

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

STARA S.A.-INDÚSTRIA DE IMPLEMENTOS AGRÍCOLAS,
Petitioner,

v.

AGCO CORPORATION,
Patent Owner.

IPR2024-01459
Patent 11,665,989 B2

Before BARRY L. GROSSMAN, ERIC C. JESCHKE, and
ARTHUR M. PESLAK, *Administrative Patent Judges*.

GROSSMAN, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. *Background and Summary*

Stara S.A.-Indústria de Implementos Agrícolas (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting an *inter partes* review of claims 1–4, 6–8, 10–13, and 15–18 (the “Challenged Claims”) of U.S. Patent No. 11,665,989 B2 (Ex. 1001, “the ’989 patent”). Pet. 6. AGCO Corporation (“Patent Owner”) filed a Preliminary Response (Paper 8, “Prelim. Resp.”).

We have jurisdiction under 35 U.S.C. § 314. Under § 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.” 35 U.S.C. § 314(a). The Board determines whether to institute a trial on behalf of the Director. 37 C.F.R. § 42.4(a).

Petitioner has the burden of proof. *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (“In an IPR, the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.”).

For the reasons discussed below, Petitioner has *not* shown a reasonable likelihood that it would prevail with respect to any claim challenged in the Petition. Thus, we do not institute an *inter partes* review.

B. *Real Parties-in-Interest*

Petitioner identifies itself as the sole real party-in-interest. Pet. 9.

Patent Owner identifies itself as the sole real party-in-interest. Paper 7, 2.

C. Related Matters

The parties indicate that there are no related matters. Pet. 9; Paper 7, 2.

D. The '989 patent

The '989 patent is titled “Implement Contouring Toolbar.” Ex. 1001, code (54). The disclosed technology relates generally to agricultural implements. *Id.* at 1:5–6.

The '989 patent describes that as agricultural implements continue to get wider, they tend to have longer, rigid sections that do not handle uneven fields well, which in turn may lead to insufficient crop yield due to seeds being planted too shallow or too deep. *Id.* at 1:10–23.

Figure 1 of the '989 patent is reproduced below.

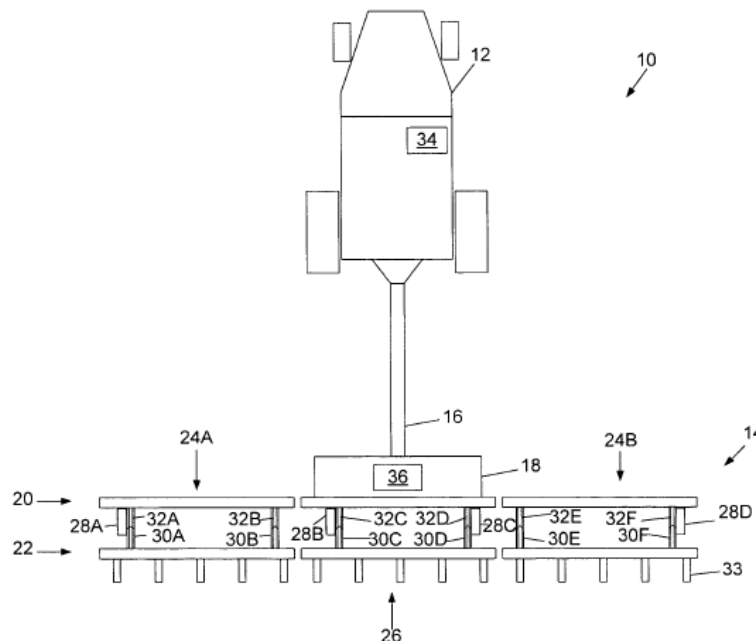


Figure 1 above is a schematic diagram that illustrates an example environment 10 in which an embodiment of a contouring toolbar system may be used. *Id.* at 2:57–3:46. The environment includes towing vehicle

and frame member 20A comprising bracket arm 42A, which is pivotably coupled to toolbar 38A. *Id.* at 5:18–50. “[A]ctuator **32A-1** provides for retracting and extending movements that cause the toolbar **38A** to rotate relative to the frame member **20A**.” *Id.* “[A]ctuation is based on one or more sensors that sense the position of the toolbar **38A**.” *Id.* at 6:22–24. Toolbar 38A is coupled to the row unit 33B via a linkage 44. *Id.* at 5:18–50.

Figure 3 also illustrates sensors 48 and 50. *Id.* at 6:22–7:13. “[T]he controller **34** (FIG. 1) can track based on a signal from the sensors **48**, **50** at what angle the toolbar **38A** has rotated relative to the frame **20A** (from sensor **48**) and the ground (from sensor **50**).” *Id.* at 7:4–13; *see also id.* at 7:37–40 (“the electromagnetic sensors may be configured to detect an absolute elevation of the toolbar **38A** relative to ground”).

Figures 4A and 4B of the ’989 patent are reproduced below.

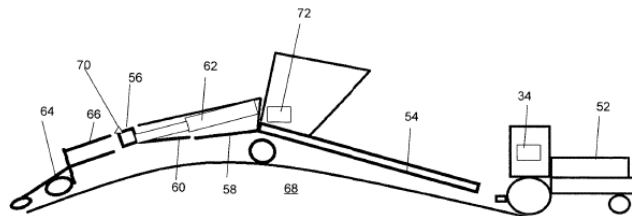


FIG. 4A

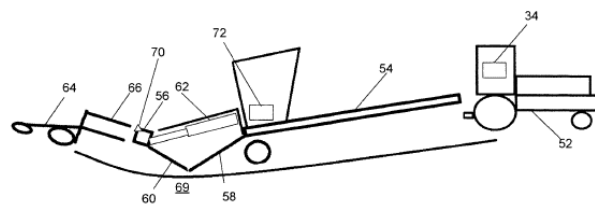


FIG. 4B

Figures 4A and 4B above illustrate example operations of an embodiment of a contouring toolbar system. *Id.* at 7:41–8:14. These figures show tractor 52, planter frame 54 pivotably coupled to a toolbar 56 via bracket arms 58 and 60, actuator 62, and row unit 64. *Id.* In Figure 4A, the

planter frame 54 is shown commencing a downward slope of a hill 68. According to the '989 patent, angle sensor 70 senses a change in position of the toolbar 56 (and hence row unit 64) relative to the ground and signals to the controller 34, which, in turn, signals to a control component 72 to change a state of the actuator 62, resulting in actuator 62 extending to rotate toolbar 56 downward to adjust to the change in contour. *Id.* In Figure 4B, the planter frame 54 is traversing up a slope while the row unit 64 is heading down to a valley 69 or gulley. *Id.* According to the '989 patent, the sensor 70 senses the change in angular position of the toolbar 56 (and row unit 64) relative to the ground and signals to the controller 34, which, in turn, signals to control component 72, resulting in actuator 62 being retracted to cause the toolbar 56 to rotate up to adjust to the change in contour. *Id.*

E. Illustrative Claim

Petitioner challenges claims 1–4, 6–8, 10–13, and 15–18. Claim 1 and claim 17 are independent claims. Independent claim 1 is directed to a “system.” Ex. 1001, 12:12. Independent claim 17 is directed to a “control system for an implement,” specifically:

a control system for an implement comprising a frame member and a toolbar coupled to the frame member parallel to the frame member via a hinged joint such that the toolbar remains parallel to the frame member throughout the rotation of the toolbar about the hinged joint, wherein a plurality of row units are secured to the toolbar.

Id. at 13:20–14:4. Claim 1 and claim 17, however, are substantially similar in scope. For example, the clause in the body of claim 1 stating “the toolbar remains parallel to the frame member throughout the rotation of the toolbar” (*id.* at 12:25–27) appears in the preamble of claim 17, as shown above. Both claims also include a limitation that includes an “actuator to rotate the

toolbar based on the sensed position of the toolbar.” *Compare id.* at 14:15–17 (claim 17), *with id.* at 12:23–25 (claim 1).

Independent claim 1 is illustrative and is reproduced below.

1. A system, comprising:

an elongate frame member;

an elongate toolbar coupled to the frame member via a hinged joint, the toolbar oriented parallel to the frame member;

a plurality of row units coupled to the toolbar;

a first sensor configured to sense a position of the toolbar relative to ground;

a second sensor configured to sense an angle of the toolbar relative to the frame member; and

an actuator coupled between the frame member and the toolbar, the actuator configured to rotate the toolbar relative to the frame member based on a sensed position of the toolbar, wherein the toolbar remains parallel to the frame member throughout the rotation of the toolbar.

Ex. 1001, 12:12–27.

F. Prior Art and Asserted Grounds

Petitioner asserts that one or more of the challenged claims would have been obvious on the following six grounds:

Ground	Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1	1–4, 6–8, 17–18	103	Hubalek, ² KR’062 ³
2	1–4, 6–8, 10–13, 17–18	103	Hubalek, Houck ⁴
3	1–4, 6–8, 17–18	103	Poettinger, ⁵ KR’062
4	1–4, 6–8, 10–13, 15, 17–18	103	Deere I, ⁶ alone or in combination with Deere II, ⁷ KR’062
5	1–4, 6–8, 17–18	103	Hubalek, Amazonen ⁸
6	16	103	any of Grounds 1–5 and

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 296–07 (2011), took effect on September 16, 2011. The changes to 35 U.S.C. §§ 102 and 103 in the AIA do not apply to any patent application filed before March 16, 2013. Because the application for the patent at issue in this proceeding claims priority to applications filed after March 16, 2013, we refer to the AIA version of the statute.

² U.S. Patent No. 9,031,749 B2, May 12, 2015, Ex. 1006 (“Hubalek”).

³ KR Patent No. 10-1877062 B1, July 11, 2018, Ex. 1012 (“KR’062”) (translation). Petitioner contends KR’062 was published May 15, 2014. Pet. 26. Patent Owner disagrees and contends KR’062 is not proper prior art for an IPR under § 311(b). Prelim. Resp. 22–25. Petitioner has filed a motion to essentially replace Exhibit 1012 with Exhibit 1024, which Petitioner contends is a family member of Exhibit 1012 and was published May 15, 2014. Paper 10. Patent Owner opposes. Paper 11. *See* § II.D.4 *infra*. We decline to consider the motion because even if the motion were granted, it would not change our decision not to institute.

⁴ U.S. Patent App. Pub. No. 2015/0230391 A1, Aug. 20, 2015, Ex. 1005 (“Houck”).

⁵ DE Patent App. Pub. No. 10 2006 034 798 A1, Feb. 14, 2008, Ex. 1009 (“Poettinger”) (translation).

⁶ U.S. Patent No. 8,573,319 B1, Nov. 5, 2013, Ex. 1007 (“Deere I”).

⁷ U.S. Patent App. Pub. No. 2014/0209335 A1, Jul. 31, 2014, Ex. 1010 (“Deere II”).

⁸ EP Patent No. 2 335 465 B1, May 23, 2012, Ex. 1008 (“Amazonen”) (translation).

Ground	Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)/Basis
			Friesen ⁹

Petitioner also relies on the Declaration testimony of Dr. Paul R. Weckler. *See* Ex. 1002.¹⁰ Patent Owner relies on the Declaration testimony of Douglas S. Prairie. *See* Ex. 2001.¹¹

II. ANALYSIS

A. Legal Standards

Section 103 forbids issuance of a patent when “the differences between the subject matter sought to be patented 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

⁹ U.S. Patent App. Pub. No. 2014/0069670 A1, Mar. 13, 2014, Ex. 1015 (“Friesen”).

¹⁰ Dr. Weckler earned an undergraduate degree in Agricultural Engineering, a Master’s degree in Agricultural & Irrigation Engineering, and a Ph.D. degree in Agricultural Engineering with a doctoral dissertation on “Optical Range-finding from Image Focus.” Ex. 1002 ¶ 3; Ex. 1003, 2. He currently is Professor Emeritus in the Department of Biosystems & Agricultural Engineering at Oklahoma State University and a registered professional engineer. Ex. 1002 ¶¶ 1, 3–5. His extensive experience in academia and research is summarized in his CV. *See* Ex. 1003 (CV of Paul R. Weckler).

¹¹ Mr. Prairie earned an undergraduate degree in Agricultural Engineering (with a focus on power and machinery) and a Master’s degree in Mechanical Engineering (with a business emphasis). Ex. 2001 ¶ 2, App. A (at pages 28–31). He currently is a Lecturer for the Agriculture and Biosystems Engineering Department at South Dakota State University, a Freelance Agriculture, Mechanical and Industrial Design Engineer for Prairie West LLC, and a registered professional engineer. Ex. 2001, App. A. His extensive experience in academia and research is summarized in his Declaration. *See* Ex. 2001 ¶¶ 3–14, App. A.

(2007). The question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when available, evidence such as commercial success, long felt but unsolved needs, and failure of others.¹² *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *see KSR*, 550 U.S. at 407 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”). The Court in *Graham* explained that these factual inquiries promote “uniformity and definiteness,” for “[w]hat is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context.” 383 U.S. at 18.

The Supreme Court made clear that we apply “an expansive and flexible approach” to the question of obviousness. *KSR*, 550 U.S. at 415. Whether a patent claiming the combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. To support this conclusion, however, it is not enough to show merely that the prior art includes separate references covering each separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness additionally requires

¹² Patent Owner does not direct us to any objective evidence of non-obviousness in its Preliminary Response. *See* Prelim. Resp. 49 (“*If instituted*, Patent Owner *intends to show evidence* of secondary considerations, including, but not limited to, commercial success in the market and copying by others.” (emphasis added)); *see also* Prelim. Resp. 12–13, 48–50.

that a person of ordinary skill at the time of the invention “would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention.” *Id.*

In determining whether there would have been a motivation to combine prior art references to arrive at the claimed invention, it is insufficient to simply conclude the combination would have been obvious without identifying any reason *why* a person of skill in the art would have made the combination. *Metalcraft of Mayville, Inc. v. Toro Co.*, 848 F.3d 1358, 1366 (Fed. Cir. 2017).

Moreover, in determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 164 (Fed. Cir. 1985) (“It is elementary that the claimed invention must be considered as a whole in deciding the question of obviousness.”); *see also Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1537 (Fed. Cir. 1983) (“[T]he question under 35 U.S.C. § 103 is not whether the differences *themselves* would have been obvious. Consideration of differences, like each of the findings set forth in *Graham*, is but an aid in reaching the ultimate determination of whether the claimed invention *as a whole* would have been obvious.”).

As a factfinder, we also must be aware “of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.” *KSR*, 550 U.S. at 421.

Applying these general principles, we consider the evidence and arguments of the parties.

B. Level of Ordinary Skill in the Art

The level of skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). “This reference point prevents . . . factfinders from using their own insight or, worse yet, hindsight, to gauge obviousness.” *Id.*

“The *Graham* analysis includes a factual determination of the level of ordinary skill in the art. Without that information, a . . . court cannot properly assess obviousness because the critical question is whether a claimed invention would have been obvious at the time it was made to one with ordinary skill in the art.” *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *see also Ruiz v. A.B. Chance*, 234 F.3d 654, 666 (Fed. Cir. 2000) (“The determination of the level of skill in the art is an integral part of the *Graham* analysis.”).

Factors pertinent to a determination of the level of ordinary skill in the art include: (1) educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of workers active in the field. *Env’t Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.* Moreover, these factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art. *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007). In determining a level

of ordinary skill, we also may look to the prior art, which may reflect an appropriate skill level. *Okajima*, 261 F.3d at 1355.

Petitioner asserts that a person of ordinary skill in the art would have had “a bachelor’s degree in mechanical or agricultural engineering, or a related study, and two years of experience building or using agricultural implements, such as cultivators, planters, or other implements, or an equivalent combination of education and experience.” Pet. 21 (citing Ex. 1002 ¶¶ 64–66).

Dr. Weckler’s Declaration testimony states that factors that may be considered include some of the factors listed above. Ex. 1002 ¶ 64. Dr. Weckler states he is “familiar with the ordinary level of skill in the art of the ’989 patent.” *Id.* ¶ 66. Dr. Weckler testifies that, in his opinion:

the person of ordinary skill would include someone who had, through education or practical experience, obtained a working knowledge of agricultural implements. This would include someone who had, through education or practical experience, the equivalent of a bachelor’s degree in agricultural or mechanical engineering, or a related field, and at least two years of work experience designing, building, maintaining or otherwise working with farm implements. This would also include a person who had, through education or practical experience, the equivalent of a bachelor’s degree in in [sic] a related field, and who had obtained knowledge of farm implements equivalent to that described above.

Id.

Patent Owner states “[f]or purposes of this Preliminary Response, Patent Owner has used Petitioner’s proposed definition of a person of ordinary skill in the art.” Prelim. Resp. 17.

For purposes of this Decision, based on the prior art, the sophistication of the disclosed technology in the ’989 patent, and Dr.

Weckler’s undisputed testimony, we adopt Petitioner’s definition of the level of ordinary skill.

C. Claim Construction

We construe each claim “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).” 37 C.F.R. § 42.100(b) (2024). Under this standard, claim terms are generally given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–14 (Fed. Cir. 2005) (en banc) (“We have frequently stated that the words of a claim ‘are generally given their ordinary and customary meaning.’” (citations omitted)).

Section VII of the Petition (entitled “VII. Claim Construction Under 37 C.F.R. §42.104(b)(3)”) reads in its entirety:

Except as set forth below in Section VII [sic], Petitioner submits that, for purposes of this Petition only, the terms of the challenged claims should be given their ordinary and customary meaning of such claim as understood by one of ordinary skill in the art in the field of agricultural implements in the December 2016 time frame. 37 C.F.R. §42.100(b).

Pet. 20–21.

Because Petitioner does not identify any language requiring construction in Section VII, we understand that Petitioner does not propose any construction(s).¹³

¹³ In the sections of the Petition after Section VII, Petitioner does not explicitly identify a claim construction issue.

Patent Owner states “Patent Owner agrees with the Petition that no construction is necessary.” Prelim. Resp. 14. Patent Owner contends “the ordinary and customary meaning of ‘parallel,’ as used in independent Claims 1 and 17, does not include ‘transverse,’ as used in *Hubalek*.” *Id.* Patent Owner further contends “the ordinary and customary meaning of ‘a hinged joint,’ as used in independent Claims 1 and 17, does not include a ‘ball joint.’” *Id.* at 14–15 (citing Ex. 2001 ¶¶ 45–51). Additionally, Patent Owner contends the ordinary and customary meaning of claim 17 is that the preamble is limiting. *Id.* at 15–17. Patent Owner also believes the preamble of claim 17 is limiting. *Id.* at 16.

We do not perceive the need to construe any claim limitation. We do not believe any claim term requires express claim construction, as both parties agree that no construction is necessary. Claims must be construed “only to the extent necessary to resolve the controversy.” *AstraZeneca AB v. Mylan Pharms. Inc.*, 19 F.4th 1325, 1345 (Fed. Cir. 2021) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999); see also *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“Because we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy,’ we need not construe the claim preambles here where the construction is not ‘material to the [obviousness] dispute.’” (citations omitted))).

D. Ground 1 – Claims 1–4, 6–8, and 17–18
Based on Hubalek and KR’062

Petitioner asserts claims 1–4, 6–8, and 17–18 are unpatentable under § 103 as obvious in view of Hubalek and KR’062. Pet. 21–30. First, we summarize the disclosures of Hubalek and KR’062.

1. Hubalek (Ex. 1006)

Hubalek is titled “Cultivation Air Seeder Having Sequentially Operated Tools.” Ex. 1006, code (54). Hubalek “relates to cultivation air seeders and, more particularly, to improvements in the way in which the cultivators, the openers, and the seed meter of such machines may be controlled such as during turns at the end of the field or the like.” *Id.* at 1:6–10.

Figure 1 of Hubalek is reproduced below.

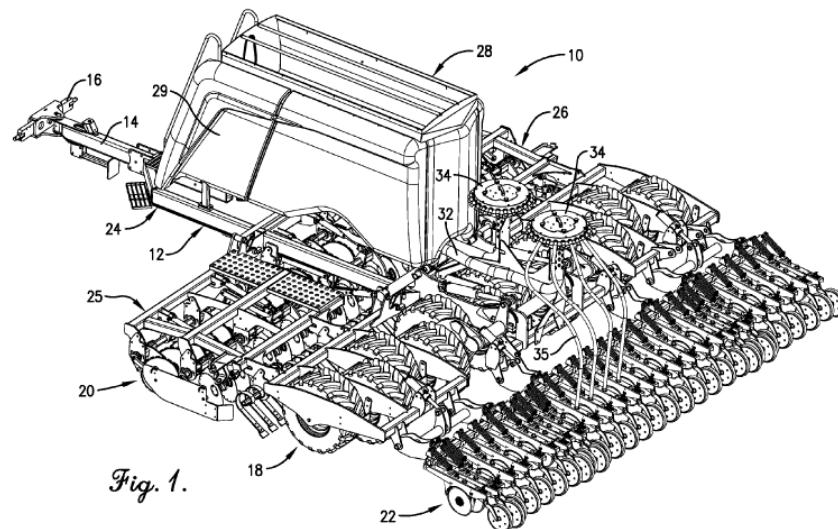


Figure 1 above illustrates a cultivation air seeder 10, mobile chassis or frame 12 having a tongue 14 and hitch structure 16 for connecting seeder 10 to a towing tractor or other vehicle. *Id.* at 2:59–3:21. Wheels 18 are disposed across the rear of frame 12 to support the frame for over-the-ground travel and for compacting the soil after it has been cultivated by cultivation tools 20 (cultivators) on frame 12 ahead of wheels 18. *Id.* A row of furrow opening tools 22 (openers) is supported across the rear of frame 12 behind wheels 18. *Id.* Seeder 10 further comprises a hopper 28 supported

on a main frame section 24 for holding a supply of seeds and/or fertilizer or other particulate materials to be distributed to openers 22. *Id.*

Figure 11 of Hubalek is reproduced below.

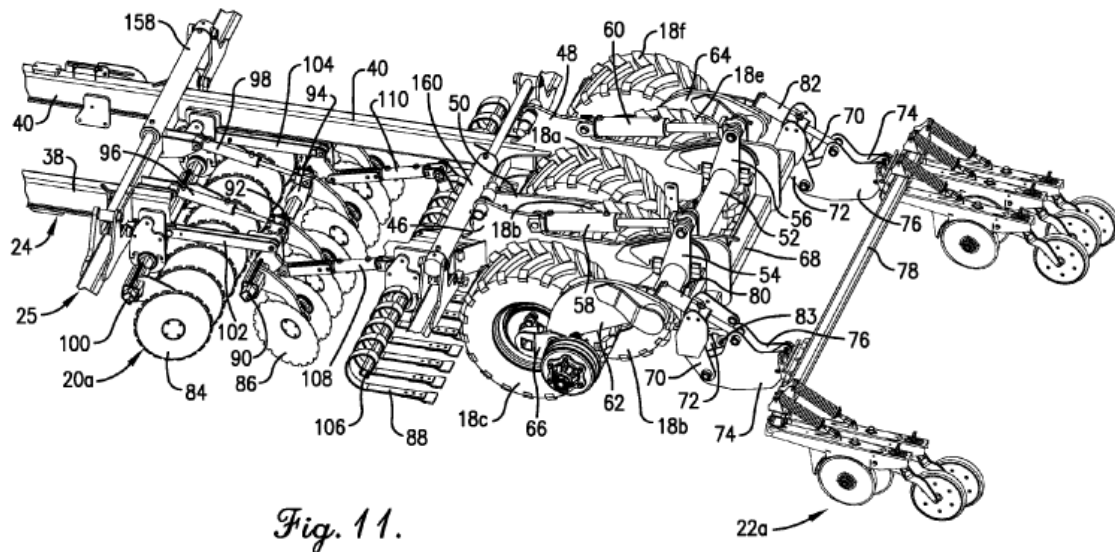


Fig. 11.

Figure 11 above is a fragmentary, left top perspective view of the center section of the seeder with the hopper removed to reveal details of construction. *Id.* at 2:37–39. Figure 11 illustrates the frame section 24 further includes a rear transverse beam 68 spaced below and slightly rearwardly of a torque tube 52. *Id.* at 4:29–51. Beam 68 is fixed to lower rear ends of upright support plates 46, 48 and to a rearmost end of intermediate support plate 50. *Id.* “The two support plates 46, 48 and the intermediate plate 50 cooperate to rotatably support two staggered, fixed axle wheels 18a and 18b of the group of wheels 18.” *Id.* at 3:58–60. Hubalek describes “[t]wo sets of lugs 70, 72 are fixed to beam 68 adjacent opposite ends thereof and project downwardly and slightly rearwardly therefrom to pivotally support a corresponding pair of rearwardly projecting links 74, 76.” *Id.* “Links 74, 76 are fixed joined at their rearmost ends to a

transverse toolbar 78 that supports a center gang 22a of the openers 22.”

*Id.*¹⁴

A pair of hydraulic cylinders 80, 82 have their rod ends connected to links 74, 76 respectively and their base ends supported on upstanding structure fixed to transverse beam 68 for raising and lowering links 74, 76. *Id.* “Thus, when cylinders 80, 82 are actuated, they raise or lower the center gang of openers 22a relative to center frame section 24. . . . [C]ylinders 80, 82 are also utilized to apply down pressure to openers 22a.” *Id.* Hubalek further describes “[a]n opener down position sensor 83 (FIG. 11) in the nature of a proximity switch is mounted between one pair of the links 74, 76 and is covered and uncovered thereby for detecting when openers 22a are in their lowered position.” *Id.*

2. KR’062 (Ex. 1012)

KR’062 appears to be an English translation of Korean patent 10-1877062, which is Exhibit 1019.¹⁵ KR’062 is titled “Tractor Plow Depth

¹⁴ Bold font for reference numerals in the references have been deleted throughout this Decision.

¹⁵ Petitioner submits Ex. 1012, KR’062, as well as Ex. 1019, purportedly the untranslated KR’062, in addition to a “Certification of Accuracy of Translation,” Ex. 1022. However, we note that our rules require translations of documents into English *and an affidavit attesting to the accuracy of the translation*. 37 C.F.R. § 42.63. Our rules allow a written declaration to be used in lieu of an oath of the affidavit. 37 C.F.R. § 1.68. Such a declaration requires that the declarant be warned that willful false statements and the like are punishable by fine or imprisonment, or both. *Id.* Petitioner’s submitted “Certification of Accuracy of Translation,” by itself, is not sufficient without evidence that the translator, Steven S. Banmel, was made aware of the above-mentioned penalties. No such evidence is present in the current record. We do not reach the impropriety of the translation because we deny the Petition on its merits.

Control Apparatus and Method.” Ex. 1012, code (54). KR’062 “relates to the control of tractor plow depth . . . by automatically adjusting to maintain a constant plow depth by measuring the plow depth during plowing operations when performing plowing work with a plow connected to a tractor.” *Id.* ¶ 1.

Figure 2 of KR’062 is reproduced below.

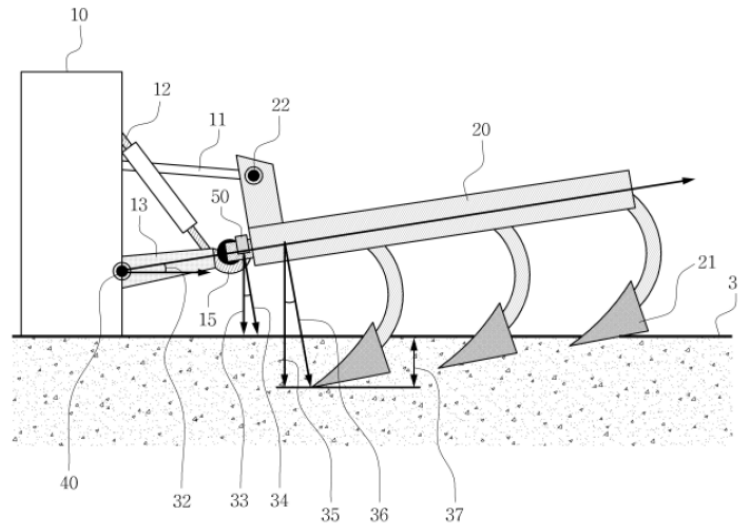


Figure 2 above illustrates a mechanism for driving a plow on a tractor 10. *Id.* ¶¶ 19, 20. As shown in Figure 2, a plow frame 20 is equipped with a plow blade 21 and is connected to a lower link 13 through a lower connection part 15 and to an upper link 11 through an upper connection part 22. *Id.* ¶ 20. KR’062 describes a lift rod 12 is driven up and down by an actuator provided on the tractor 10 and the lift rod 12 “is coupled to the lower link (13), driving the lower link (13) up and down to raise and lower the plow frame (20) connected to the lower connection part (15).” *Id.*

KR’062 additionally describes a distance sensor:

distance sensor (50) is installed on the connection part of the plow frame (20) connected to the lower connection part (15), measuring the distance from the ground surface (31) by emitting laser light to the ground surface (31) under the control of the control unit (70) and measuring the distance from the ground

surface based on the laser light reflected from the ground surface, and transmitting the measured distance to the control unit (70). . . . [T]he ground surface vertical distance (33) is the vertical distance between the distance sensor (50) and the ground surface (31), the ground surface distance (34) is the distance between the distance sensor (50) and the ground surface (31) measured by the distance sensor (50).

Id. ¶¶ 21, 22.

KR’062 additionally describes an angle sensor:

The angle sensor (40) is installed on the tractor coupling part for coupling the lower link (13) to the tractor (10), measuring the angle of the lower link (13) and transmitting the measured angle to the control unit (70). In addition, although Fig. 2 shows the angle sensor (40) installed on the tractor coupling part for coupling the lower link (13) to the tractor (10), it is not limited thereto and may also be installed on the driving mechanism for driving the lift rod. . . . [T]he lower link angle (32) is the angle between the lower link (13) and the ground surface (31).

Id. ¶¶ 21, 22.

The information from the sensors 50 and 40 is used to control plow depth. *Id.* ¶¶ 32–33.

3. Petitioner’s Contentions

Petitioner describes the disclosures of Hubalek and KR’062 in their respective written descriptions and drawings as well as the Declaration testimony of Dr. Weckler. Pet. 21–28.

Petitioner contends that a combination of Hubalek and KR’062 results in a device having each and every element of independent claim 1. Pet. 28–29. Specifically, Petitioner asserts “Hubalek discloses a cultivation air seeder having operating tools that operate in sequence to carry out the planting.” Pet. 22 (citing Ex. 1006, Abstract). Petitioner asserts that Hubalek discloses “[a]n elongate toolbar . . . coupled to the frame element

... by means of a *pivoting* articulation link.” Pet. 23 (citing Ex. 1006 4:29–38, Figs. 1, 11; Ex. 1002 ¶ 286). Petitioner continues to describe Hubalek as disclosing “[a] sensor . . . coupled to the frame element . . . which may be a switched, mounted between one pair of the links . . . for detecting when openers . . . are in their lowered position.” Pet. 24–25. Petitioner concludes that “Hubalek therefore discloses all the principal features of claim 1 of the ’989 patent except two sensors.” Pet. 26 (citing Ex. 1002 ¶ 138).

Petitioner indicates the analysis of independent claim 1 applies to independent claim 17 as well. Pet. 29–30.

While Petitioner contends Hubalek fails to disclose two sensors, Petitioner asserts “KR’062 discloses the sensor, actuator and controller arrangement in the challenged claims.” Pet. 28 (citing Ex. 1002 ¶ 244). “It . . . would have been obvious, and the skilled person would have been motivated, to add the sensors of KR’062 to the implement of Hubalek in order to improve the operation of the tools . . . in Hubalek to better control the depth of the tools” Pet. 29 (citing Ex. 1002 ¶ 353).

Petitioner concedes that the effective filing date of the ’989 patent is December 16, 2016. Pet. 13 (“The ’989 Patent claims priority to a Provisional Application filed December 16, 2016. For the purpose of this Petition, the priority date is December 16, 2016.”). Petitioner claims, however, that Exhibits 1012 and 1019 of KR’062 refer to a previously filed Korean Disclosure 10-2014-0058776 (“KR’776”), Exhibit 1024, that was published May 15, 2014. Exhibit 1024 is a Korean language document. No English translation was provided, although Petitioner has offered to provide a translation.

4. *Patent Owner's Contentions*

Patent Owner responds to Petitioner's assertions by stating that "Grounds 1, 2, and 5 are deficient due to the prior art." Prelim. Resp. 25. Patent Owner asserts that "Hubalek does not disclose an 'actuator [configured] to rotate the toolbar [relative to the frame member]' as Claimed [for] Grounds: 1, 2, 5)." *Id.* Patent Owner further contends Hubalek does not disclose "wherein the toolbar remains parallel to the frame member throughout the rotation of the toolbar" as claimed. *Id.* at 27–28. Patent Owner further contends Hubalek does not disclose "wherein the toolbar remains parallel to the frame member throughout the rotation of the toolbar" as claimed. *Id.* at 27–28. Patent Owner further contends Hubalek does not disclose "a hinged joint" as claimed. *Id.* at 28–30. Patent Owner further contends the Petition's analysis on the motivation to combine Hubalek and KR'062 is deficient. *Id.* at 39–43, 45–46.

In reply to Petitioner's contentions (Pet. 26) that KR'062 was published May 15, 2014, Patent Owner disagrees and contends KR'062 is not proper prior art for an IPR under § 311(b). Prelim. Resp. 22–25.

As Patent Owner asserts correctly, "KR'062 has a public notice date of July 11, 2018. *Id.* at 22 (citing EX1012, KR'062 (English Translation), 1 [see code (45)]¹⁶; see also EX1019, KR'062 (Korean language Original) [code (45)]. INID code (45) represents the "Date of making available to the public by printing or similar process of a patent document on which grant

¹⁶ This number is an INID code, which is an acronym for "Internationally agreed Numbers for the Identification of (bibliographic) Data." See MPEP § 901.05(b). INID codes are standardized codes used on patent documents to identify specific bibliographic data items "without knowledge of the language used and the laws applied." *Id.*

has taken place on or before the said date.” MPEP § 901.05(b). Neither Ex. 1012, KR’062 (English Translation) nor Ex. 1019, KR’062 (Korean language Original) was available to the public prior to the admitted effective filing date of the patent application that matured into the ’989 patent, which is December 16, 2016. Ex. 1001, code (60).

Petitioner has filed a motion to essentially replace the English translation KR’062 (Exhibit 1012, which is a translation of Korean language Exhibit 1019) with a translation of Korean language document, Exhibit 1024. Petitioner contends Exhibit 1024 is a family member of Exhibit 1019 and was published May 15, 2014, and thus qualifies as a reference against the ’989 patent. Paper 10 (“Motion to Substitute”), citing Ex. 1023 (a Declaration by Counsel for Petitioner, Mr. Tollefson). In the Declaration, Mr. Tolleson does not provide any testimony or evidence that he speaks or reads the Korean language. Nonetheless, he testifies that, even though he does not have a translation of Exhibit 1024, the translation of Korean language Exhibit 1024 is “clearly identical” (Ex. 1023 ¶ 5) or “nearly identical” (*id.* ¶ 6) to Exhibit 1012 (the translation of Korean language Exhibit 1019).

Patent Owner opposes the Motion to Substitute a translation of Exhibit 1024. Paper 11 (PO Opposition to Motion to Substitute). However, even if, *arguendo*, we assume that the translation of Exhibit 1024 is identical to the translation of Exhibit 1019, the Petition still fails to establish a reasonable likelihood of establishing at least one challenged claim would have been obvious, as we explain below.

5. *Analysis of Independent Claims 1 and 17*

We determine that Petitioner has not met its burden in demonstrating that the evidence of record establishes a reasonable likelihood that claim 1 is unpatentable over Hubalek in view of KR'062. We acknowledge Petitioner's assertion that Hubalek is generally in the same field as the '989 patent in that both describe a plow (or plow-like) farm tool. *Compare* Ex. 1001, Abstract, *with* Ex. 1006). Petitioner's argument that "Hubalek discloses the basic arrangement of claim 1" (Pet. 28) is not enough to render Challenged Claim 1 obvious.

Hubalek describes "a cultivation air seeder" where "the operating and control system of the seeder causes the cultivators to be raised first, followed in sequence by the trailing openers." Ex. 1006, Abstract. In this manner, "[t]he seed meter turns off as soon as the cultivators leave their powered position, but the blower stays on so that the seeds in the conduits downstream from the meter continue to be delivered to and deposited into the ground by the openers until the cultivators reach their raised position, where upon the openers are raised." *Id.* The cultivators move in an up and down fashion. *Id.* at 6:18–22.

By contrast, Challenged Claim 1 recites, among other things, "an actuator coupled between the frame member and the toolbar, *the actuator configured to rotate the toolbar relative to the frame member*," Ex. 1001, 12:23–24 (emphasis added). We do not understand "configured to rotate" to mean an up and down motion, as described by Hubalek. Indeed, Patent Owner notes that "the only paragraph [of Hubalek] that refers to [the] toolbar [] in *Hubalek* discloses only a raising and lowering motion – not rotation" (Prelim. Resp. 25), and we agree with Patent Owner here. We

have not been directed to any persuasive evidence in Hubalek that mentions rotation of the toolbar, let alone an actuator coupled between the frame member and the toolbar, with the actuator configured to rotate the toolbar,” as recited by claim 1. Nor have we been directed to persuasive evidence why this change in Hubalek’s basic operation would have been obvious.

KR’062 does not cure the deficiencies of Hubalek. KR’062 describes “a device and a method for controlling plowing depth of a plow (akin to a tools attached to a toolbar) pivotably connected to a tractor.” Pet. 26. Petitioner asserts that KR’062 provides more than one sensor, relative to Hublaek. Pet. 26–27. “The control unit controls a flow control valve for controlling the plowing depth according to adjust the depth of a plow *by lifting or lowering the plow frame with a lift rod (actuator).*” Pet. 26 (citing Ex. 1012) (emphasis added). But as was the case for Hubalek, mere “lifting and lowering” is not the same as rotation. Petitioner has not shown that KR’062 discloses *rotation*, as required by Challenged Claim 1, rather than *lifting and lowering*.

Hence, we determine that Petitioner has not established a reasonable likelihood that claim 1 is unpatentable over Hubalek in view of KR’062. Likewise, claim 17 suffers the same defects as claim 1 with respect to Hubalek and KR’062. We also determine that Petitioner has *not* established a reasonable likelihood that either of claim 1 or claim 17 is unpatentable over Hubalek in view of KR’062.

6. *Dependent Claims 2–4, 6–8, and 18*

Dependent claims 2–4, 6–8, and 18 depend from claims 1 or 17. Thus, they suffer from the same deficiencies discussed above in the context of independent claims 1 and 17. Accordingly, we also determine that

Petitioner has *not* established a reasonable likelihood that dependent claims 2–4, 6–8, and 18 are unpatentable over Hubalek in view of KR’062.

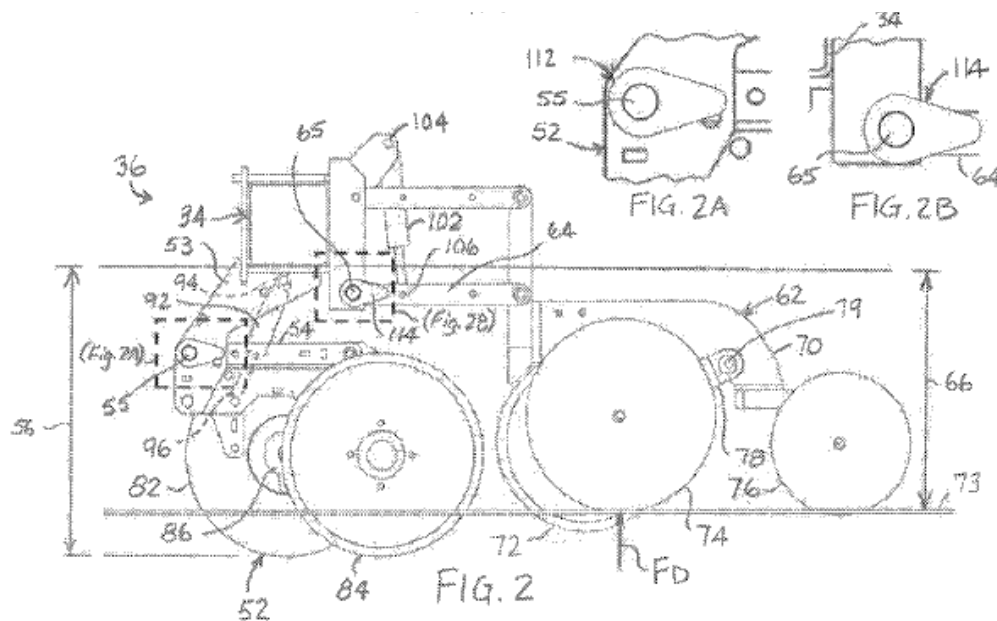
*E. Ground 2 – Claims 1–4, 6–8, 10–13, and 17–18
Based on Hubalek and Houck*

Petitioner asserts claims 1–4, 6–8, 10–13, and 17–18 are unpatentable under § 103 based on Hubalek and Houck. Pet. 30–39 (citing Ex. 1002 for evidentiary support). First, we summarize the disclosure of Houck. The disclosure of Hubalek is summarized above.

1. Houck (Ex. 1005)

Houck is titled “Depth Control for a Seed Planting System.” Ex. 1005, code (54). Houck relates “generally to agricultural implements, and more specifically to seed planting devices.” *Id.* ¶ 2.

Figures 2, 2A, and 2B of Houck are reproduced below.



Figures 2, 2A, and 2B above illustrate a seed planting system including a seeding implement having an implement frame 34 (also shown in plan view in Figure 1 along with a towing unit 42) and a plurality of

seeding row assemblies 36 operatively coupled with the implement frame 34. *Id.* ¶¶ 27, 28. Each of the seed row assemblies 36 includes a ground engaging attachment or tillage row unit 52 coupled to a rigid frame 53 by a first linkage 54 operatively about a pivot 55, the rigid frame 53 depending from the implement frame 34. *Id.* The first linkage 54 is for adjusting an elevation of the tillage row unit 52 relative to the implement frame 34. *Id.* Each seed row assembly further includes a seeding row unit 62 including a second linkage 64 operatively coupled with the implement frame 34 and rotatable about a pivot 65 for accommodation of an elevation 66 of the seeding row unit 62 relative to the implement frame 34. *Id.*

Each of the seeding row assemblies 36 further includes position sensors 112 and 114 operatively coupled to the first linkage 54 and the second linkage 64, respectively, that output signals 116 and 118, respectively, corresponding to a sensed position. *Id.* ¶ 33. “The position sensors 112 and 114 are arranged to detect an angular rotation of the respective linkages 54 and 64 about their respective pivots 55 and 65.” *Id.*

Figure 6 of Houck is reproduced below.

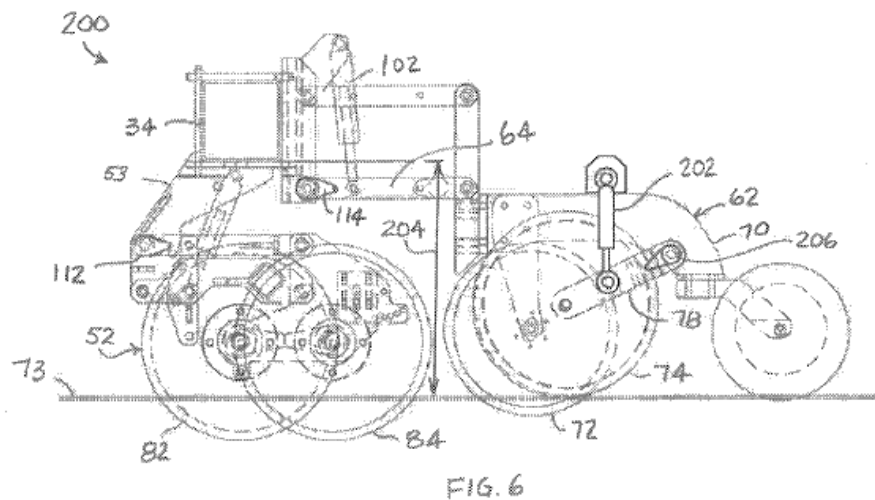


Figure 6 above illustrates a seeding row assembly 200 including an actuator 202 for adjusting an elevation 204 of follower 74. *Id.* ¶ 47. Houck describes:

The actuator 202 can be coupled to the pivot arm 78, as depicted, or directly to the follower 74. A position sensor 206 can be operatively coupled to the pivot arm 78, generating an output signal corresponding to the elevation 204. The output signal 208 can be routed to the respective local controller 126 for transmittal back to the central processor 122 . . . The automatic adjustment of the follower 74 in this way can be implemented as part of the control system 38.

Id. ¶ 47.

2. Petitioner's Contentions

Petitioner contends that a combination of Hubalek and Houck would have been obvious; would have had an expectation of success; and would have resulted in a device having each and every element of independent claim 1. Pet. 36–39. Petitioner indicates the analysis of independent claim 1 applies to independent claim 17 as well. Pet. 39.

3. Patent Owner's Contentions

Patent Owner contends the Petition's motivation to combine analysis is deficient. Prelim. Resp. 39–43, 45–46.

4. Analysis of Independent Claims 1 and 17

Similar to Ground 1, we determine that Petitioner has not met its burden in demonstrating that the evidence of record establishes a reasonable likelihood that claim 1 is unpatentable over Hubalek in view of Houck.

As discussed above, Hubalek fails to disclose an actuator coupled between the frame member and the toolbar, with the actuator configured to rotate the toolbar relative to the frame member, as required by independent claims 1 and 17. We have not been directed to any persuasive evidence that

Houck discloses this missing limitation in Hubalek. Petitioner recognizes that Houck describes controlling the depth at which seeds are planted. Pet. 31 (citing Ex. 1005, 1). Petitioner concedes “Houck does not disclose a toolbar identical to the toolbar . . . of the ’989 patent” but notes that Houck discloses a toolbar with an “articulation link” that rotates about a pivot. *Id.* Petitioner fails to explain, however, how the pivot rotation of Houck’s different toolbar structure could be used in Hubalek to arrive at the “toolbar” of the independent claims of the ’989 patent.

5. *Accordingly, Petitioner has not established a reasonable likelihood that independent claims 1 and 17 are unpatentable over Hubalek in view of Houck. Dependent Claims 2–4, 6–8, 10–13, and 18*

5. Dependent claims 2–4, 6–8, 10–13, and 18 suffer from the same deficiencies discussed above in the context of independent claims 1 and 17. Accordingly, we also determine that Petitioner has *not* established a reasonable likelihood that dependent claims 2–4, 6–8, and 18 are unpatentable based on Hubalek and Houck.

F. Ground 3 – Claims 1–4, 6–8, and 17–18
Based on Poettinger and KR’062

Petitioner asserts claims 1–4, 6–8, and 17–18 are unpatentable under § 103 as obvious in view of Poettinger and KR’062. Pet. 40–46. First, we summarize the disclosure of Poettinger.

1. Poettinger (Ex. 1009)

Poettinger is titled “Agricultural machine.” Ex. 1009, code (54). Poettinger relates to:

an agricultural machine, in particular a semi-mounted seed drill, with a machine frame supported on the ground by a running gear, and at least one work unit, in particular a sowing unit comprising at least one seed coulter and a depth control roller or pressure

roller, which is mounted on the machine frame in a vertically adjustable manner, wherein the work unit is mounted in a vertically adjustable manner by a first four-bar linkage on a cross-member, which in turn is mounted in a vertically adjustable manner by a second four-bar linkage on the machine frame.

Ex. 1009 ¶ 1.¹⁷

Figure 1 of Poettinger is reproduced below.

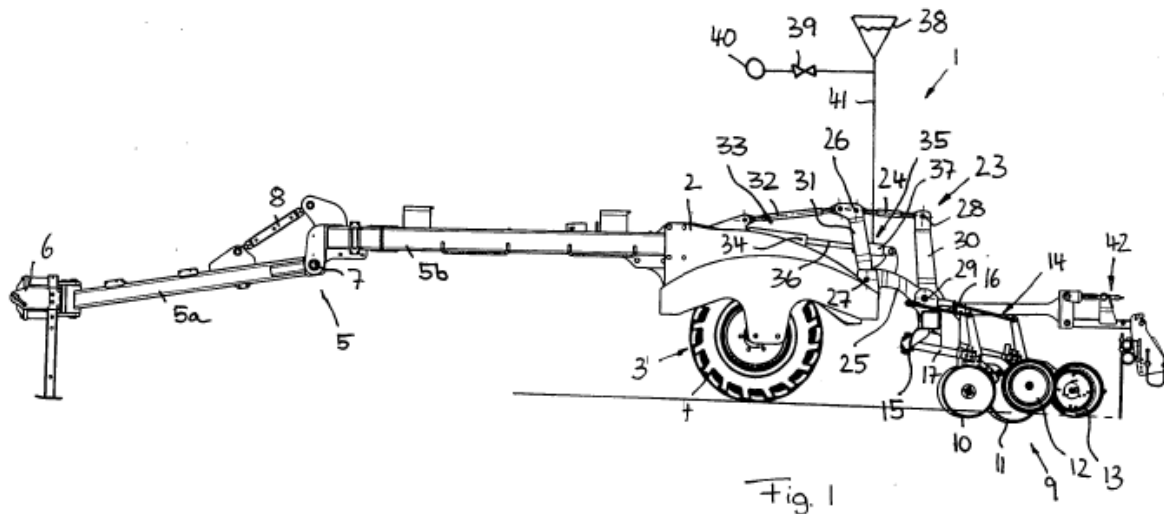


Figure 1 above illustrates a seed drill 1 with a machine frame 2 supported on the ground by a running gear 3, which is single-axle and has wheels 4. *Id.* ¶ 25. The machine frame 2 can be attached to an undrawn tractor by a drawbar 5. *Id.*

A sowing unit 9 is attached to the rear end of the machine frame 2. *Id.* ¶ 26. The sowing unit 9 is articulated by a first four-bar linkage 14 (shown in an enlarged view in Figure 4) to a cross-member 15 trailing the running gear 3, so that the sowing unit 9 can move up and down relative to the cross-member 15. *Id.* ¶ 28.

¹⁷ We use the paragraph numbering in the original document instead of the page numbering added by Petitioner.

The cross-member 15, to which the first four-bar linkage 14 is attached, is articulated to the machine frame 2 by a second four-bar linkage 23 which has a geometry that differs from a parallelogram. *Id.* ¶ 30; *see also id.* at claim 1. “[A] cross-member arm **30** [] is connected in a rotationally fixed manner to the cross-member **15**.” *Id.* ¶ 30.

Poettinger further describes usage of two pressure cylinders as follows:

[0032] To excavate the sowing unit [9], an excavation device **33** is provided which comprises a pressure cylinder **34** which acts on the machine frame **2** on the one hand and on one of the links **25** of the second four-bar linkage **23** on the other hand in order to pivot the four-bar linkage upwards and thus lift the sowing unit **9** from the ground.

[0033] A ground pressure adjusting device **35** is also integrated into the excavation device **33**, which comprises a pressure cylinder **37**, which advantageously sits on the same piston rod **36** as the pressure cylinder **34** of the excavation device **33**. The two pressure cylinders **34** and **37** are located on opposite ends of the common piston rod **36** and each can be formed as single-acting cylinders.

Id. ¶¶ 32, 33; *see also id.* at claim 14.

2. *Petitioner’s Contentions*

Petitioner asserts that “Poettinger discloses each and every element of claim 1 except the use of a second sensor” Pet. 40–45 (citing Ex. 1002 for evidentiary support). Petitioner contends that KR’062 discloses a second sensor and that the combination of Poettinger and KR’062 results in the device of independent claim 1. Pet. 45–46. Petitioner again states that its analysis of independent claim 1 applies to independent claim 17 as well. Pet. 46.

3. *Patent Owner's Contentions*

Patent Owner contends the Petition's motivation to combine analysis is deficient. Prelim. Resp. 39–46. Specifically, Patent Owner asserts that Petitioner relies “only” on its expert declaration (Ex. 1002) and does not actually cite to either Poettinger or KR'062. Prelim. Resp. 40. “The cited portions of the expert declaration also do not contain citations to *Poettinger* or to the combination of *Poettinger* with *KR'062*. Thus, pursuant to the Petition itself, the prior art references themselves do not provide motivation for making the proposed combination Ground 3.” Prelim. Resp. 41 (citations omitted).

4. *Analysis of Independent Claims 1 and 17*

Petitioner has not met its burden in showing that there is a reasonable likelihood that claim 1 or claim 17 is unpatentable over Poettinger and KR'062. Petitioner provides an overview of Poettinger. Pet. 40–45. But this overview does not explain how “each and every element of claim 1” is disclosed by Poettinger “except the use of a second sensor as claimed.” *See, e.g.,* 37 C.F.R. § 42.104(b)(4) (“The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.”). As an example, as we noted above, claim 1 recites, among other things, “an actuator coupled between the frame member and the toolbar, the actuator configured to rotate the toolbar relative to the frame member.” However, Petitioner has not made sufficiently clear how Poettinger teaches this limitation. Petitioner cites to its expert in support that Poettinger teaches rotation. Pet. 44 (citing Ex. 1002 ¶¶ 204, 220, 222). But these portions of the expert's declaration merely *conclude* that arrangements in Poettinger rotate but don't *explain* how the arrangement of Poettinger

could rotate. Merely providing a “side by side comparison” of a figure from Poettinger and the ’989 Patent does not adequately show how the configuration of Poettinger leads to “an actuator . . . configured to rotate.” Ex. 1002 ¶ 221.

We apply similar reasoning to claim 17. Hence, Petitioner has failed to demonstrate a reasonable likelihood in showing that either claim 1 or claim 17 is unpatentable over Poettinger and KR’062.

5. Dependent Claims 2–4, 6–8, and 18

Dependent claims 2–4, 6–8, and 18 depend from claims 1 or 17 and suffer from the same deficiencies discussed above in the context of independent claims 1 and 17. Accordingly, we also determine that Petitioner has *not* established a reasonable likelihood that dependent claims 2–4, 6–8, and 18 are unpatentable based on Poettinger and KR’062.

G. Ground 4 – Claims 1–4, 6–8, 10–13, 15, and 17–18
Based on Deere I, alone or with Deere II, and KR’062

Petitioner asserts claims 1–4, 6–8, 10–13, 15, and 17–18 are unpatentable under § 103 as obvious in view of Deere I, alone or with Deere II, and KR’062. Pet. 46–67. First, we summarize the disclosures of Deere I and Deere II.

1. Deere I (Ex. 1007)

Deere I is titled “Position and Pressure Depth Control System for an Agricultural Implement.” Ex. 1007, code (54). Deere I “relates to agricultural implements and more particularly to a position and pressure depth control system for an agricultural implement.” *Id.* at 1:7–9.

As summarized in its Abstract, Deere I discloses “a position sensor configured to measure a depth indication of an actual operating depth of a ground-engaging tool and configured to generate a corresponding position signal. A pressure sensor configured to measure a pressure indication of an actual operating pressure and configured to generate a corresponding pressure signal.” Ex. 1007, Abstract.

Figure 1 of Deere I is reproduced below.

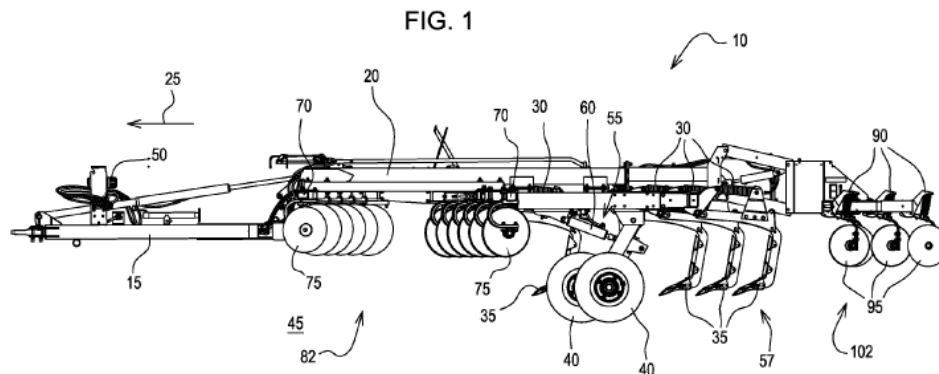


Figure 1 above illustrates an agricultural implement 10 including a coupling mechanism 15 for coupling to a vehicle, a first frame section 20, a first ground-engaging tool 30, and a plurality of wheel assemblies 40. *Id.* at 3:17–29.

Figure 3 of Deere I is reproduced below

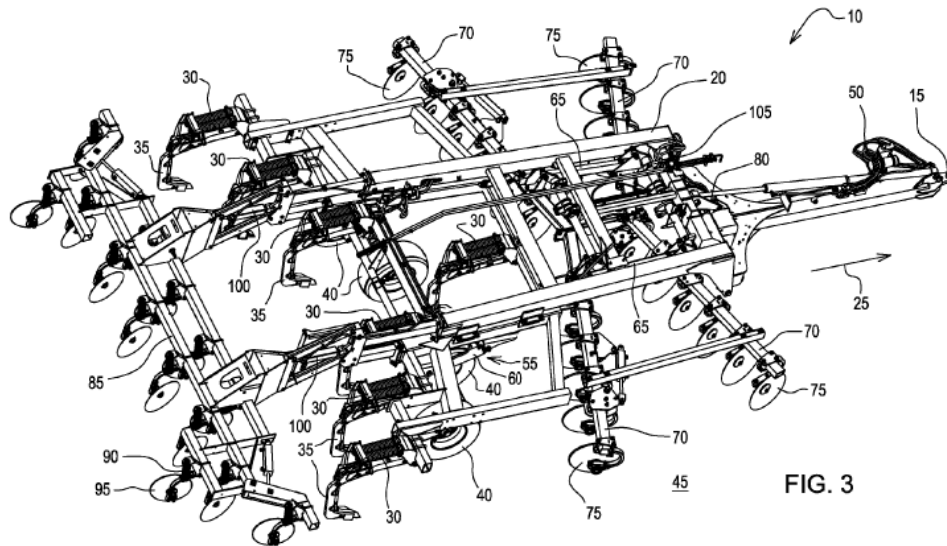


Figure 3 above illustrates a third frame section 85 pivotally coupled to the first frame section 20, a third ground-engaging tool 90 coupled to the third frame section 85, and a “third adjustment device **100** (e.g., extendable and retractable hydraulic cylinder) . . . coupled to the first frame section **20** and the third frame section **85**.” *Id.* at 4:7–16.

Deere I further describes a control system 105 coupled to the first frame section 20. *Id.* at 4:27–38. The control system 105 includes a first position sensor 110 configured to measure a first depth indication (e.g., relative position) of an actual operating depth of the first ground-engaging tool 30 and configured to generate a corresponding first position signal 115. *Id.* A second position sensor 120 is configured to measure a second depth indication (e.g., relative position) of an actual operating depth of a second ground-engaging tool 70 and configured to generate a corresponding second position signal 125. *Id.* at 4:47–55. A third position sensor 130 is configured to measure a third depth indication of an actual operating depth of the third ground-engaging tool 90 and configured to generate a

corresponding third position signal 135. *Id.* at 4:64–5:13. A third pressure sensor 137 is configured to measure a third pressure indication of an actual operating pressure of the third ground-engaging tool 90 and configured to generate a corresponding third pressure signal 139. *Id.* The control signals are used to control adjustment devices 55, 80, 100. *Id.* at 5:34–39.

2. *Deere II (Ex. 1010)*

Deere II is titled “Drawbar Apparatus of an Agricultural Implement.” Ex. 1010, code (54). Deere II “relates to agricultural implements for conditioning soil, and more particularly to a drawbar apparatus for supporting an earth-working tool on agricultural implements.” *Id.* ¶ 1.

The Background section describe that “[i]n order to support an earth-working tool on an agricultural implement, agricultural implements commonly include rearwardly-projecting arms.” *Id.* ¶ 2.

Figure 1 of Deere II is reproduced below.

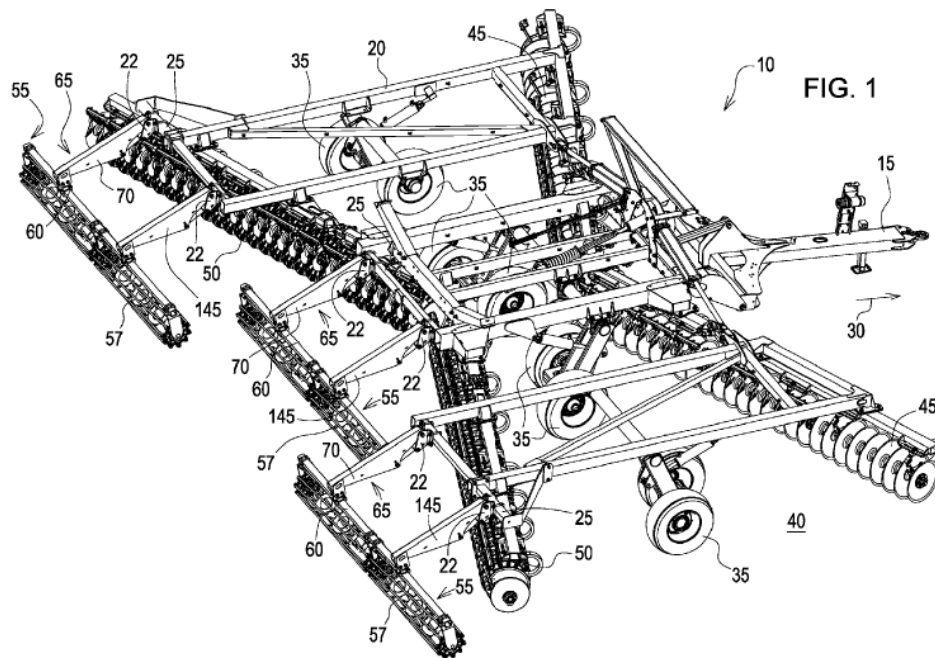


Figure 1 above illustrates an agricultural implement 10 that includes a coupling mechanism 15 for coupling to a vehicle, a frame 20 comprising a plurality of mounting brackets 22, wheel assemblies 35, one or more earth-working tools 55 in the form of rolling baskets 57, and a crossbar 60. *Id.* ¶¶ 32–35.

Figure 3 of Deere II is reproduced below.

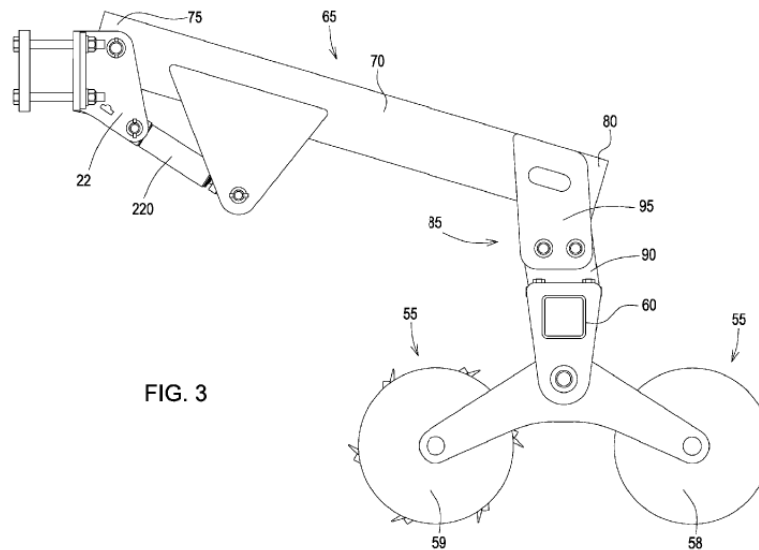


Figure 3 above illustrates a drawbar apparatus 65, including a first drawbar 70 that comprises a first portion 75 and a second portion 80. *Id.* ¶ 36. “The first portion 75 may be pivotally coupled to the frame 20 (FIG. 1) using the mounting brackets 22.” *Id.* Figure 3 further illustrates a first extendable and retractable hydraulic cylinder 220. *Id.* ¶¶ 36, 48. “[T]he drawbar apparatus 65 helps to keep the earth-working tool 55 following a contour of the surface 40.” *Id.* ¶ 51.

3. *Petitioner’s Contentions*

Petitioner describes the disclosures of Deere I and Deere II in their respective written descriptions and drawings as well as the Declaration testimony of Dr. Weckler. Pet. 46–67. Petitioner contends that a

combination of Deere I, alone or with Deere II, and KR'062 teaches each and every element of independent claim 1. Pet. 66–67. Petitioner indicates the analysis of independent claim 1 applies to independent claim 17 as well. Pet. 66–67.

4. Patent Owner's Contentions

Patent Owner contends the Petition's motivation to combine analysis is deficient. Prelim. Resp. 39–41, 44–46. Specifically, Patent Owner asserts that Petitioner relies on improper hindsight reasoning and conclusory statements. Prelim. Resp. 44.

5. Analysis of Independent Claims 1 and 17

Petitioner provides a description and conclusions regarding Deere I and Deere II. Pet. 46–66. But what's missing is *how* the features of Deere I and Deere II satisfy each and every element of claim 1 (and claim 17). *See* 37 C.F.R. § 42.104(b)(4) (“The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.”); 37 C.F.R. § 42.104(b)(5) (requiring a petition to identify “the supporting evidence relied upon to support the challenge and the relevance of the evidence to the challenge raised, including identifying specific portions of the evidence that support the challenge”). Said in another way, Petitioner fails to explain how those skilled in the art, without knowledge of the Challenged Claims, would arrive at the Challenged Claims. What Petitioner must show is *why* and *how* those skilled in the art would modify Deere I to arrive at the claimed invention without using the claimed invention as a guide to get there. *See, e.g., Metalcraft of Mayville, v. Toro*, 848 F.3d at 1366 (“it is insufficient to simply conclude the combination would have been obvious without identifying any reason why a person of

skill in the art would have made the combination”). Similarly, to meet its burden, Petitioner must explain how and why Deere I alone, or with Deere II and KR’062 would have been modified to arrive at the claimed invention and why the modifications would have been obvious. Petitioner has not met this burden here. We apply similar reasoning to claim 17.

Hence, Petitioner has not demonstrated a reasonable likelihood that claim 1 or claim 17 is unpatentable over Deere I and KR’062.

6. Dependent Claims 2–4, 6–8, 10–13, 15, and 18

Dependent claims 2–4, 6–8, 10–13, 15, and 18 depend from claims 1 or 17 and suffer from the same deficiencies discussed above in the context of independent claims 1 and 17. Accordingly, we also determine that Petitioner has *not* established a reasonable likelihood that dependent claims 2–4, 6–8, and 18 are unpatentable based on Deere I, alone or with Deere II and KR’062.

H. Ground 5 – Claims 1–4, 6–8, and 17–18
Based on Hubalek and Amazonen

Petitioner asserts claims 1–4, 6–8, and 17–18 are unpatentable under § 103 as obvious in view of Hubalek and Amazonen. Pet. 67–73. First, we summarize the disclosure of Amazonen.

1. Amazonen (Ex. 1008)

Amazonen is titled “Agricultural machine.” Ex. 1008, code (54). Amazonen states “[t]he invention is based on the object of being able to achieve a uniform working depth of soil cultivating tools and/or placement

depth of the seed to be deposited by soil cultivating elements and/or seed coulters in a simple manner.” *Id.* ¶ 3.¹⁸

Figure 1 of Amazonen is reproduced below.

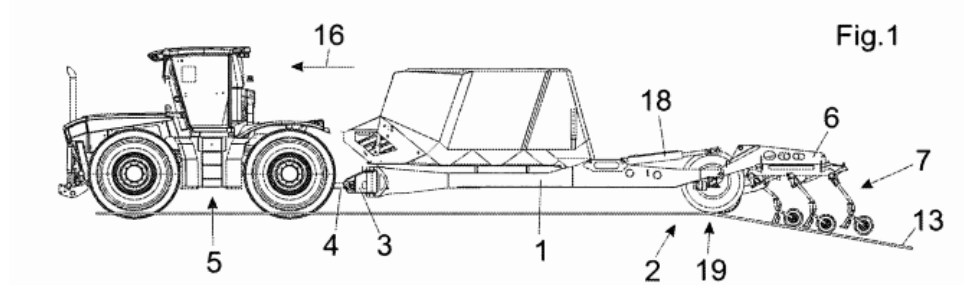


Figure 1 above illustrates a seed drill with a machine frame 1, supported on the ground by a running gear 2, and a supporting frame 6 arranged on the rear of the machine frame 1. *Id.* ¶¶ 8, 9.

Figure 2 of Amazonen is reproduced below.

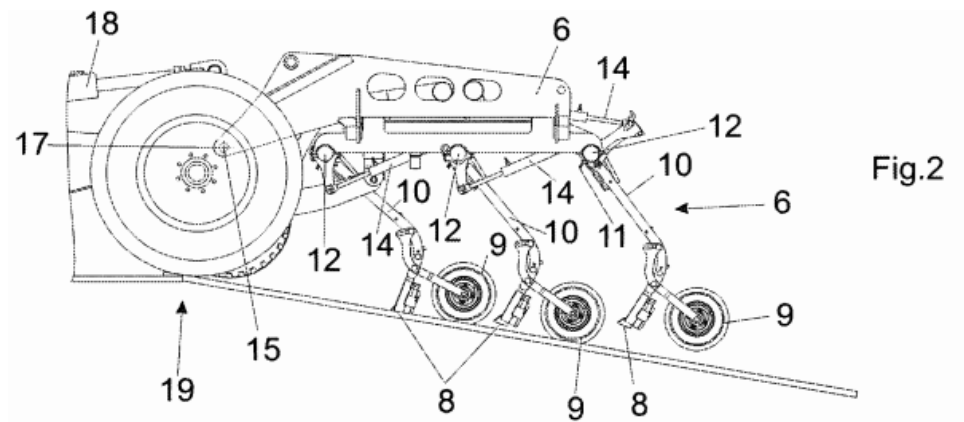


Figure 2 illustrates soil cultivating elements in the form of seed coulters 8 with associated depth control rollers and/or pressure rollers 9. *Id.* “The soil cultivating elements 8 with the associated depth control rollers 9 are each arranged on . . . spaced-apart cross beams 12 of the support frame 6

¹⁸ We use the paragraph numbering in the original document instead of the page numbering added by Petitioner.

so that they can be moved in the vertical direction by means of a retaining arm 10 with an articulated connection 11.” *Id.*

Amazonen describes movement of supporting frame 6 as follows:

The supporting frame 6 is attached to the machine frame 1 by means of an articulated coupling 15. This articulated coupling 15 has a pivot axle 17 running transversely to the direction of travel 16. Furthermore, at least one motor-driven actuating device in the form of a hydraulic cylinder 18 is arranged between the supporting frame 6 and the machine frame 1. By means of this hydraulic cylinder 18, the supporting frame 6 with the soil cultivating elements 8 and associated rollers 9 arranged thereon can be pivoted about the pivot axle [17] running transversely to the direction of travel 16.

Id. ¶ 10.

Amazonen further describes sensor elements 20 (shown in Figure 4) for detecting deflection of a retaining arm 10 (relative to the supporting frame 6) of each soil cultivating element 8 of a front cross-row and a rear cross-row. *Id.* ¶ 13. The sensor signals and data are used to control hydraulic cylinder 18 such that “by pivoting the supporting frame 6 by the actuating device 18, the deflection of the soil cultivating elements 8 of the first cross-row is at least approximately equal to the deflection of the soil cultivating elements 8 of the rear cross-row relative to the supporting frame 6” as shown in Figures 3 and 4. *Id.*

2. *Petitioner’s Contentions*

Petitioner describes the disclosures of Hubalek and Amazonen in their respective written descriptions and drawings as well as the Declaration testimony of Dr. Weckler. Pet. 67–73. Petitioner contends that a combination of Hubalek and Amazonen teaches each and every element of

independent claim 1. Pet. 72–73. Petitioner indicates the analysis of independent claim 1 applies to independent claim 17 as well. Pet. 73.

3. Patent Owner’s Contentions

Patent Owner contends the Petition’s motivation to combine analysis is deficient. Prelim. Resp. 39–43, 45–46. Specifically, Patent Owner challenges the motivations to combine Hubalek and Amazonen (Prelim. Resp. 39, 45), contends Petitioner’s reasoning is conclusory, and relies on improper hindsight (Prelim. Resp. 42)

4. Analysis of Independent Claims 1 and 17

As with other grounds that rely on Hubalek, we determine that Petitioner has not met its burden in demonstrating that there is a reasonable likelihood that claim 1 or claim 17 is unpatentable over Hubalek and Amazonen. While Petitioner provides an extensive description of Amazonen (Pet. 67), this description lacks an explanation of how the features of Amazonen map to the features of claim 1 or claim 17 of the ’989 Patent. *See* 37 C.F.R. §§ 42.104(b)(4)–(b)(5). We agree with Patent Owner in that Petitioner relies heavily on conclusory statements and does not provide adequate explanation or argument as to *why* and *how* the combination of Hubalek and Amazonen would be made and how that combination would teach or render obvious each feature of claim 1 or claim 17.

5. Dependent Claims 2–4, 6–8, and 18

Dependent claims 2–4, 6–8, and 18 depend from claims 1 or 17 and suffer from the same deficiencies discussed above in the context of independent claims 1 and 17. Accordingly, we also determine that Petitioner has *not* established a reasonable likelihood that dependent claims 2–4, 6–8, and 18 are unpatentable based on Hubalek and Amazonen.

I. Ground 6 – Claim 16
Based on any of Grounds 1–5 and Friesen

Petitioner asserts claim 16 is unpatentable under § 103 as obvious in view of any of Grounds 1–5 and Friesen. Pet. 73–75. Claim 16, dependent from claim 1, further recites that “the actuator is configured to rotate the toolbar throughout an obtuse angle range.” Ex. 1001, 13:17–19.

First, we summarize the disclosure of Friesen.

1. Friesen (Ex. 1015)

Friesen is titled “Rear Folding Tool Bar Implement.” Ex. 1015, code (54).

Figure 1 of Friesen is reproduced below.

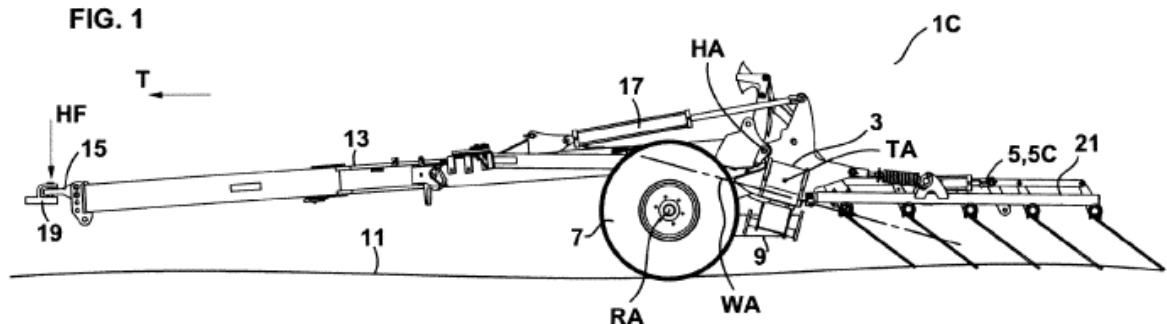


Figure 1 above is a side view of a center portion 1C of an embodiment of a tool bar apparatus 1 with wings removed, shown in a field operating position. *Id.* ¶¶ 12, 18, 19. The apparatus 1 comprises an elongate center tool bar 3 having a longitudinal tool bar axis TA, and ground engaging tools 5 fixed to the center tool bar 3. *Id.* ¶¶ 18, 19. Center wheels 7 are rotatably fixed to the center tool bar 3. *Id.*

Figure 2 of Friesen is reproduced below.

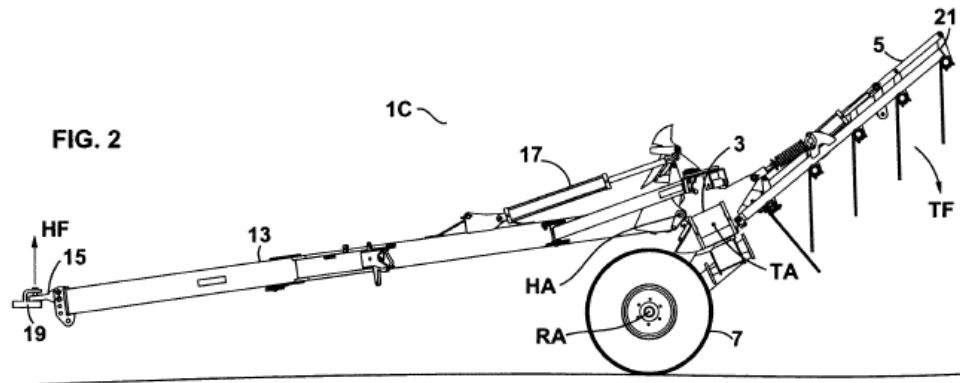


Figure 2 above is a side view of the center portion of Figure 1, shown in an intermediate position between the field operating position and a transport position. *Id.* ¶ 13.

Figure 3 of Friesen is reproduced below.

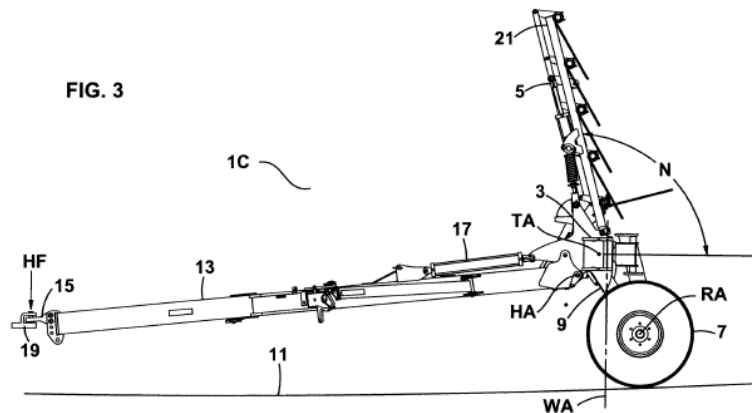


Figure 3 above is a side view of the center portion of Figure 1, shown in the transport position. *Id.* ¶ 14.

“Comparing the position of FIG. 1 and FIG. 3 it can be seen that the center tool bar 3 pivots about the hitch pivot axis HA through an angle N greater than ninety degrees when moving from the field operating position of FIG. 1 to the transport position of FIG. 3.” *Id.* ¶ 26.

2. Petitioner's Contentions

Petitioner relies on the disclosure of Friesen as well as the Declaration testimony of Dr. Weckler. Pet. 73–75. The entirety of Petitioner's argument is that “[i]t would have been obvious to modify” the references relied on in Grounds 1–5, which include Hubalek, Houck, Deere I, Deere II, KR’062, Amazonen, and Poettinger, “so that the transport position is similar to that in Friesen.” *Id.* at 75. We note, however, that the specific recitation in claim 16 does not refer to a “transport position.” Claim 16 requires that “the actuator is configured to rotate the toolbar throughout an obtuse angle range.” Petitioner provides no persuasive evidence that Friesen discloses or suggests this limitation in claim 16.

3. Patent Owner's Contentions

Patent Owner contends the Petition's motivation to combine analysis is deficient. Prelim. Resp. 46–47. Patent Owner alleges that the Petition provides only conclusory statements on unpatentability. Prelim. Resp. 46.

4. Analysis of Dependent Claim 16

Having reviewed Friesen and the party's contentions on Ground 6, we do not agree with Petitioner. While Friesen does appear to disclose “a toolbar apparatus for a farm implement” (Pet. 74), Petitioner does not persuasively explain how Friesen relates to any of the art cited for other grounds, merely concluding “[i]t would have been obvious to modify the implements of Hubalek, Deere I, Amazonen, or Poettinger, so that the transport position is similar to that in Friesen” without explaining *why* a person of ordinary skill in the art would modify any one of Hubalek, Deere I, Amazonen, and/or Poettinger or *how* the combination would be made. Simply stating the combination could have been made, without more, does

not meet Petitioner’s burden in demonstrating that at least one challenged claim is reasonably likely to be unpatentable in view of Friesen and any combination of the references for the other ground. *See Belden Inc. v. Berk–Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.”).

Hence, Petitioner has not demonstrated there is a reasonable likelihood that claim 16 is unpatentable in view of Friesen.

J. Discretionary Denial Under 35 U.S.C. § 325(d)

Patent Owner argues that the Board should exercise discretion, and deny institution under 35 U.S.C. § 325(d) because the same or substantially the same prior art or arguments previously were presented to the Office during prosecution. *See* Prelim. Resp. 47–48. We need not reach this argument having denied institution on the merits.

III. CONCLUSION

For all the foregoing reasons, we deny institution because Petitioner fails to meet its burden to establish a reasonable likelihood that at least one challenged claim is unpatentable.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Petition is *denied* and no trial is instituted.

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Patent 11,665,989 B2

FOR PETITIONER:

Brian A. Tollefson
TOLLEFSON IP
brian@tollefsonip.com

Terry Kramer
KRAMERAMADO, P.C.
terry@krameramado.com

FOR PATENT OWNER:

John Yates
Kyrie Cameron
PATTERSON + SHERIDAN LLP
jyates@pattersonsheridan.com
kcameron@pattersonsheridan.com