

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LINDSAY CORPORATION,
Petitioner,

v.

VALMONT INDUSTRIES, INC.,
Patent Owner.

Case IPR2016-01387
Patent 8,948,979 B2

Before LORA M. GREEN, KEN B. BARRETT, and
RICHARD H. MARSCHALL, *Administrative Patent Judges*.

MARSCHALL, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Lindsay Corporation (“Petitioner”) filed a Petition for *inter partes* review of claims 1–17 (all claims) of U.S. Patent No. 8,948,979 B2 (Ex. 1001, “the ’979 patent”). Paper 1 (“Pet.”). Valmont Industries, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Institution of an *inter partes* review is authorized by statute only when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a); *see* 37 C.F.R. § 42.108. Upon consideration of the Petition and Preliminary Response, we conclude the information presented does not show a reasonable likelihood that Petitioner would prevail in establishing the unpatentability of any of claims 1–17 of the ’979 patent.

A. Related Matters

Petitioner and Patent Owner do not identify any related matters.

B. The ’979 Patent

The ’979 patent relates to an irrigation system designed to maintain alignment as it moves across a field. Ex. 1001, Abstract. The system includes horizontal spans supported by multiple towers. *Id.* Each tower includes a variable-speed drive unit. *Id.* The system also includes multiple sensors used to determine the alignment of corresponding spans. *Id.* The speed of the variable-speed drive unit varies depending on input from a corresponding sensor. *Id.* Figure 1A of the ’979 patent is reproduced below:

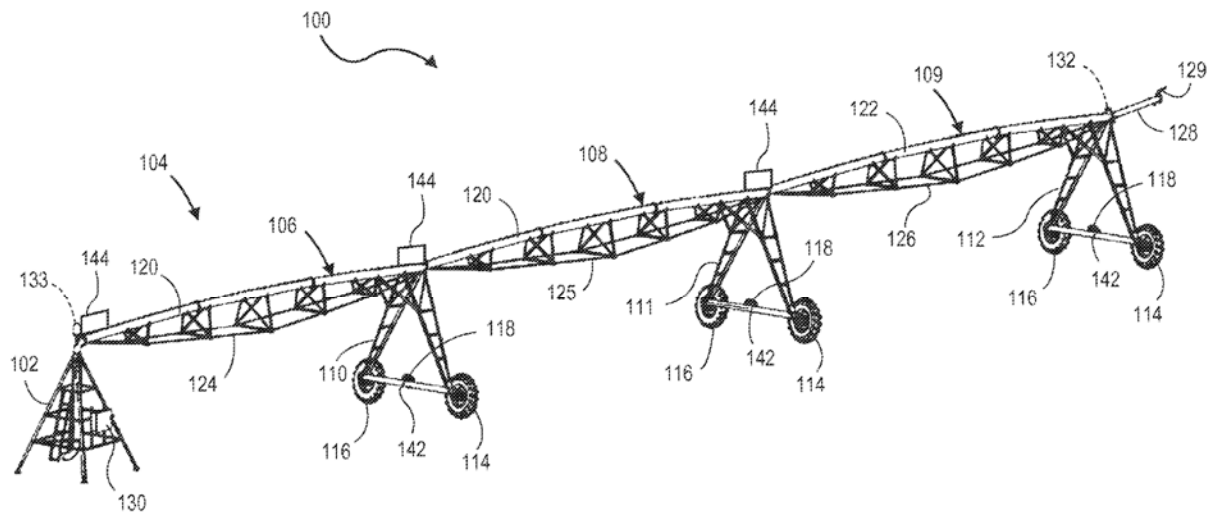


FIG. 1A

Figure 1A illustrates center pivot irrigation system 100 with center pivot structure 102. *Id.* at 3:1–7. Center pivot structure 102 has access to a fluid source that furnishes water to system 100. *Id.* at 3:9–12. The system includes several interconnected spans 106, 108, 109 supported by towers 110, 111, 112. *Id.* at 3:33–36. Each tower includes a drive unit 118 with variable-speed motors 142 to propel the towers. *Id.* at 3:49–57, 5:36–39. Drive units 118 may include a variable-drive control unit directly connected with a respective sensor 144. *Id.* at 5:52–53, 5:65–67. Sensors 144 determine the span-to-span alignment of irrigation system 100. *Id.* at 6:24–27. In response to input from sensors 144, variable-drive control unit 143 transmits drive unit signals to control motors 142 in order to maintain alignment of the system. *Id.* at 6:39–53.

C. Illustrative Claim

Petitioner challenges all 17 claims in the '979 patent. Claims 1, 7, and 13 are the only independent claims. Claim 1 is representative and appears below with relevant limitations underlined.

1. An irrigation system comprising:
 - a plurality of interconnected spans;
 - a plurality of tower structures for supporting the interconnected spans, each one of the plurality of tower structures including a variable- speed drive unit for selectively driving a tower structure at a selected speed;
 - a plurality of sensors, each one of the plurality of sensors associated with a corresponding one of the plurality of interconnected spans and configured to determine an alignment of a corresponding one of the plurality of interconnected spans; and
 - a plurality of variable-drive control units, each variable drive control unit of the plurality of drive control units in communication with a corresponding variable-speed drive unit and a corresponding sensor, each variable drive control unit configured to control the selected speed of the corresponding variable-speed drive unit to maintain the plurality of interconnected spans in a substantially linear orientation with respect to adjacent ones of the plurality of interconnected spans along a generally longitudinally oriented axis,
 - wherein the selected speed of the corresponding variable drive control unit is based upon the alignment.

Ex. 1001, 7:50–8:6 (emphasis added). The underlined limitation above also appears in independent claims 7 and 13. *Id.* at 8:47–49, 9:37–39.

D. Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–17 are unpatentable based on the following grounds (Pet. 3):

Ground	References	Basis	Challenged Claim(s)
1	Krieger '362 ¹	§ 103(a)	1–3, 5–9, 11, 12
2	Krieger '362 and Krieger '912 ²	§ 103(a)	2, 8
3	Krieger '362, Krieger '912, Hancock ³ , and Obradovic ⁴	§ 103(a)	4, 10, 13–17

II. DISCUSSION

A. Claim Construction

In an *inter partes* review, we construe claim terms in an unexpired patent according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation standard). Consistent with the broadest reasonable construction, claim terms are presumed to have their ordinary and customary meaning as understood by a person of ordinary skill in the art in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Petitioner proposes constructions for “variable-speed drive unit,” “variable-drive control unit,” “variable-drive unit,” “at least one sensor is configured to determine an angle between,” and “substantially linear

¹ U.S. Patent No. 6,755,362 B2, iss. June 29, 2004 (“Krieger '362,” Ex. 1003).

² U.S. Patent Application No. 2004/0093912 A1, pub. May 20, 2004 (“Krieger '912,” Ex. 1004).

³ U.S. Patent No. 5,015,903, iss. May 14, 1991 (“Hancock,” Ex. 1005).

⁴ U.S. Patent No. 4,777,419, iss. Oct. 11, 1988 (“Obradovik,” Ex. 1007).

orientation . . . along a generally longitudinally oriented axis.” Pet. 20–27. We need not construe those terms in order to determine whether to institute on the grounds presented in the Petition. Patent Owner raises a claim construction argument that we discuss in the analysis below.

B. Ground 1: Obvious over Krieger ’362

Petitioner contends claims 1–3, 5–9, 11, and 12 are unpatentable under 35 U.S.C. § 103(a) as obvious over Krieger ’362 alone. Pet. 28–51. Relying on the testimony of Dr. Randy Collins (“Ex. 1006”), Petitioner explains how the references allegedly teach or suggest all of the claim limitations and contends that a person having ordinary skill in the art would have been motivated to combine the references. *Id.* (citing Ex. 1006). Patent Owner counters that we should use our discretion to deny institution under § 325(d) because Krieger ’362 was before the Patent Office during prosecution of the ‘979 patent. Patent Owner also argues that Krieger ’362, alone or in combination with other art, fails to disclose all of the limitations of the challenged claims. Prelim. Resp. 2–21.

1. Summary of Krieger ’362

Krieger ’362 discloses an irrigation system with a variable speed drive system. Krieger ’362, Abstract. An alignment mechanism interconnects adjacent spans and maintains alignment of the spans. *Id.* Figure 1 of Krieger ’362 is reproduced below:

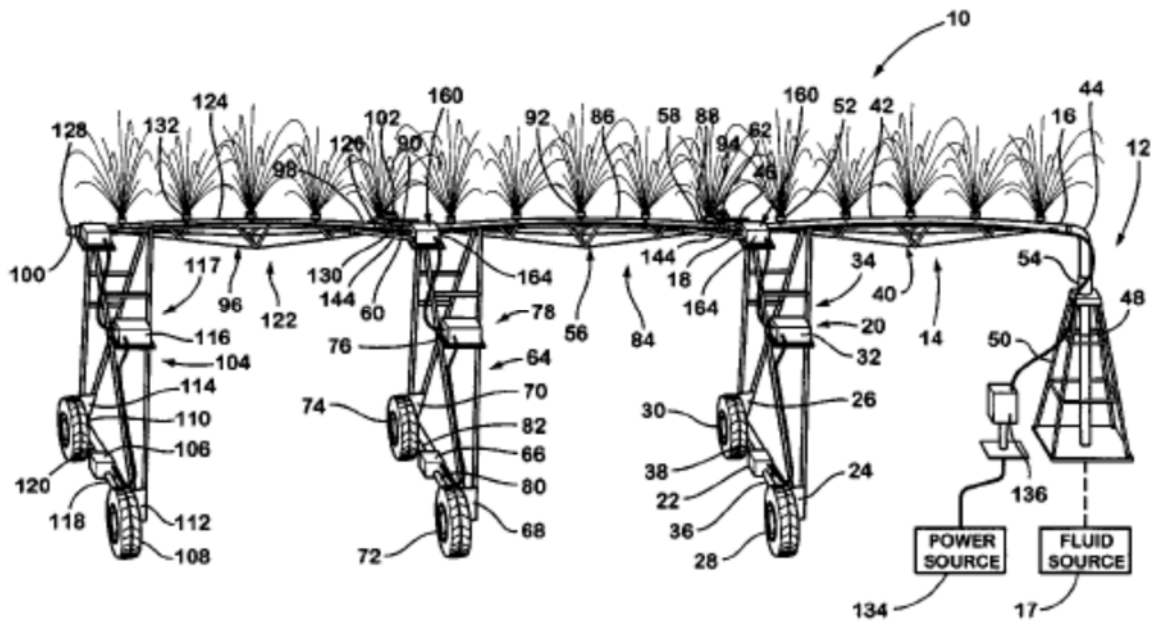


Figure 1 illustrates irrigation system 10 including center pivot tower 12, spans 14, 56, 96, and drive towers 34, 78, 117. *Id.* at 4:21–38, 4:62–63, 5:8–10, 5:32–43. Drive towers 34, 78, 117 are driven by respective drive systems 20, 64, 104, each having driver motors and variable frequency drive modules to control and vary the speed of the towers. *Id.* at 4:31–43, 5:3–17, 5:36–41.

Krieger '362 also discloses alignment system 138 used to maintain alignment between the spans as third span 96 moves at a constant pacing speed. *Id.* at 6:36–39. Alignment system 138 includes a sensor—a potentiometer 142 for measuring the magnitude of misalignment between the first and second irrigator spans 14, 56.” *Id.* at 6:45–47. Potentiometer 142 sends a signal to vary the speed of the drive system to realign the spans. *Id.* at 6:48–51. Alignment system 138 interconnects spans 14, 56. *Id.* at 6:55–59. A similar alignment system 166 maintains alignment between spans 56, 96. *Id.* at 8:13–28. Potentiometers 142 used in alignment systems 138, 166 are located within control boxes 160 shown at the ends of the spans

(shown between spans 14, 56 and spans 56, 96 in Figure 1). *Id.* at 7:66–67, Fig. 1.

2. Analysis

A claim is unpatentable under 35 U.S.C. § 103(a) if 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. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art;⁵ and (4) when in the record, objective evidence of nonobviousness. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Petitioner alleges that Krieger ’362 alone renders claim 1 obvious. Pet. 28–38. Claim 1 requires “a plurality of sensors, each one of the plurality of sensors associated with a corresponding one of the plurality of interconnected spans.” Ex. 1001, 7:57–59. For this limitation, Petitioner relies on alignment systems 138, 166 that maintain alignment between the spans disclosed in Krieger ’362. Pet. 32. Petitioner also relies on the

⁵ Petitioner proposes that “a person of ordinary skill in the art with respect to the ’979 patent would have a Bachelor of Science degree in electrical or mechanical engineering with 3 to 5 years experience in the design of electromechanical systems, including electric motors and variable speed drives.” Pet. 28. Patent Owner does not address this assertion. For purposes of this Decision, we adopt Petitioner’s proposed definition for one of ordinary skill in the art.

testimony of Dr. Collins, who notes that the “alignment system of the Krieger [’362] Patent is mounted to the tower and measures the relative position of the two adjacent spans.” Ex. 1006 ¶ 71. Dr. Collins also points out that “Krieger’s sensors include potentiometers to provide a signal related to the angular alignment of the adjacent spans.” *Id.* at ¶ 90.

Patent Owner first argues that we should decline to institute because Krieger ’362 was before the Patent Office during prosecution and considered by the Examiner. Prelim. Resp. 6–7. Although Krieger ’362 was considered on some level during prosecution of the ’979 patent because it was before the Examiner, the reference was never applied or discussed by the Examiner or Patent Owner. Under these circumstances, we decline Patent Owner’s request to use our discretion under § 325(d) to deny institution.

Next, Patent Owner argues that Petitioner fails to show that Krieger ’362 discloses “a plurality of sensors, each one of the plurality of sensors associated with a corresponding one of the plurality of interconnected spans.” Prelim. Resp. 7–15. According to Patent Owner, this limitation requires a “one-to-one” correspondence between each sensor and a corresponding span. *Id.* at 2–5. Patent Owner bases its claim construction argument on the language of claim 1 and statements made throughout the specification. *Id.* Patent Owner argues that Petitioner does not attempt to explain how the potentiometers disclosed in Krieger ’362 correspond to a single span or that it would have been obvious to modify Krieger ’362 to create the claimed one-to-one relationship between each sensor and a corresponding span. *Id.* at 9–11.

We agree with Patent Owner that Petitioner has not met its burden to show that Krieger ’362 discloses “each one of the plurality of sensors

associated with a corresponding one of the plurality of interconnected spans.” Petitioner quotes the “plurality of sensors” limitation and then quotes from Krieger ’362 to establish that Krieger ’362 discloses a plurality of sensors that maintain alignment between the spans. Pet. 31–33.

Petitioner, however, offers no construction for the claim limitation “each one of the plurality of sensors associated with a corresponding one of the plurality of interconnected span,” and, in fact, does not specifically address how Krieger ’362 discloses that limitation in its analysis. *Id.* Petitioner mentions the limitation only in passing when asserting that “Dr. Collins confirms” that Krieger ’362 discloses the limitation. *Id.* at 32–33. The cited testimony of Dr. Collins, however, does not set forth any opinion regarding the construction of the limitation or how Krieger ’362 discloses the limitation. *See* Ex. 1006 ¶¶ 68–71, 90. Similar to the Petition, Dr. Collins quotes the lengthy “plurality of sensors” claim language but does not specifically address the “each one of the plurality of sensors associated with a corresponding one of the plurality of interconnected spans” requirement within it. *See id.* ¶ 90. Under these circumstances, Petitioner has not provided adequate support in the Petition as to how Krieger ’362 satisfies the claim limitation “each one of the plurality of sensors associated with a corresponding one of the plurality of interconnected span,” and, thus, fails to establish a reasonable likelihood that independent claim 1 is rendered obvious by Krieger ’362. *See* 37 C.F.R. § 42.104(b)(3) (requiring Petitioner to identify how the “challenged claim is to be construed”); 37 C.F.R. § 42.104(b)(4) (requiring Petitioner to “specify where each element of the claim is found in the prior art”).

The same analysis applies to independent claim 7, which includes the same limitation. Ex. 1001, 8:47–49. The remaining claims challenged in Ground 1 depend from claims 1 and 7, and, therefore, Petitioner’s analysis is deficient for the same reasons discussed as to claims 1 and 7.

Moreover, Petitioner’s obviousness allegations fail because Petitioner does not perform an obviousness analysis with respect to claim 1. Petitioner alleges that Krieger ’362 discloses all of the limitations of independent claim 1. Pet. 28–38. At no time does Petitioner allege that Krieger ’362 does not disclose a limitation, but it would have been obvious to modify Krieger ’362 to arrive at the claimed invention having that limitation, or provide other analysis that bears the hallmarks of an obviousness analysis. *See id.*

Petitioner takes the same approach with independent claim 7 by alleging obviousness without an obviousness analysis, with the analysis largely mirroring that for independent claim 1. Pet. 47–49. The remaining claims challenged in Ground 1 depend from claims 1 and 7, and therefore suffer from the same defect. We, therefore, would not institute on the obviousness grounds asserted in Ground 1 for this additional reason.

For at least these reasons, Petitioner has not shown sufficiently that Krieger ’362 discloses or renders obvious all of the limitations of independent claims 1–3, 5–9, and 11–12. Accordingly, we determine the information presented does not show a reasonable likelihood that Petitioner would prevail in establishing that any of claims 1–3, 5–9, and 11–12 would have been obvious over Krieger ’362.

C. Grounds 2 and 3

Petitioner contends claims 2 and 8 (Ground 2) and claims 4, 10, 13–17 (Ground 3) are unpatentable under 35 U.S.C. § 103(a) as obvious over the

combination of Krieger '362 with other prior art. Pet. 51–63. Claims 2, 4, 8, and 10 depend from independent claims 1 and 7, each of which require “each one of the plurality of sensors associated with a corresponding one of the plurality of interconnected spans” discussed above. Independent claim 13 contains the same limitation, as well as claims 14–17 that depend from claim 13. Accordingly, Grounds 2 and 3 fail to establish a reasonable likelihood that the claims are unpatentable for the same reasons set forth above with respect to Ground 1, as the additional analysis in Grounds 2 and 3 does not remedy the deficiencies in that analysis.

Further, the Petition also lacks sufficient obviousness analysis for Grounds 2 and 3 because Grounds 2 and 3 build on the purported obviousness analysis for claims 1 and 7. Grounds 2 and 3 involve claims that depend from independent claims 1 and 7 (claims 2, 4, 8, and 10) and, therefore, rely on the Petition’s analysis of the independent claims as a predicate for the dependent claim analysis. Pet. 51–59.

Independent claim 13 does not depend from claims 1 or 7, but Petitioner asserts that “[i]ndependent claim 13 is the same as independent claim 7 except that independent claim 13 recites ‘switched reluctance motors’ in place of ‘variable-speed drive units.’” Pet. 59. Petitioner then relies on the analysis of claim 7 from Ground 1. *Id.* at 60 (“As set forth in Ground 1, Krieger '362 alone renders obvious all limitations of claim 7.”). Petitioner also relies on the analysis of dependent claim 4, and the analysis of claim 4 relies upon the flawed analysis of claim 1. *See id.* (Claim 13 analysis: “Therefore, for the same reasons discussed in the analysis of Ground 3 with respect to dependent claim 4”); *id.* at 55 (Claim 4 analysis: “As set forth in Ground 1, Krieger '362 alone renders obvious all

limitations of claim 1.”). Petitioner’s brief analysis for claim 13, therefore, relies upon the flawed analysis for claims 1 and 7 in Ground 1 without remedying those deficiencies. The analysis for dependent claims 14–17 contains the same flaws because those claims depend from claim 13 and incorporate the analysis from various claims addressed as part of Ground 1. Pet. 60–63.

Based on the foregoing, we determine the information presented does not show a reasonable likelihood that Petitioner would prevail in establishing that any of claims challenged in Grounds 2 and 3 would have been obvious.

III. CONCLUSION

For the foregoing reasons, we determine that the information presented does not establish a reasonable likelihood that Petitioner would prevail in showing that claims 1–17 of the ’979 patent are unpatentable on the grounds asserted in the Petition.

IV. ORDER

Accordingly, it is:

ORDERED that the Petition is denied as to all challenged claims, and no trial is instituted.

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