argues that Mr. Smith is not qualified to testify as an expert in the relevant art. Patent Owner asserts that the "pertinent art" is "vehicle control systems." Mot. 2. Patent Owner relies on the testimony of its expert, Dr. Steven A. Velinsky, in support of its assertion of the pertinent art. Dr. Velinsky testifies, however, that the person of ordinary skill in the art would have "specific knowledge and experience in vehicle design *to allow understanding of* the requirements of the mechanism for vehicle power and steering control." *Id.* ¶ 24 (emphasis added). Accordingly, Patent Owner's assertion of the pertinent art is undermined by its own expert. That is, Dr. Velinsky's testimony indicates

¹ U.S. Patent No. 4,100,738, issued July 18, 1978 (Ex. 1002).

that knowledge allowing an understanding of vehicle control is sufficient. We are not convinced that experience specifically directed to vehicle control systems is necessary to qualify as a person of ordinary skill in the art. The remainder of this part of Patent Owner's Motion focuses on measuring Mr. Smith to the wrong standard, and is unpersuasive.

Instead, we find that Mr. Smith is sufficiently qualified by his experience and education to testify as an expert in this proceeding. In determining who is "qualified in the pertinent art" under Federal Rule of Evidence ("FRE") 702, we need not find a complete overlap between the witness's technical qualifications and the problem confronting the inventor or the field of endeavor for a witness to qualify as an expert. *SEB S.A. v. Montgomery Ward & Co.*, 594 F.3d 1360, 1372–73 (Fed. Cir. 2010) (upholding admission of the testimony of an expert who admittedly lacked expertise in the design of the patented invention, but had experience with materials selected for use in the invention); *Mytee Prods., Inc. v. Harris Research, Inc.*, 439 F. App'x 882, 886–87 (Fed. Cir. 2011) (non-precedential) (upholding admission of the testimony of an expert who "had experience relevant to the field of the invention," despite admission that he was not a person of ordinary skill in the art). Mr. Smith has experience in vehicle design, and has provided photographs of vehicles that he has helped design. See Ex. 1004, 62–63. Although Mr. Smith's expertise is mostly focused on linkages not related to steering, the relevant field here is vehicle systems, as agreed by Patent Owner's expert Dr. Velinsky and Mr. Smith. Ex. 2016 ¶ 24; Ex. 1004 ¶ 20. Once having demonstrated knowledge and experience in vehicle systems design, in combination with an engineering degree, we see little additional experience or knowledge

required for a person to have “specific knowledge and experience in vehicle design *to allow understanding of* the requirements of the mechanism for vehicle power and steering control.” Ex. 2016 ¶ 24 (emphasis added). Accordingly, we deny Patent Owner’s Motion to exclude Mr. Smith’s testimony on this basis.

Patent Owner also moves to exclude Mr. Smith’s testimony on the theory that he offers “improper attorney argument.” Mot. 6–7. To the extent any expert testifies as to patent law, we do not consider it. 37 C.F.R. § 42.65(a) (“Testimony on United States patent law or patent examination practice will not be admitted.”). Mr. Smith’s testimony is generally offered as an expert factual witness, not as a legal witness. As such, we see little reason to spend the resources to decide whether some of his testimony on particular claim language, for example, strays from factual opinion to legal opinion—issues of claim construction are a mixture of the two. *See Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 838 (2015) (“While we held in *Markman* that the ultimate issue of the proper construction of a claim should be treated as a question of law, we also recognized that in patent construction, subsidiary factfinding is sometimes necessary.”). Patent Owner’s Motion to exclude Mr. Smith’s testimony on this basis is denied.

Patent Owner next argues that Petitioner submitted belated evidence in its Reply. Mot. 8–12. Patent Owner argues that “Petitioner cannot submit additional, belated evidence in its Reply that supports its Petition if it could have been presented in a prior filing.” *Id.* at 8 (citing 37 C.F.R. § 42.23). This statement of the law is wrong. Our Rule instead states that “[a] reply may only respond to arguments raised in the corresponding . . . patent owner response.” 37 C.F.R. § 42.23. The mere fact that a Reply presents evidence

that was not in the record previously does not make that evidence improper. *See Genzyme Therapeutic Prods. Ltd. v. Biomarin Pharm. Inc.*, 825 F.3d 1360, 1367 (Fed. Cir. 2016) (“The purpose of the trial in an *inter partes* review proceeding is to give the parties an opportunity to build a record by introducing evidence—not simply to weigh evidence of which the Board is already aware.”).² Patent Owner blurs “belated evidence” with reply evidence; not all evidence first submitted in a reply is belated. Furthermore, we permitted Patent Owner to file a Sur-Reply to address arguments raised by Petitioner in its Reply.

Patent Owner next moves to exclude Exhibits 1026, 1027, and 1030–1035 as not relevant. Mot. 12–14. We do not rely on any of Exhibits 1026, 1027, or 1030 in our analysis below; we deny Patent Owner’s Motion as moot as it applies to these exhibits. As to Exhibits 1031–1035, these exhibits are patents that Patent Owner alleges Petitioner use “in support of its claim that Seaberg discloses integration links that lie in a plane parallel to any flat surface.” Mot. 14. Patent Owner argues that these references are “irrelevant” because they “actually disclose a vehicle on the ground plane in contrast to Seaberg.” *Id.* Petitioner argues that these references are used to support Mr. Smith’s testimony as to how a person of ordinary skill in the art would understand the term “horizontal.” Opp. 13–14. We agree with Petitioner that these references are relevant to demonstrate how a person of ordinary skill in the art use the term “horizontal,” and how a person of

² The issue of whether a given patent owner should be afforded an opportunity to respond to the new evidence is a separate issue.

ordinary skill in the art would understand the Seaberg disclosure. Patent Owner's motion as it applies to these exhibits is denied.

Patent Owner lastly moves to exclude portions of Exhibit 1025 (Mr. Smith's supplemental declaration) on the basis that Petitioner improperly incorporates it by reference. Mot. 15. As Patent Owner acknowledges, "the Board indicated that a motion to exclude is not ordinarily the proper vehicle to address improper incorporation by reference." *Id.* at 15; *see also* Paper 24. Indeed, we will address issues of incorporation on an argument-by-argument basis, as they come up in our analysis, and if we determine it to be a critical issue. To do otherwise would invite a quagmire of form over substance.

III. PATENTABILITY ANALYSIS

A. Claim Construction

We interpret the claims of an unexpired patent using the broadest reasonable interpretation in light of the specification of the patent. 37 C.F.R. § 42.100(b). Claim 28 of the '613 patent includes a pair of a single structure, "a pair of integration links." The remainder of the claim describes these integration links. The parties dispute what structure claim 28 requires of the integration links.

In the Petition, Petitioner proposed a construction of the term "movable" in which Petitioner asserted each integration link is movable in response to a speed input, and that the claim does not preclude any particular type of movement. Pet. 14–15. Thus, according to Petitioner, "movable" includes movement parallel to the ground (horizontal movement) as well as movement relative to the ground (vertical movement).

In its Preliminary Response, Patent Owner disputed Petitioner's proposed construction, focusing on the "configured to" language. Prelim. Resp. 10–26. Patent Owner argued that the claim requires that both the "lie in a plane" and "transmit a drive signal" elements of the "configured to" clause must happen both "simultaneously" and "during use" according to the claim language itself. *Id.* at 12–15. In effect, Patent Owner argued that "lie in a plane" constrained the "movable" limitation such as to define the movement to be in the plane only.

In our Decision on Institution, we determined that the critical term to construe was "lie in a plane," and we determined that, although the parties were arguing about different portions of the claim, they were essentially arguing over the meaning of this term. Dec. on Inst. 6–7. For the purposes of our Decision on Institution, we agreed with Petitioner that "movable" means "movable in any direction" and that an integration link "configured to lie in a plane" must be configured to lie in that plane but need not reside in that plane at all times.

During the trial, the parties offered their constructions of the "moveable" and "configured to lie in a plane" language that we construed in our Decision on Institution. Patent Owner proposes that "configured to lie in a plane" requires the integration links to *move* in a plane. PO Resp. 29 (offering the heading "Claim 28 Requires that Each Integration Link Move in a Specified Plane"); *see also id.* at 27–44 (setting forth the entire argument). Petitioner proposes that the claim requires the integration links to be moveable and to lie in a plane at some point in their use. Pet. Reply 6 ("[T]he claim still only describes the plane in which the integration links 'lie.'"); *see also id.* at 4–17.

Upon review of the parties' arguments and the evidence of record, we determine Petitioner's construction is commensurate with the broadest reasonable interpretation in light of the specification, and that the claim requires the integration links to be moveable and to be configured to lie in a plane. We first review the claim language itself, the claim language in view of other claims, the claim language in view of the specification, and then the claim language in view of the prosecution history.

1. Claim Language Itself

Patent Owner argues that the language of claim 28 itself provides clear meaning. PO Resp. 30–34. Patent Owner argues that the phrase “configured to” means that the structure is “made to” or “designed to” do something. *Id.* at 30–32. Patent Owner argues that that means “the claims do not encompass designs where the integration links are merely capable of existing, at some point in time, in a plane parallel to a flat surface upon which the vehicle is used.” *Id.* at 32. Patent Owner argues that such a construction “would appear to render the entire limitation superfluous.” *Id.* Patent Owner argues that “there would be no reason to claim a specific orientation (parallel to the ground) that applies only when the links are stationary and non-functioning.” *Id.* at 34. Patent Owner also argues that the “configured to” clause applies to a “vehicle that is transmitting a drive signal and is not idle.” *Id.* at 34 (emphasis omitted). According to Patent Owner, this means that the links must move in the plane parallel to the surface on which the vehicle is used. *Id.*

Petitioner argues that nothing in the claim requires the integration links to move only, or to always stay, in a certain plane. Pet. Reply 4–8.

Petitioner argues that Patent Owner’s argument regarding “configured to” and “designed to” “fails to explain how this distinction makes a difference in the underlying analysis.” *Id.* at 5. Petitioner argues that regardless of the choice, “the claim still only describes the plane in which the integration links ‘lie.’” *Id.* at 5–6. Petitioner argues that Patent Owner’s “use” argument “mistakenly equates ‘use’ with ‘[vehicle] movement.’” *Id.* at 6. Petitioner points out that the claim does not require the integration link to lie in a plane when a vehicle is moving, but rather when the vehicle is in use. *Id.*

Petitioner asserts that a vehicle in use is not necessarily moving. *Id.* (citing Ex. 2016 ¶ 50); *see also* Dec. on Inst. 10 (finding that vehicles operating a scoop or arm are in use but not moving); Ex. 1004, 62–63 (showing vehicles that can be used when not moving); Ex. 1033, Fig. 1 (showing a tracked vehicle with a scoop). Petitioner also argues that Patent Owner is essentially arguing that both limitations following the colon must happen simultaneously, but that the claim imposes no such requirement, and that each limitation after the colon is separate because there is nothing that links them. *Id.* at 7–8.

Petitioner has the stronger argument here. First, contrary to Patent Owner’s position, the claim does not require the integration links to *move* in a plane. The claim uses the broader term “lie.” Further, we do not see anything in the claim that requires the two elements following the colon after “configured to” to be performed at a certain time or simultaneously. The claim is not a method claim. Instead, the claim requires a certain structure for the integration links, and the two elements that follow the colon simply describe what those links are configured to do. Specifically, the elements after the colon require that the integration links are configured to

lie in a particular plane and to transmit a drive signal. While the claim is certainly broad enough to cover the configuration proposed by Patent Owner, where the integration link lies in a certain plane when it transmits a signal that causes the vehicle to move, we do not agree that there is language requiring all signals to be conveyed while the link is in that plane.

Patent Owner is essentially rewriting the claim in one of two ways. The first is to rewrite “lie in a plane” to be “move in a plane,” but the claim uses the word *lie* not *move*. Patent Owner’s second rewrite of the claim is to say that the integration link is “movably configured to:” as opposed to “movable . . . *and* configured to:” (emphasis added). See Tr. 125:12–16 (arguing the claim means “movabl[y] configured to lie in a plane”). This argument is also unpersuasive. Where the claim says that “each integration link being movable in response to a speed input and configured to:,” we read two separate limitations, separated by the conjunction “and.” The first limitation is that the link is “movable” in response to a speed input, and the second limitation is that the link is “configured to” meet certain additional requirements.

As to Patent Owner’s argument that Petitioner’s interpretation of “lie in a plane” reads out the limitation, we disagree. The claim requires an integration link configured to lie in a certain plane. The claim precludes those integration links that are not configured to lie in the claimed plane. For example, as we discussed in our Decision to Institute, the integration link in Engel (Ex. 1003) is not configured to lie in the claimed plane because it is always vertically oriented, and in no instance is it parallel to any flat

surface on which the vehicle is used.^{3,4} Dec. on Inst. 10 (acknowledging Patent Owner’s argument in the Preliminary Response that Engel’s integration links are vertically-oriented and never lie in the claimed plane); *id.* at 15 (finding that “the orientation of [the integration link] in Engel [is] vertical”); *id.* at 16 (not instituting on the Engel ground). Accordingly, Petitioner’s interpretation does not render the “lie in a plane” phrase superfluous, and our Decision not to institute on the Engel ground demonstrates that Petitioner’s construction gives real meaning to the term in the context of this art. It precludes integration links that do not lie in the claimed plane, for example, any vertically-oriented integration link in the prior art like Engel.

As to Patent Owner’s argument that Petitioner’s interpretation reads out the “is used” aspect of limitation, we disagree. *See* PO Resp. 34. Patent Owner presumes that *in use* means when the integration link is used in a certain way (e.g., when the vehicle is moving), but Patent Owner does not explain why such a narrow construction is proper. The claim limitation is more broadly directed to when the *vehicle* is used. This does not read out the “is used” aspect of the claim, because we agree with Petitioner that it is normal for vehicles to be used when they are not moving (e.g., when operating a scoop).

³ Engle is U.S. Patent 3,927,527 (Ex. 1003). Engle was asserted by Petitioner in a single-reference obviousness ground in the Petition, which we denied.

⁴ For example, the Engel vehicle tipped over on its side would have an integration link parallel to the ground, but then the vehicle would not satisfy the in use portion of the limitation.

Patent Owner’s argument that the phrase “configured to:” is narrower than the phrase “capable of” does not persuade us that Petitioner’s construction is improper. *See* PO Resp. 30–32. Even taking Patent Owner’s understanding that “configured to” means “designed or constructed,” Petitioner’s construction allows for this definition. *See also* Pet. Reply 5 (arguing that “Patent Owner fails to explain how this distinction makes a difference in the underlying analysis”). Specifically, under Petitioner’s construction, an integration link that lies in the claimed plane is deliberately designed or constructed to do so, and is distinguished from an integration link that is not designed or constructed to lie in the claimed plane (such as Engle). Thus, the phrase “configured to” does not require the integration link to move in a plane, as Patent Owner argues.

2. The claim in context with the other claims.

Patent Owner argues that the other claims of the patent substantiate its position that the “configured to” clause of claim 28 should be construed to cover an integration link that moves parallel to any flat surface on which a vehicle is used. PO Resp. 34–36. Patent Owner points to independent claim 30, which has an identical “configured to” clause, and additional limitations that describe control members having axes that are normal to any flat surface on which the vehicle is used. *Id.* at 35. As we understand it, Patent Owner’s argument is that this claimed configuration is the same as that shown in Figure 3 of the ’613 patent, in which the integration links depicted therein generally do move while captured in the claimed plane. *But see, e.g.,* Pet. 15–16 (asserting that the integration links would necessarily have some

degree of movement normal to the claimed plane). Patent Owner argues that Petitioner's construction is "untenable in claim 30." *Id.* at 36.

Petitioner argues that nothing in claim 30 compels the "configured to" language of claims 28 and 30 to be construed to mean that the integration link only moves in a plane horizontal to the ground. Pet. Reply 15–16.

We do not agree with Patent Owner that claim 30 constrains us to read claim 28 narrowly. In effect, Patent Owner is arguing that claim 30 recites additional features that mandate a particular interpretation of the integration links, and that we should retain that interpretation for claim 28, even though that claim does not have those features. In our view, this strengthens Petitioner's position that the term is broader, because in order to claim the particular embodiment of Figure 3, Patent Owner needed to recite additional limitations. Petitioner's interpretation is broad enough to include the Figure 3 embodiment, such that there is no inconsistency in using Petitioner's interpretation for both claims 28 and 30; the net result is that claim 28 is broader than claim 30, due to the additional limitations in claim 30.

3. The claim in view of the specification.

Patent Owner argues that the patent specification "consistently and pervasively discloses that each link *moves* in a plane parallel to any flat surface on which a vehicle is used." PO Resp. 36–42. Patent Owner directs us to Figures 5–12, as well as a number of other pinpoint citations. Patent Owner also directs us to the testimony of its expert, Dr. Velinsky, who essentially repeats Patent Owner's argument. Patent Owner's argument and Dr. Velinsky's testimony is that a person of ordinary skill in the art would consider the specification to disclose a "planar linkage." *Id.* at 36–37; Ex.

2016 ¶¶ 31–34. Patent Owner argues that every embodiment in the specification supports its particular construction. *Id.* at 41–42.

Petitioner argues that just because some portions of the specification describe lateral motion of the integration links, the specification does not foreclose the integration links moving in a vertical plane. Pet. Reply 14–15. Petitioner points out that the specification states “the present systems and devices are not intended to be limited to the particular forms disclosed.” *Id.* at 15 (citing Ex. 1001, 11:35–39). In addition, Petitioner argues that the specification teaches some amount of movement in a vertical plane. Pet. Reply 8–14. Petitioner’s argument is that, as shown in Figure 14, the connection of control mechanism 106 depicts an arcuate slot, which means that control mechanism 106 also moves around an arc, and then because the integration link is attached to the end point of control mechanism 106, it also moves around that arc. *See id.*

Reviewing Patent Owner’s citations to the specification and figures, we do not find multiple embodiments, but rather a single embodiment. The specification tells us that the figures are all different views of the vehicle depicted in Figure 1. Ex. 1001, 3:36–4:5 (noting that each of Figures 2–14 are a “view” “of the control and steering assemblies of the vehicle of FIG. 1”). The corresponding discussion in the specification, therefore, is also discussing that single embodiment. The claim is broader than this embodiment, as there are no limitations that constrain the particular way the link moves and nothing inherent in the structure of the claimed link itself that requires it to move in a particular way. It is well settled that broad claim language should not be limited by embodiments in the specification, even if there is only a single embodiment. *In re Bigio*, 381 F.3d 1320, 1325 (Fed.

Cir. 2004) (“[a]bsent claim language carrying a narrow meaning, the PTO should only limit the claim based on the specification or prosecution history when those sources expressly disclaim the broader definition.”); *Liebel-Flarsheim Co. v. Medrad Inc.*, 358 F.3d 898, 906 (Fed. Cir. 2004) (discussing cases wherein the court expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment). Accordingly, we are not persuaded by Patent Owner’s argument that multiple embodiments describe the integration link in a manner that supports its proposed construction.

In addition, we are persuaded by Petitioner’s argument that the specification instead discloses the integration link is not constrained to a particular plane. We credit the testimony of Petitioner’s expert, Mr. Smith, that a person of ordinary skill in the art would understand Figure 14 to show that the integration link in the single disclosed embodiment moves in the vertical plane. Ex. 1004 ¶¶ 43–45, 50; Ex. 1026 ¶¶ 29–42. We agree that a rigid body attached to the end point of the rotating control plate 106 would move in an arc; thus, the integration link would also move in an arc. Mr. Smith’s testimony is not speculative, but rather based on what is shown specifically in Figure 14. His testimony is also bolstered by what is shown in Figure 4, which shows control plate 106 attached to link 104. Ex. 1025 ¶¶ 39–41 (Mr. Smith, explaining how this arrangement bolsters his conclusion). We disagree with Patent Owner (PO Resp. 40–41) that Mr. Smith may only rely on what is written in the specification. See *In re Mraz*, 455 F.2d 1069, 1072 (CCPA 1972) (holding that description via drawings and pictures can be relied upon alone).

Patent Owner's expert, Dr. Velinsky, argues that it is possible for the integration link to maintain horizontal movement without vertical movement if a small vertical slot was used at the end of control mechanism 106, where the integration link was attached, or, if loose connection tolerances were used between drive rods 104, and integration links 44. Ex. 2016 ¶¶ 36–38. But Dr. Velinsky does not explain why a person of ordinary skill in the art would not understand the more plain interpretation of Figure 14 offered by Mr. Smith. Even if a convoluted mechanism could be used in Figure 14, that does not tend to show that Mr. Smith is incorrect. Further, as Mr. Smith points out, the figures are drawn to scale in the '613 patent, and Figure 4 does not show a small vertical slot or loose tolerance. Ex. 1025 ¶¶ 39–41. We also find, based on the testimony of Mr. Smith, that vertical slots or loose tolerances would cause a loose connection, which would not be as responsive to inputs, rendering speed control and steering control less effective. *Id.* ¶ 42. Accordingly, we credit the testimony of Mr. Smith that the embodiment described in the '613 patent does not always lie in a plane parallel to the ground.

Based on our reading of the evidence and arguments before us, the plain meaning of an integration link that is movable and configured to lie in a plane parallel to the ground is satisfied by an integration link that is movable and is designed such that, during normal use of the vehicle, it will lie in a plane parallel to the ground. This is so even if sometimes it does not lie in a plane parallel to the ground, because even if it does not always lie in that plane, it will still actually lie in a plane parallel to the ground at some point during normal use of the vehicle. Accordingly, Patent Owner's proposal to limit the movement of the integration link to be wholly

constrained within this plane is different from the plain meaning of the term, and the specification does not convey to a person of ordinary skill in the art that the claim should be read more narrowly than its plain meaning. The specification provides a single embodiment. Patent Owner further argues that the single embodiment has the benefit of being space-saving, where it states that “lateral orientation of components such as control members 36 and integration links 44 can reduce the amount of space that steering assembly 20 and control system 40 occupy.” PO Resp. 40 (citing Ex. 1001, 7:18–21). Notably, however, the specification here is describing “lateral orientation” of control members *and* integration links, the combination of which is found in independent claims 30 and absent from the claim at issue. Claim 28 is also missing any indication that it, rather than claim 30, or any other claim, is attempting to claim space-saving benefits. There is no requirement that every claim captures every benefit recited in the specification, and there is no requirement that each feature in the specification is imported into the claim. Accordingly, we find no reason why a person of ordinary skill in the art would read in such limitations to claim 28.

4. The prosecution history

Patent Owner argues that the prosecution history supports its position. PO Resp. 42–44. Patent Owner’s argument is that the examiner cited to a reference that had integration links that moved in a plane parallel to the ground, and that the examiner must have interpreted claim 28 to have such a requirement. *Id.* (citing Ex. 1023, 190). Petitioner argues that the examiner was focused instead on whether the prior art disclosed an integration link

moving in response to a speed limit at all, and had nothing to do with whether the integration links moved in any particular direction. Pet. Reply 16–17.

The prosecution history of the application that led to the '613 patent was brief. Ex. 1023, 21–27 (original claims), 145–147 (first office action), 173–175 (applicant's response), 166–172 (amended claims in response), 190–191 (notice of allowance). Relevant to our investigation here, original claims 1, 28, and 31 each include an “integration link” limitation. Original claim 1 recited the integration link without further context; claim 28 included the integration link with the “lie in a plane” limitation; claim 31 also required an integration link with a “lie in a plane” limitation. The examiner rejected these three claims on three separate anticipation grounds. Ex. 1023, 145–147.

a. Ishimori

The first rejection was based on Ishimori. Patent Owner argues, and there appears to be no dispute, that Ishimori discloses integration links that are always parallel to the ground. See PO Resp. 42–43. The examiner found that item numbers 36a and 29 correspond to the first and second integration links of claims 1 and 28. Ex. 1023, 145–146; *see also* Ex. 2006, Fig. 2 (depicting the alleged integration links). After the rejection, Patent Owner amended the claims to require the integration links to be “movable in response to a speed input,” and argued that Ishimori's alleged integration links do not move *in response to speed input*. Ex. 1023, 173–174. The examiner subsequently allowed these claims. *Id.* at 190. The prosecution history here suggests that the “movable” limitation was intended to capture the idea of being movable *at all* in response to a speed limit, and not a

particular type or orientation of movement. Thus, the prosecution history does not support Patent Owner's argument.

b. Schaedler

The examiner's second anticipation rejection was over Schaedler. Ex. 1023, 146–147. The examiner found that the integration links of claim 1, which do not have “lie in a plane” limitations, were satisfied by items 104 in Figure 2B. *Id.* Items 104 must move relative to the ground plane in order to operate, and are specifically designed to do so, as demonstrated by the presence of slot 119. Ex. 1021, Figs. 14, 15. Patent Owner did not argue this aspect of the rejection. *See* Ex. 1023, 10.

Patent Owner did argue, however, the orientation of other components. The examiner found that speed cam 112 of Schaedler corresponded to the “laterally oriented first control member.” *Id.* at 146. Patent Owner argued that speed cam 112 was “vertically oriented.” *Id.* at 174. We find that speed cam 112 is indeed vertically oriented, and that it could not move into a lateral orientation. Ex. 1021, Fig. 10 (depicting speed cam 112 as a bracket oriented normal to the ground plane). The prosecution history here tells us that the examiner considered objects such as both speed cam 112 of Schaedler and link 34 of Ishimori to be laterally oriented. In our view, these two structures are at right angles to one another, with Ishimori's parallel to the ground and Schaedler's normal to the ground. Thus, Patent Owner's argument that the examiner's citation to Ishimori's laterally oriented integration links should be considered a deliberate construction of “lateral orientation” or the ground plane is not persuasive because the examiner also considered the speed cam 112 of Schaedler to also be laterally oriented. If anything, it shows that Petitioner's construction is narrower than

the examiner's, because the examiner appeared to believe that any orientation satisfied the claim limitation.

c. Hauser

The examiner's third anticipation rejection was over Hauser. Ex. 1023, 147. In this rejection, the examiner rejected claim 31 (now claim 30), over Hauser on the basis that Hauser's alleged integration links 54, 56, each "lie[] in a plane parallel to the ground where the vehicle is driven." *Id.* The examiner, consistent with its interpretation of the orientation of the speed cam 112 of Schaedler, considered the bracket 54 of Hauser, which lies in a plane perpendicular to the ground plane, to be "in a plane parallel to the ground." *Id.*; see Ex. 3001, Fig. 7. Once again, Patent Owner argued that item 54 of Hauser was vertically oriented rather than laterally oriented. Ex. 1023, 174–175. The take away here is the same as that of the Schaedler rejection.

d. Conclusion regarding prosecution history

The prosecution history does not support Patent Owner's argument. As is shown in the Schaedler and Hauser rejections, the examiner considered orientations that Patent Owner would consider vertically oriented to have been laterally oriented. Thus, that the examiner cited to Ishimori and that Ishimori shows integration links captured in a plane normal to the ground are not evidence that the examiner affirmatively construed the "lie in a plane" limitation. Those facts are simply happenstance; the examiner also considered speed cam 112 of Schaedler and bracket 54 of Hauser to "lie in a plane." Indeed, the examiner never needed to address the issue that is before us here in this proceeding, as to whether "lie in a plane" should be construed as "move in a plane," because none of the structures the examiner identified

during prosecution to meet that limitation (Schaedler and Hauser) could ever lie in the claimed plane, given their vertical orientation.

5. Conclusion for claim construction

Reviewing the arguments and evidence before us, we agree with Petitioner that claim 28 does not require the integration links to move while residing at all times in a certain plane. Instead, it requires the integration links to move in response to a speed input, to lie in a plane parallel to the ground, and to transmit a drive signal. Patent Owner attempts impermissibly to rewrite the claim term “lie” to “move.” The specification permits some amount of movement normal to the claimed plane, and does not clearly redefine the word “lie” to mean “move.” Petitioner’s construction is consistent with the other claims and the prosecution history. Accordingly, we agree with Petitioner that the broadest reasonable interpretation of claim 28 allows the integration links to move in any direction, and that it must, while the vehicle is in use, be configured to lie in the claimed plane. Pet. 14–17 (offering a claim construction of the term “movable”), 23 (asserting that that a link that “exist[s] in a plane parallel to the surface on which the vehicle incorporating the follower links operates” satisfies the “lie in a plane” limitation).

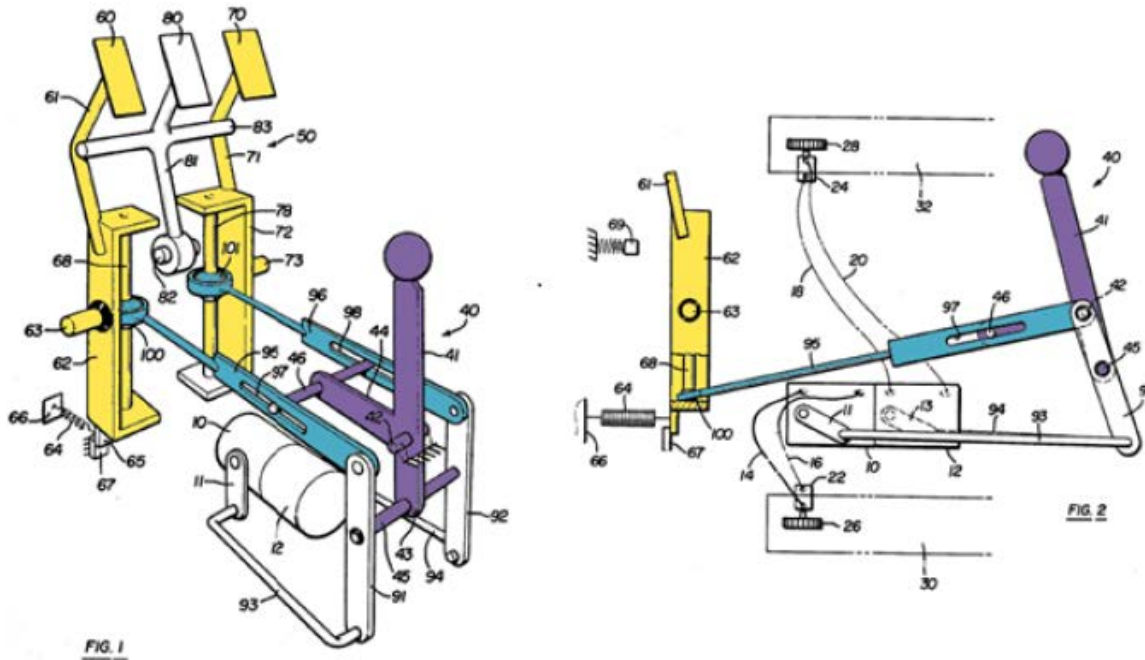
B. Anticipation by Seaberg

Petitioner asserts that claim 28 is anticipated by Seaberg. Pet. 17–28.

1. Seaberg

Seaberg describes an apparatus for driving and steering crawler tractors or skid steer tractors, or the like. Ex. 1002, Abstract. Figures 1 and

2 of Seaberg, reproduced below, with colors added by Mr. Smith, depicts the steering and speed linkage assemblies:



Ex. 1004 ¶ 52. Figures 1 and 2 of Seaberg depict left and right steering petals 60, 70 (in yellow), speed control lever 40 (in purple), and left and right follower links 95, 96 (in blue). As shown in Figure 1, when in the neutral speed position, left and right follower links 95, 96 are parallel to the ground. Ex. 1002, 3:58–64 (describing links 94, 95 as “in a horizontal position”). Application of forward speed control lowers the links down the guide 68 and 78 of the steering petals, and pulls connector link 92 or 94 to activate the appropriate output from pump 10. *See id.* at 3:58–4:18. Pressing on the steering petals causes the linkage to pull connector link 92 or 94, but unlike with activation of speed control lever 40, steering petals 60, 70 only operate to speed up or slow down one side of the vehicle, effecting steering. *See id.* at 3:4–57.

2. Petitioner's Ground

Petitioner asserts that Seaberg discloses a vehicle control system (Ex. 1002, [57]) having a pair of integration links (*id.* at 3:42–51) that each have a straight slot (*id.* at 3:47–51). Pet. 19–21. Petitioner further asserts that each integration link is movable in response to a speed input (Ex. 1002, 4:6–13, 48–53), and configured to lie in a plane parallel to any flat surface on which a vehicle that incorporates the steering control system is used (*id.* at 3:62–64), and to transmit a drive signal that is a product of any received steering input and any received speed input (*id.* at 3:18–20, 4:31–35). Pet. 21–28.

3. The Dispute

The only dispute between the parties with respect to the anticipation rejection is the orientation of the links that Petitioner alleges are the claimed integration links. Petitioner's position is that links 95, 96 in Seaberg are configured to "lie in a plane" as claimed, and that this is shown in Figure 1 of Seaberg (reproduced above) and confirmed in Seaberg where it states that those links "are in a horizontal position" (i.e., providing a frame of reference relative to the ground). Pet. 22–25; Pet. Reply 18–27; Sur-Sur Reply 2–3; Ex. 1002, 3:62–64. Patent Owner's argument is that a person of ordinary skill in the art would have no idea whether the "horizontal position" described in Seaberg is the plane parallel to the ground required by the claim. PO Resp. 15–27; Sur-Reply 1–4.

The dispute here is over whether Seaberg's reference to a "horizontal position" provides a frame of reference relative to the ground or, as Patent Owner argues, merely relative to the page in which these components are

drawn in Seaberg. Mr. Smith, Petitioner's expert, testifies that the horizontal links would be perpendicular to the surface on which the vehicle operates because the horizontal links would exist in a plane parallel to the ground. Ex. 1004 ¶ 64. Mr. Smith testifies that the term "horizontal" is a well-known term in vehicle design, and means "parallel to the horizon." Ex. 1025 ¶¶ 17–20.

Dr. Velinsky, Patent Owner's expert, testifies that "Seaberg does not disclose the installed orientation of its links with respect to any vehicle or any relationship between the links and any surface upon which a vehicle incorporating the links might be used." Ex. 2016 ¶ 49. He also testifies that, effectively, the device shown in Seaberg could not be practically installed in an actual vehicle as shown. *Id.* ¶¶ 54–62. We agree in principle with Dr. Velinsky that the figures shown in Seaberg are not, for example, engineering drawings. But that the drawings may be somewhat abstract does not take away from the fact that Seaberg expressly discloses that the links are horizontal. Dr. Velinsky does not explain why a person of ordinary skill in the art would not still understand "horizontal" to mean horizontal, just because the drawings are not precise. Because of the explicit disclosure that the links are horizontal, we credit the testimony of Mr. Smith that "horizontal" here means horizontal, i.e., parallel with the horizon, as depicted in the Seaberg. In other words, even if what is shown in Figure 1 needs be re-proportioned as alleged by Dr. Velinsky in order to be used comfortably by an operator, Dr. Velinsky has not explained why the orientation of the links would be changed in a way contrary to the explicit written disclosure that the links are horizontal.

As such, we find that Seaberg describes that the horizontal links will lie in a plane that is parallel to the ground, i.e., any flat surface on which a vehicle that incorporates the steering control system is used. The remainder of the claim is not in dispute. In accordance with Petitioner's assertions in its Petition, we find Seaberg describes a steering control system having two integration links (95, 96) having straight slots (97, 98). Ex. 1002, Fig. 1. The integration links pivot up and down based on a speed input received from speed control lever 40, via the crossbar member 46, which is inserted in the slots. *Id.*; *id.* at 4:6–18. The integration links move forward and backwards based on steering input received from petals 60, 70, and 80 because the end of the arm is attached via followers 100 and 101, slidingly received on guides 68 and 78 attached to the petals. *Id.* at Figs. 1–3, 3:52–57, 4:30–42. The links' connections to speed control lever 40, via crossbar member 46, allow them to be movable in response to a speed input. That connection, in addition to the connection to the petals via followers 100 and 101, allow it to transmit a drive signal that is a product of both speed and steering inputs. Further, when in a neutral speed position, the links will lie in a horizontal position, parallel to the ground. *Id.* at Fig. 1; see Ex. 1004 ¶ 64 (overlying on Figure 1 the planes defined by the integration links in the ground). As we found above, vehicles in use need not move. *See also*, e.g., Ex. 1033, Figs. 1, 3 (depicting a tracked vehicle with a scoop). Therefore, when the vehicle is being used but not moving, the claimed position is achieved while the vehicle is in use. As Mr. Smith testifies, the “no drive” signal is a meaningful position, and must be chosen carefully (implying that the horizontal configuration in Seaberg is specifically chosen and that the links in Seaberg will often lie in this plane). Ex. 1025 ¶ 50.

Given the above, we are persuaded that Petitioner has established, by a preponderance of the evidence, that claim 28 is anticipated by Seaberg.

IV. ORDER

In view of the foregoing, it is hereby:

ORDERED that claim 28 of the '613 patent has been shown by a preponderance of the evidence to be anticipated by Seaberg;

FURTHER ORDERED that Patent Owner's Motion to Exclude is *denied*;

FURTHER ORDERED that this is a Final Written Decision under 35 U.S.C. § 318(a), and that parties to the proceeding seeking judicial review of the decision under 35 U.S.C. § 319 must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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