

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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

v.

AGCO CORPORATION,  
Patent Owner.

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Case IPR2024-01459  
Patent No. 11,665,989 B1

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**PETITIONER'S REQUEST FOR DIRECTOR REVIEW**

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United States Patent and Trademark Office  
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## Contents

|                                                                                                                                             |    |
|---------------------------------------------------------------------------------------------------------------------------------------------|----|
| INTRODUCTION.....                                                                                                                           | 1  |
| Ground I: Hubalek and KR’062 Show Rotation of the Tools .....                                                                               | 3  |
| 1.    A Pivoting Link Causes Rotation.....                                                                                                  | 3  |
| 2.    Hubalek and KR’062 Both Disclose Pivoting Links that Allow Toolbar<br>Rotation.....                                                   | 4  |
| 3.    Motivation to Combine Hubalek and KR’062.....                                                                                         | 8  |
| Ground II: Rotation of Hubalek’s toolbar would have been used in Houck. ....                                                                | 9  |
| Ground III: Poëttinger discloses each and every element of Claims 1 and 17 Except<br>the Second Sensor, which was disclosed by KR’062 ..... | 11 |
| Ground IV: The Petition Explained How and Why.....                                                                                          | 13 |
| Ground V: Amazonen and Hubalek Teach and Suggest .....                                                                                      | 14 |
| CONCLUSION .....                                                                                                                            | 15 |
| CERTIFICATE OF SERVICE .....                                                                                                                | 16 |

Pursuant to 37 C.F.R. § 42.75, Petitioner requests Director Review of the Board’s Decision not to institute an inter partes review of claims 1-4, 6-8, 10-13, and 15-18 of U.S. Patent No. 11,665,989 B2 (Ex. 1001, “’989 Patent”), Paper 12.

### **INTRODUCTION**

The Petition set forth five grounds of unpatentability and carefully walked through the evidence supporting each ground and explained where each and every element of the challenged claims could be found, and with the support of the expert testimony, explained carefully *how* and *why* the teachings of the prior art would have been combined to arrive at the challenged claims. Dr. Weckler’s Declaration includes claim charts for every single ground and every single challenged claim. Petition at 76; EX1002 at Appendix A.1-A.5. Given the breadth of evidence and explication, it is surprising that the Board did not find that there was a *reasonable likelihood* that the Petitioner would prevail with respect to a single challenged claim.

The reasonable likelihood standard has always been viewed as a low standard – similar to 50/50. At the petition stage, a petitioner is not required to prove that the challenged claims are not invalid. Rather, a Petition along with supporting evidence must establish only that there is a *reasonable likelihood* that the petitioner would prevail with respect to at least a single claim. 35 U.S. Code § 314; compare with 35 U.S. C. § 324; see also 2019 Trial Practice Guide at 53 (“The “reasonable

likelihood” standard is a somewhat flexible standard that allows the Board room to exercise judgment.... The “more likely than not” standard requires greater than 50% chance of prevailing.”) “[I]t is lower than the “preponderance” standard to prevail in a final written decision.” *Hulu, LLC v. Sound view Innovations, LLC*, IPR2018-01039, Paper 29;*Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (comparing § 314(a) with § 316(e)) (“[T]here is a significant difference between a petitioner’s burden to establish a ‘reasonable likelihood of success’ at institution, and actually proving invalidity by a preponderance of the evidence at trial.”) Section 312(a) requires only that the Petition *identify* the grounds on which the challenge is based the evidence supporting those grounds, including the prior art and declarations of supporting evidence and opinions.

Here, the prior art clearly disclosed each and every element of a challenged claims, with each reference being in the same field of endeavor – simple mechanical equipment, supported with unchallenged expert testimony explaining how and why the prior art would have been combined. Thus, the Board erred when it did not institute an IPR trial.

The Board failed to:

(1) Recognize the prior art disclosed agricultural implements comprising frame members and tool bars coupled parallel to and behind the frame members,

configured to *rotate* relative to the implement's frame member via actuator action;

(2) Recognize the prior art disclosed that in such a configuration—namely, a tool bar coupled parallel to a frame member of an agricultural implement via an actuator-driven joint—it is capable of rotational movement relative to the implement's frame member, and not merely raising and lowering movements, as found by the Board;

(3) Recognize the prior art disclosed a position sensor in combination with an angle sensor to detect the position of a working tool relative to the ground;

(4) Consider the numerous claim charts and technical analysis provided by expert Dr. Weckler, which clearly demonstrate that the invention of the patent in question would have been achieved from the known prior art documents without undue experimentation.

(5) Separately analyze claim 17, which has different limitations than claim 1. The Petition included a separate analysis of claim 17, which was completely disregarded. Petition 87-96.

**Ground I: Hubalek and KR'062 Show Rotation of the Tools**

*1. A Pivoting Link Causes Rotation*

Essentially, the Board denied Ground I based on its finding that Hubalek and KR'062 describe a “lifting and lowering” motion, and not “rotation.” The Board

found that “‘lifting and lowering’ is not the same as rotation.” Decision 24-25. This finding was both legally and factually erroneous.

First, the Board erred by implicitly construing the claim term “rotating” to exclude “pivoting.” The ’989 patent discloses that its toolbar rotates about the frame by using a pivoting joint. Petition 17, 19. The Petition and Dr. Weckler repeated equated a pivotal connection as causing rotation. Petition at 60. See also, Petition 23-24, 26-27, 32, 34-35, 41, 44, 48, 56-57, 59, 64, 69, 75; EX1002 ¶¶29, 85, 93, 171, 181, 203, 240, 241, 247, 256, 287, 298, 324, 332, 337, 344, 430, 452. In mechanical principles, a “pivoting joint” constitutes a pivot point (or rotation point), a fixed point, and a neutral point to enable and transfer motion. Thus, certain implements utilize rotational movement through a pivoting joint, where the component that rotates or moves about a fixed axis is described as “pivoted.” See *Id.*

The cited KR’062 demonstrates that it would be obvious for the POSITA to combine the rotating toolbar of Hubalek with the sensor technology already disclosed in KR’062.

2. *Hubalek and KR’062 Both Disclose Pivoting Links that Allow Toolbar Rotation*

The Board acknowledges that Hubalek refers to an agricultural machine, more specifically to an air seeder, just like the agricultural machine in the ’989 patent. Decision 24. Nevertheless, the Board states that Hubalek only teaches *lowering and*

*raising* the toolbar, when the agricultural machine enters the headland area and turns at the end of a field. However, the '989 patent is likewise directed to raising and lowering the toolbar at the end of a field (EX1001, column 2, lines 13-16).

The Petition and Dr. Weckler describe in great detail the configuration and operation of the planter 10 of Hubalek, pointing out and showing (with annotated figures) the pivot points and how the actuators rotate the toolbar 78 relative to the frame. Petition 22-26; EX1002 ¶¶114-139. The toolbar 78 is coupled parallel to the frame member 68 via an articulated joint (70, 72, 74, and 76) driven by an actuator (80, 82, 174). *Id*; see also figures 1, 2, 7, 8, 9, and 11 of Hubalek (EX1006). It is undeniable that Hubalek discloses the arrangement of structural elements claimed in independent claims 1 and 17 of the '989 patent, including “*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; ... an actuator coupled between the frame member and the toolbar, ...*” (EX1001, claim 1.) However, the Board states that Hubalek's actuators (80, 82, 174) do not anticipate the limitation “*an actuator coupled between the frame member and the toolbar, the actuator configured to rotate the toolbar relative to the frame member*” in independent claims 1 and 17 of the '989 patent.

The Petition shows that Hubalek teaches *"an actuator coupled between the frame member and the tool bar..."*. Thus, it only remains to show whether Hubalek's actuators (80, 82, 174) also anticipate the limitation of the actuator being **configured to rotate** the tool bar relative to an implement's frame member.

Although Hubalek only mentions “lifting and lowering” movements, both the figures and mechanical principles demonstrate that rotation of the toolbar occurs simultaneously. Petition 25-26; EX1002 ¶134. Comparing the positional variations of the toolbar in Figure 3 of the ’989 patent with Hubalek, both achieve angular rotation for different terrain conditions. EX1001 Fig. 3; EX1002 ¶¶26, 122, 127, 131.

Therefore, a POSITA would be motivated to use the toolbar system taught by Hubalek — a toolbar connected to an implement’s frame member via an articulated joint actuated by an actuator — to both follow ground contours and to turn at the end of a field.

Since Hubalek taught a toolbar connected via a pivoting joint to a frame member, which movement can be controlled through reading from a sensor 83 for actuating a hydraulic cylinder, rotating the toolbar, enhancing the upward and downward movement of row units to follow the ground contours, as taught by KR’062, would have been obvious. Petition 29; EX1002 ¶¶244, 353, 442-443.

In fact, KR'062 taught the same sensor configuration as that of '989 patent. As acknowledged in the Decision, the '989 patent discloses an angle sensor 48 mounted at the position where the toolbar 38A is coupled with the frame 20. The toolbar 38A is rotated by actuator 32-A about this angle sensor 48. Similarly, KR'062 discloses an angle sensor 40 at the point where the toolbar 20 is coupled with the frame 10. As shown, the toolbar 20 is likewise rotated about this point 40 by actuator 12. Petition 26-28; EX1002 ¶¶237-244.

KR'062 disclosed a dynamic adjustment based on real-time feedback, wherein the control unit dynamically actuates a hydraulic lift rod that regulates the ground-engaging tool height according to sensor measurements. This mechanism replicates the operation of the contour system of the '989 patent, raising or lowering the row unit in response to terrain, maintaining consistent ground contact and uniform depth on sloped soils. *See* Petition 29; EX1012 1-3; EX1002 ¶353.

Accordingly, the Board overlooked the fact that when KR'062 is combined with the other prior art references – which already anticipate the structural elements of the '989 patent (namely, a tool bar connected to a frame member via a hinged joint actuated by an actuator) – it teaches the use of two sensors (a distance sensor and an angle sensor) to enable the tools to follow ground contours. Petition 29; EX1002 ¶353.

3. *Motivation to Combine Hubalek and KR'062*

The combination of Hubalek and KR'062 results in equipment with identical functional characteristics in the same field of application as the '989 patent. Hubalek taught the need for articulation of the tool bar relative to the frame member, since large implements with extended row units are positioned farther from the direction of travel. Consequently, on uneven terrain, one or more rows may fail to contact the ground. Hubalek taught mechanisms for articulating a toolbar relative to the frame member to solve this problem. These articulation mechanisms, such as actuators and mechanical joints, are already obvious in the art, being a mere choice of design construction, disclosed in Hubalek. Hubalek features an articulable toolbar that enables the implement to traverse uneven terrain, as its control and sensing system induces the rotation relative to the frame member. This additional control capability derives from the obvious combination of two interconnected sensors disclosed in KR'062, which communicate with the actuation cylinders (80, 82) of the toolbar of Hubalek. Thus, it is clear that the discussed combination achieves the same intended result as the '989 patent, wherein the terrain contouring through toolbar control is made via communication between two sensors. It would have been obvious to incorporate KR'062's technology into Hubalek to improve its ground-contouring functionality. Petition 29; EX1002 ¶¶244, 442.

The use of a well known technology would be obvious to the POSITA - given that Hubalek already teaches an adjustable structure. The combination of KR'062's sensors with Hubalek's structure does not involve unexpected technical modifications. Integrating KR'062's sensors with Hubalek's frame member and articulated toolbar would render the same predictable benefits already achievable by each technology individually. The resulting solution was predictable, and it does not present any novel technical challenge. Petition 29; EX1002 ¶¶244, 441-443.

**Ground II: Rotation of Hubalek's toolbar would have been used in Houck.**

The Board acknowledges that Houck discloses agricultural implements, more specifically planters, that control seeding depth in soil - identical to the functionality of the '989 patent. Decision 26-27. The planting system included a plurality of row units 36 for seeding, mounted to an elongated toolbar 34, wherein each row unit 36 includes a ground-engaging tool 52. The planting system further comprises position sensors 112 and 114 to detect the planting toolbar's position relative to the ground. EX1002 ¶91. As described above, the Petition established that Hubalek taught an agricultural implement comprising the same structural elements defined in independent claims 1 and 17 of the '989 patent. As noted in Dr. Weckler's Declaration, sensor 83 is coupled to frame member 68 and is capable of detecting the position of toolbar 78 relative to frame member 68. EX1002 ¶127.

Consequently, a POSITA seeking an agricultural machine capable of controlling the working tools' distance relative to the ground, as well as raising/lowering the toolbar at the end of a field would have been motivated to combine Hubalek and Houck. As the Petition described, this would have required simply to mount Houck's row units 36 (equipped with position sensors 112/114 for ground detection) onto Hubalek's toolbar 78 (which already features sensor 83 for detecting the tool bar's position relative to frame member 68). Petition 36; EX1002 ¶357.

The row units of Houck moves via a parallelogram linkage system employing revolution movement principles, providing effective contouring on sloped terrain. As shown in the '989 patent, connection 64 (articulation joint) likewise utilizes a parallelogram structure. Therefore, combining the parallelogram-linked row units of Houck with the toolbar of Hubalek creates complete functional equivalence with the '989 patent. EX1002 ¶¶88, 356-357. Thus, the Hubalek-Houck combination embodies all elements of Claim 1 and 17 of the '989 patent, achieving identical technical functionality. Importantly, the toolbar ROTATES relative to the frame member while simultaneously revolves the row units relative to the toolbar, achieving the same ground-contouring purpose. The angular relationships disclosed in the '989 patent are clearly demonstrated in the Hubalek-Houck combination.

The combination of Houck and Hubalek is motivated by incorporating a sensor-equipped row unit into Hubalek's existing articulation system, in order to enhance ground contouring by Hubalek's row units. Petition 36. It would have been obvious to a POSITA to mount the row unit of Houck to Hubalek's implement, achieving the same functionality as the '989 patent. Hubalek includes sensor 83 for detecting the toolbar position relative to the frame member whereas Houck's row unit features sensors 112/114 for detecting toolbar position relative to the ground. *Id.* Together they provide equivalent terrain-contouring sensing as '989 patent. Petition 36-38. Thus, Hubalek combined with Houck clearly would have resulted in a ground-contouring system since the dual-sensor association produces the same technical effect as the '989 patent. *Id.* The toolbar rotation is executed by Hubalek's actuator, which actuates based on sensors communication. The simple combination of the elements of Houck and Hubalek would have been predictable and would not present any technical challenge. EX1002 ¶¶454-455.

**Ground III: Poëttinger discloses each and every element of Claims 1 and 17**

**Except the Second Sensor, which was disclosed by KR'062**

At the outset, Petitioner did explain where each and every element of the claims can be found in Poëttinger. Petition 40-46, 77-98; EX1002 pp. 178-185. The Decision Board contends that Poëttinger fails to anticipate the limitation in

independent claims 1 and 17 of the '989 patent—namely, "an actuator coupled between the frame member and the toolbar, the actuator configured to rotate the toolbar relative to the frame member of the implement."

Poëttinger teaches a toolbar 15 connected to a frame member of the implement 2 by means of a hinged joint formed by arms (31 and 25) actuated by an actuator 34) to follow ground irregularities. Poëttinger has a toolbar 15 coupled to the frame member 2 by means of a hinged joint 23. EX1009, Fig. 1, ¶¶0028, 0030; EX1002 ¶202. The toolbar 15 is positioned parallel to and behind the frame member 2. Poëttinger's system also includes row units 9 attached to the toolbar 15 through a four-bar parallelogram linkage 14. EX1002 ¶¶206, 215-216. The actuator 34 between the frame member 2 and the tool bar 15 is configured to **rotate** the toolbar relative to the frame member by acting on the hinged joint 23, as previously mentioned and shown in Figures 2 and 3. The hinge causes rotation. EX1002 ¶222. Poëttinger expressly teaches rotation of the toolbar, since the toolbar remains parallel to the frame member throughout any rotational movement. *See id.* A simple examination of Poëttinger's figures conclusively demonstrates that these elements maintain their parallel relationship. EX1002 ¶¶220-222. Upon analyzing the enlarged views from Poëttinger's drawings, it is clear that the toolbar assumes angled positions relative to its frame member – meaning the toolbar rotates about its own

axis, precisely like the '989 patent. The Petition included a comparative analysis of Poëttinger's articulated joint 23 versus the '989 patent, which reveals functionally equivalent operation. Petition 45; EX1002 ¶¶220-224. Given that the mechanical architecture of Poëttinger achieves identical operational results to the '989 patent, as Poëttinger solves the same problems of obtaining more uniform movement over irregular terrain - the systems are functionally equivalent.

Therefore, it would have been obvious for the POSITA to incorporate into Poëttinger (which already teaches row unit position sensing) KR'062's electronic system (with its angle and height sensing capabilities) to resolve these operational challenges, enabling more responsive, precise and efficient row unit movement in order to enhance adjustment to the ground contour, thereby reaching the same solution proposed in the '989 patent. Petition 40-46; EX1002 ¶¶440, 447-449. Moreover, the Board failed to analyzed claim 17 at all ignoring pages 89-97 of the Petition.

#### **Ground IV: The Petition Explained How and Why**

The Decision states that Petitioner failed to disclose how and why Deere I would have been modified. This is incorrect. The Petition explained that POSITA would have been motivated to modify the linkages of Deere I – as an obvious

design choice – to provide more range of movement. Petition 65-66; EX1002

¶¶343-345. Deere II taught the hinged linkage. Petition 67.

**Ground V: Amazonen and Hubalek Teach and Suggest**

The Decision states that the Petitioner failed to explain how the elements of the claim map onto the disclosure of Amazonen. Decision 42. This is incorrect. The Petition points to the evidence and, with the support of Dr. Weckler, lines up all Amazonen's disclosed features with the claim elements. Petition 69-73, 77-98; EX1002 pp. 204-210. It seems the Board entirely ignored Petitioner's claim charts and failed to analyze claim 17 separately, even though a claim chart was provided for claim 17.

The Petitioner also established why Amazonen would have been combined with Hubalek. Amazonen disclosed a farm implement that uses a joint between the toolbar and the frame member to maintain the toolbar parallel to the frame member when it is rotated is widely known in the prior art. EX1002 ¶457. Amazonen also disclosed the claimed first sensor, i.e., sensor 20 positioned on toolbar 12 configured to detect deflection of the tools and therefore, the position of the toolbar 12 relative to the ground. EX1002 ¶183. It therefore would have been obvious to add the sensor of Amazonen to the implement of Hubalek in order to improve the

operation of the tools 22 in Hubalek to better control the depth of the tools 22.

Petition 74; EX1002 ¶¶314, 457-459.

### **CONCLUSION**

The Board abused its discretion by making erroneous claim construction regarding the term “rotation,” by ignoring the claim charts for claim 17, by ignoring Dr. Weckler’s testimony and claim charts, by misapprehending the disclosure of the pivoting joints in Hubalek, Poëttinger, and Amazonen, and by ignoring the reasons why the prior art would have been altered or combined. Director review, and reversal of the decision, are therefore appropriate.

Dated: April 23, 2025

By: /Brian A. Tollefson/  
Brian A. Tollefson  
Registration No.: 46,338  
TOLLEFSON IP  
326 First Street, Suite 202  
Annapolis, MD 21403  
brian@tollefsonip.com  
(443) 699-2450

**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. §§42.6(e) and 42.105, I hereby certify that on this 23rd day of April 2025, a true copy of the foregoing Request for Director Review was served via email on all attorneys of record.

Dated: April 23, 2025

By: /Brian A. Tollefson/  
Brian A. Tollefson  
Registration No.: 46,338  
TOLLEFSON IP  
326 First Street, Suite 202  
Annapolis, MD 21403  
brian@tollefsonip.com  
(443) 699-2450