

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

E. & J. GALLO WINERY,
Petitioner,

v.

VINEYARD INVESTIGATIONS,
Patent Owner.

IPR2022-00792
Patent 10,645,881 B2

Before TERRENCE W. McMILLIN, JON M. JURGOVAN, and
JASON W. MELVIN, *Administrative Patent Judges*.

McMILLIN, *Administrative Patent Judge*.

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

I. INTRODUCTION

E. & J. Gallo Winery (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1–48 of U.S. Patent No. 10,645,881 B2 (Ex. 1001, the “’881 patent”) pursuant to 35 U.S.C. § 311 *et seq.* Paper 1 (“Petition” or “Pet.”). Vineyard Investigations, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Preliminary Response” or “Prelim. Resp.”).

We have authority under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and the Preliminary 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) (2018). After considering the Petition and the Preliminary Response, and the evidence of record, we do not institute an *inter partes* review as to any of the challenged claims of the ’881 patent.

A. Related Proceedings

The parties identify the following related proceeding: *Vineyard Investigations v. E. & J. Gallo Winery*, Case No. 19-cv-01482 (E.D.Ca.). Pet. 1; Paper 5, 2.

In IPR2021-00076, claims of a related patent, US 8,528,834 B2, were challenged, and in IPR2021-00077, claims of a related patent, US 6,947,810 B2, were challenged. Paper 5, 2. In IPR2012-00076 and IPR2021-00077, institution was denied. *See* Exs. 2004, 2005.

B. Real Parties in Interest

Petitioner identifies E. & J. Gallo Winery as the real party-in-interest. Pet. 1. Patent Owner identifies Vineyard Investigations as the real party-in-interest. Paper 5, 2.

C. The '881 Patent

The '881 patent is titled “Plant Growing System Using External Data.” Ex. 1001, code (54). The system is “for monitoring and managing crop growth.” *Id.* at 1:19–20.

The '881 patent describes that while irrigation systems, such as for the growing of grapes, “have proven effective . . . care must be taken to provide the proper amount of water over time to the crops.” *Id.* at 1:43–46. The '881 patent also describes that the irrigation process, including the application of fertilizer and insecticides, applied with machine spraying, “requires human action and judgment,” and is “labor-intensive and expensive.” *Id.* at 1:56–2:10.

Figure 1, reproduced below, shows the system of the '881 patent.

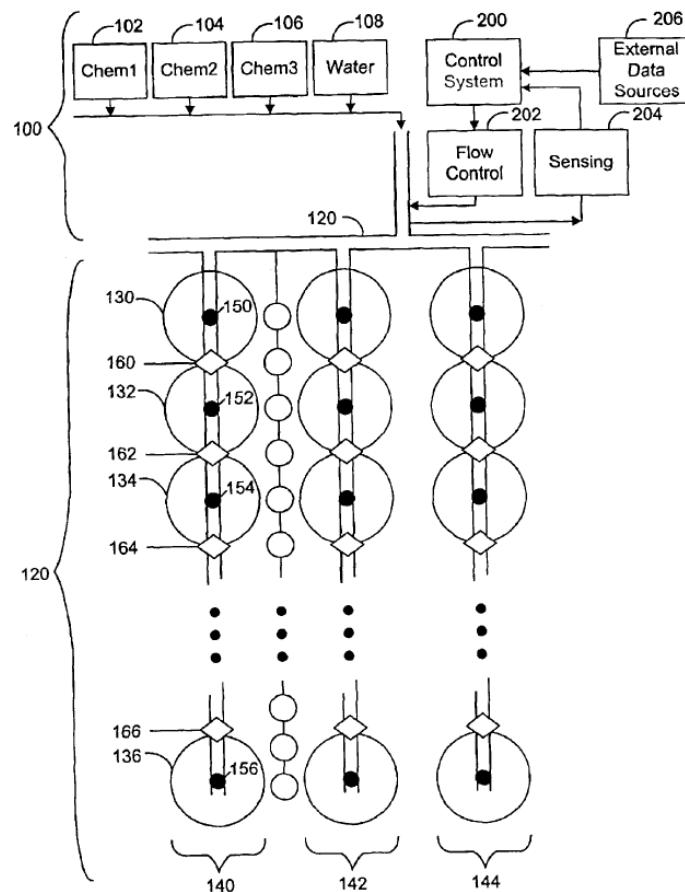


Figure 1 depicts “system 100 is used to deliver materials such as chemicals 102, 104 and 106; and water 108 to crops 110 via conduit 120.” *Id.* at 3:60–62. In Figure 1, “[e]ach grapevine plant is illustrated as a circle such as vines 130, 132, 134 and 136. Vines are organized into rows such as row 140, 142 and 144.” *Id.* at 4:1–3. The system uses multiple inner channels to keep incompatible materials separate from each other. *Id.* at 4:13–25. Figure 1 shows outlets from conduit 120 “as black dots such as emitters 150, 152, 154 and 156.” *Id.* at 4:29–31.

In the ’881 patent, “each individual emitter ... can have intelligent control.” *Id.* at 5:60–61. The ’881 patent explains that “[w]ith more finely-grained monitoring and control (achievable by either a centralized control system or distributed system) delivery of chemicals, water, and other materials can be made to only the exposed plants.” *Id.* at 5:66–6:2.

D. Challenged Claims

Petitioner challenges claims 1–48 of the ’881 patent. Pet. 1. Of the challenged claims, claims 1, 10, 17, and 24 are independent. Ex. 1001, 14:14–15:45. Claim 1 is illustrative, and recites:

1. A system for the application of a material to a plurality of plants in a plant area, the system comprising:
 - emitters for emitting the material to the plant area, ***wherein each emitter is associated with and in fixed proximity to one of the plants;***
 - a control system coupled to the emitters for controlling the emission of the material to the plant area in response to external data associated with growing the plants; and
 - wherein the external data is received from a geographically remote source over a wide-area digital network, and wherein the external data is derived, at least in part, using a model including potential data.

Id. at 14:14–26 (emphasis added). Each of the independent claims of the ’881 patent recites “each emitter is associated with . . . one of the plants,” and this decision not to institute trial focuses upon this element of the claims.

E. The Asserted Grounds

Petitioner challenges claims 1–48 of the ’881 patent based on the grounds set forth in the table below.

Claims Challenged	35 U.S.C. §¹	Reference(s)/Basis
1–8, 10–43	103(a)	Miller ² , Williams ³ , IPM ⁴
9, 44, 46–48	103(a)	Miller, Williams, IPM, Gallardo ⁵
45	103(a)	Miller, Williams, IPM, Delwiche ⁶

¹ Because the application leading to the ’881 patent claims priority to an application that was filed before March 16, 2013, patentability is governed by the versions of 35 U.S.C. §§ 102 and 103 preceding the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284 (2011).

² US 4,545,396, issued Oct. 8, 1985 (Ex. 1005).

³ Williams, et al., *Irrigation of Thompson Seedless Table Grapes: Utilization of Crop Coefficients Developed at the Kearney Center for Use at Other Locations in the San Joaquin Valley*, Viticulture Research Report Volume XXVII, 1998–99, California Table Grape Commission, Fresno, CA (Ex. 1006).

⁴ University of California Statewide Integrated Pest Management Project, University of California, Division of Agriculture and Natural Resources, May 20, 2000, originally available at: <http://www.ipm.ucdavis.edu>, currently available at: <https://archive.org/web/> (Ex. 1007).

⁵ Gallardo, et al., *Crop Growth and Water Use Model for Lettuce*, Journal of Irrigation and Drainage Engineering, November/December 1996 (Ex. 1009).

⁶ US 6,001,346, issued Dec. 14, 1999 (Ex. 1010).

II. ANALYSIS

A. Claim Construction

For an *inter partes* review petition filed after November 13, 2018, we construe claim terms “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) (2019). In applying a district court-type claim construction, we are guided by the principle that the words of a claim “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. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (citation omitted). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17). There is a “heavy presumption,” however, that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002) (citation omitted).

The Petition states that “[f]or the p[ur]poses of this Petition, claim terms are assumed to be given their plain and ordinary meaning.” Pet. 12. Patent Owner states that “[c]laim construction is not necessary to resolve the dispute raised in the Petition.” Prelim. Resp. 38. Accordingly, there is no dispute between the parties relating to claim construction and we determine that no terms require express construction for purposes of this Decision. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’”)

(quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). In this Decision, we give the claim terms their ordinary and customary meanings.

B. Legal Standard

A patent claim is unpatentable as obvious if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of non-obviousness.⁷ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). Petitioners cannot satisfy their burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

⁷ In its Preliminary Response, Patent Owner does not present any objective evidence of non-obviousness. *See generally* Prelim. Resp.

*C. Cited References*⁸

1. Miller (Ex. 1005)

Miller issued on October 8, 1985, from an application filed on February 25, 1985. Ex. 1005, codes (22), (45). The earliest priority date claimed for the '881 patent is May 31, 2001. Ex. 1001, code (60), 1:6–15. Petitioner contends Miller qualifies as prior art under, at least, pre-AIA 35 U.S.C. § 102(b). Pet. 14. Patent Owner does not challenge the prior art status of Miller. *See generally* Prelim. Resp. Miller is prior art under, at least, pre-AIA 35 U.S.C. § 102(b), (e).

Miller is titled “System for Optimum Irrigating and Fertilizing.” Ex. 1004, code (54). Miller “relates to a system for automatically irrigating and fertilizing of agricultural operations such as groves, truck farms, and the like and more particularly to a computer control system in which feedback from moisture and salinity sensors is provided.” *Id.* at 1:7–11. Miller

utilizes a multiplicity of moisture and salinity sensors buried within the root zone of the crops and including means for measuring the complex impedance of the sensor in which the reactive part is a measure of the moisture content of the soil, and the resistive part is a measure of the salinity of the soil.

Id. at 1:46–52. “In a large operation, the area would be divided into regions with sensors buried in each region so that the requirements can be determined individually for each region. When irrigation is needed by any region, the main pump is energized by means of control circuits operating from the computer.” *Id.* at 1:60–65. For moisture sensors, “it is preferred

⁸ Our detailed analysis of obviousness is limited to the independent claims, but is dispositive as to the dependent claims as well. Therefore, this summary of the cited references is limited to the references cited against the challenged, independent claims. Accordingly, Gallardo and Delwiche are not summarized and no further mention is made of these references.

that at least two sensors be buried at different depths to be able to differentiate a high moisture level from surface water from the overall soil moisture.” *Id.* at 3:31–34.

Figure 2, reproduced below, is a block diagram of a typical installation used in conjunction with orange groves. *Id.* at 3:66–68.

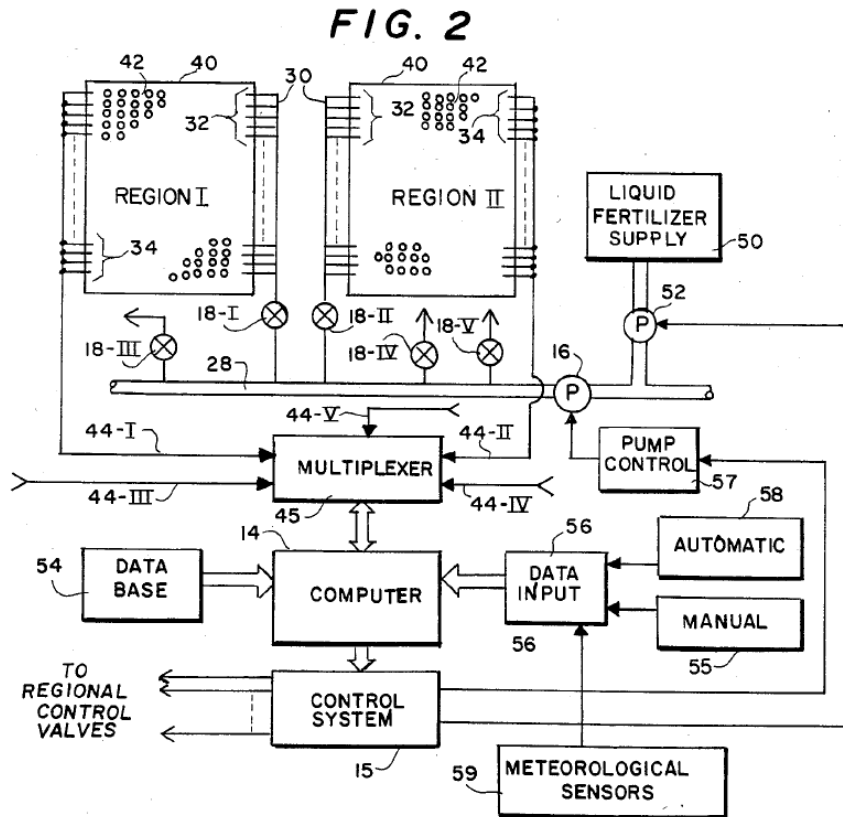


Figure 2 depicts in “detail the automatic irrigating and fertilizing system.”

Id. at 3:14. Figure 2 shows Miller’s system

being used with an orange grove having a plurality of regions 40 in which each region may be independently irrigated and fertilized. Using Region I as an example, it consists of a grove of orange trees 42. Regional supply line 30 connects to water main 28 and feeds a plurality of lateral lines 32 which run down the rows of trees 42.

Id. at 3:67–4:7. According to Miller, “[i]t is common to have a sprinkler head adjacent each tree in the region.” *Id.* at 4:7–8.

2. *Williams (Ex. 1006)*

Williams appears to have been published in 1999. Pet. 15 (citing Ex. 1011 ¶¶ 47–56; Ex. 1006, 1. Petitioner contends, “‘Williams’[] qualifies as prior art under at least (pre-AIA) 35 U.S.C. § 102(b) because it was published in 1999, more than one year before the earliest priority date for the ’881 patent.” Pet. 15. Patent Owner does not challenge the prior art status of Williams. *See generally* Prelim. Resp. On this record, we determine that Williams is prior art under, at least, pre-AIA 35 U.S.C. § 102(a).

Williams is titled “Irrigation of Thompson Seedless Table Grapes: Utilization of Crop Coefficients Developed at the Kearney Center for Use at Other Locations in the San Joaquin Valley.” Ex. 1006, 1.⁹ Williams presents the results of “irrigation trials [used] to ‘validate seasonal crop coefficients (k_c)’ that had been ‘developed at the Kearney Ag Center with the use of a weighing lysimeter.’” *Id.* 15-16., Abstract.

3. *IPM (Ex. 1007)*

IPM was published on May 20, 2000. Ex. 1007, 1.¹⁰ Petitioner contends that IPM qualifies as prior art under, at least, pre-AIA 35 U.S.C. § 102(a). Pet. 16. Patent Owner does not challenge the prior art status of IPM. *See generally* Prelim. Resp. On this record, we determine that IPM is prior art under, at least, pre-AIA 35 U.S.C. § 102(a).

IPM is a University of California statewide integrated pest management project. Ex. 1007, 1. IPM describes using degree-days and a

⁹ We refer to Petitioner’s page numbering because only certain pages of Williams appear to include a page number.

¹⁰ The Wayback Machine - <http://web.archive.org/web/20000520020921/http://www.ipm.ucdavis.edu:80/default.html>

phenology model to predict development of an organism, and discloses disease models that use “weather, host and/or pathogen data to predict risk of disease outbreak.” *Id.* at 12, 19.¹¹

D. Petitioner Fails to Show the Cited References Teach or Suggest All the Limitations of Any Challenged Claim

Petitioner challenges claims 1–48 of the ’881 patent. Based on our analysis of Petitioner’s contentions with regard to the challenged, independent claims (claims 1, 10, 17, and 24), we determine that Petitioner has not shown a reasonable likelihood of prevailing with respect to unpatentability of any claim of the ’881 patent.¹²

1. Claim 1

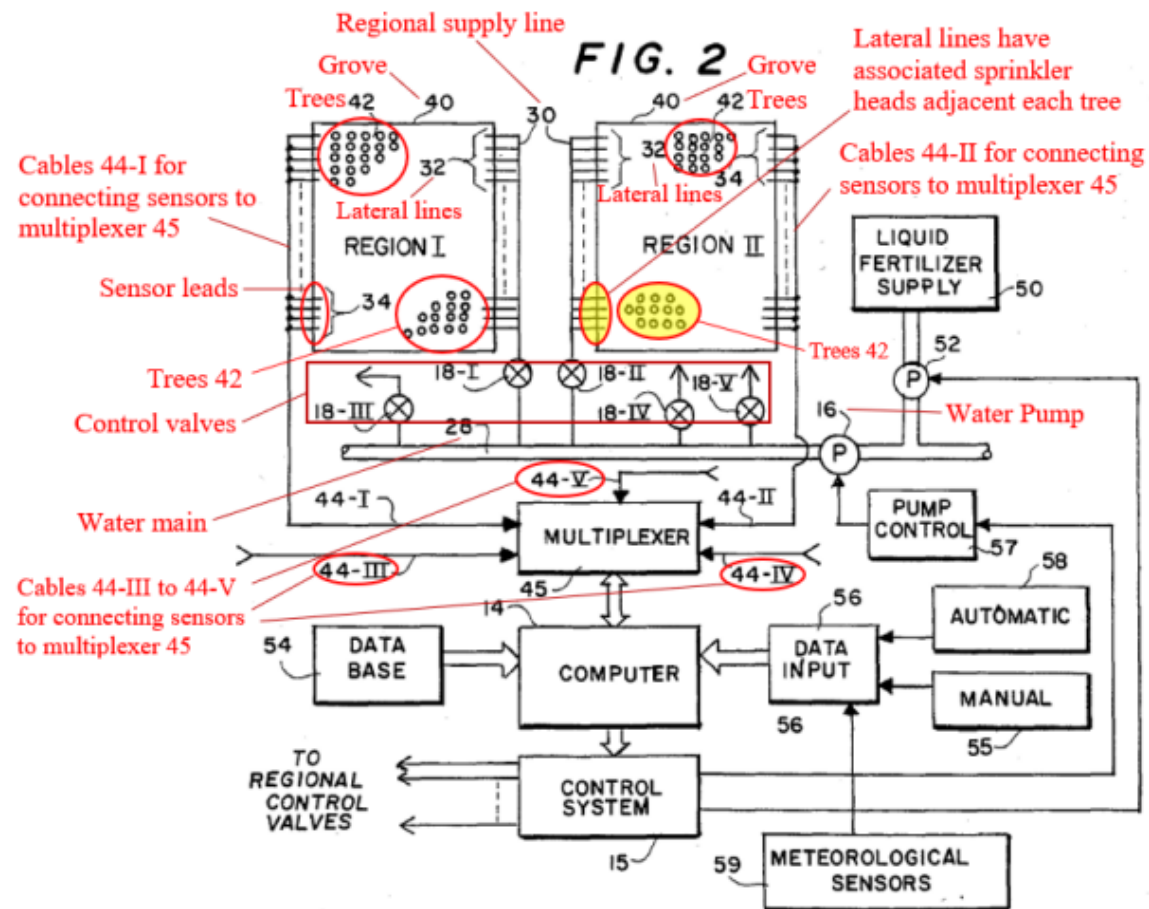
Claim 1 is directed to a “system for application of material to a plurality of plants” that includes emitters for emitting the material, “wherein each emitter is associated with and in fixed proximity to one of the plants.” Ex. 1001, 14:14–18.

Petitioner relies on Miller (Ex. 1005) as teaching “each emitter is associated with . . . one of the plants.” *See* Pet. 18–22.¹³ In the Petition, an annotated version of Figure 2 of Miller, reproduced below, is provided.

¹¹ Because IPM appears to include several sections with each section starting at “1,” we use Petitioner’s page numbering.

¹² Our determination that Petitioner has not sufficiently shown that the cited art teaches or suggests all the limitations of any of the challenged, independent claims necessarily dictates the same determination with regard to all the challenged dependent claims. *See* 35 U.S.C. § 112(d) (“A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.”).

¹³ Although Petitioner asserts “Miller in view of Williams and IPM teaches this element,” Petitioner only relies on Miller. Pet. 19.



Id. at 20.¹⁴ And, Petitioner relies on this single sentence from the detailed description of Figure 2 in Miller: “It is common to have a sprinkler head [emitter] adjacent each tree in the region.” *See id.* at 19. The Petition states:

A POSITA^[15] would have . . . understood Miller’s disclosure of a “sprinkler head adjacent each tree” to indicate that each tree can receive a localized delivery of water from an adjacent sprinkler head, such that “each emitter is associated

¹⁴ Figure 2 in Miller does not depict “[l]ateral lines have associated sprinkler heads adjacent each tree” as set forth in the annotation added by Petitioner in the upper left corner of annotated Figure 2 in the Petition. There are no sprinkler heads depicted in Figure 2 and the lateral lines depicted in Figure 2 are not shown adjacent to each tree but instead are depicted as terminating near the edge of the region outside of the areas where the trees are shown.

¹⁵ POSITA is an acronym commonly used in patent proceedings for “person of ordinary skill in the art.”

with . . . one of the plants” (e.g., emitting a material to the plant). For example, based on Miller’s disclosure, a POSITA would have envisioned Miller’s lateral line 32 “run[ing] down” a row of trees and feeding water to “a sprinkler head adjacent each tree” in the row, such that the sprinkler head provides a localized delivery of water to one or more plants (e.g., in the row or region). [Figure 2 (annotated)]. A POSITA would likewise have envisioned, based on Miller’s disclosure, a single tree (e.g., in its own region) receiving water from a single sprinkler head adjacent to the tree, such that a single plant receives water from its own, dedicated sprinkler head. A POSITA would have understood that Miller’s feed lines and controller could^[16] be readily configured to operate a sprinkler head on a per plant basis.

Id. at 20–21.¹⁷ Thus, Petitioner equates “sprinkler head” in Miller to “emitter” as recited and “adjacent each tree in the region” in Miller to “associated with . . . one of the plants” as recited. And, Petitioner concludes that an ordinarily skilled artisan would have understood Miller’s disclosure of a “sprinkler head adjacent each tree” to teach that “Miller’s feed lines and controller could be readily configured to operate a sprinkler head on a per plant basis.” *See* Pet. 21. Petitioner does not explain how or why placing a sprinkler head adjacent each tree means that the feed lines and controller

¹⁶ “[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.” *Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1075 (Fed. Cir. 2015) (emphasis added).

¹⁷ In addition to the evidence from Miller referred to above, Petitioner also cites paragraphs 84–90 of the Declaration of Gill Tsouri, Ph.D. *See* Pet. 19, 22 (citing Ex. 1002 ¶¶ 84–90). However, paragraphs 84–90 of the Tsouri Declaration merely consist of verbatim copies of passages in the Petition and the contention that Miller thus teaches this element. *See especially* Ex. 1002 ¶ 87 (consisting of a verbatim copy of the paragraph quoted above from the Petition). We do not find the testimony in the Tsouri Declaration to be persuasive or helpful to our analysis.

could be configured to *operate* a sprinkler head on a per plant basis. *See id.* Petitioner fails to show how or why Miller discloses a system that can operate a sprinkler head on a per plant basis which is Petitioner’s basis for contending Miller teaches “each emitter is associated with . . . one of the plants” as recited in claim 1.

Patent Owner argues that “Petitioner has . . . failed to show that *Miller* discloses the claim elements of operation via emitters ‘associated with’ one or more plants, as disclosed and claimed in the ’881 Patent.” Prelim. Resp. 45. According to Patent Owner, “*Miller* does not disclose or suggest the emitters ‘associated with’ plants elements of the ’881 Patent claims—teaching only control of emission per ‘*region*’ via ‘regional supply line.’” *Id.* at 46 (citing Ex. 1005, 3:66–4:11, Fig. 2). We agree with Patent Owner.

We determine Miller discloses operating its emitters (the sprinkler heads) on a per region or area basis and not on a per plant basis. Obviousness is assessed by considering all that a reference teaches. *See In re Mouttet*, 686 F.3d 1322, 1332–33 (Fed. Cir. 2012). Properly considered in the context of the entire disclosure of Miller, the sentence in Miller that states that “[i]t is common to have a sprinkler head adjacent each tree in the region” does not teach or suggest that “each emitter is associated with . . . one of the plants” as argued by Petitioner. Miller states that “the control system 15 is operated by computer 14 to control main water pump 16 which provides water from supply line 24 to water mains 28. . . . A plurality of regional supply lines 30 are fed from water mains 28 via modulated control valves 18.” Ex. 1005, 3:54–63. Miller includes the following additional passages confirming that it teaches control of emissions per region or area (and not per plant):

In a typical installation, a main water pump is provided which supplies mains to various distribution systems in the operation. In a large operation, the area would be divided into regions with sensors buried in each region so that the requirements can be determined individually for each region. When irrigation is needed by any region, the main pump is energized by means of control circuits operating from the computer. . . . From the main pump, the pipes delivering water to the individual areas are each controlled by solenoid type valves or the like.

* * *

From the sensors in a specific region, the requirement for water in any area can be determined and the supply valves adjusted to produce an irrigation rate which will be related to the allowable soil moisture depletion (SMD). . . . When the computer determines that the moisture content of the soil is below or approaching the allowable moisture depletion level, controls are initiated which turn on the water pumps and the valves for the pertinent area.

* * *

Turning now to FIG. 2, . . . it is assumed that the system is being used with an orange grove having a plurality of regions 40 in which each region may be independently irrigated and fertilized. Using Region I as an example, it consists of a grove of orange trees 42. Regional supply line 30 connects to water main 28 and feeds a plurality of lateral lines 32 which run down the rows of trees 42.

* * *

We claim: 1. . . (a) a water supply system having (i) at least one main pump, (ii) a main supply line connected to said main pump, (iii) a plurality of lateral supply lines to the areas to be irrigated and fertilized, said lateral supply lines connected to said main supply line.

Id. at 1:57–68, 2:5–17, 3:66–4:8, 6:36–45 (claim 1). We discern no support in Miller for Petitioner’s contention (*see* Pet. 21) that “[a] POSITA would have understood that Miller’s feed lines and controller could be readily configured to operate a sprinkler head on a per plant basis.” Accordingly, it

does not follow as argued by Petitioner (*see id.* at 20–21) from Miller’s disclosure of a “sprinkler head adjacent each tree” that Miller teaches or suggests “each emitter is associated with . . . one of the plants.”

Petitioner has not shown that the cited art teaches or suggests all the limitations of claim 1 and has, therefore, failed to establish a reasonable probability of showing claim 1 (or any of the claims that depend from claim 1) is unpatentable.

2. Independent Claims 10, 17, and 24

Independent claim 10 recites, “[a] method . . . comprising: using [] external data to control emission of a material . . . by a plurality of emitters, wherein each emitter is associated with and in fixed proximity to one of the plants.” Ex. 1001, 14:52–54. Independent claim 17 recites, “[a] non-transitory medium including instructions executable by a digital computer . . . to control emission of a material to a plant area, wherein the material is applied to the plant area by a plurality of emitters, wherein each emitter is associated with and in fixed proximity to one of the plants.” *Id.* at 15:3–15. Independent claim 24 recites, “[a] control system . . . wherein each emitter is associated with and in fixed proximity to at least one of the plants.” *Id.* at 15:32–34. In its showings for each of these independent claims, Petitioner relies on Miller (Ex. 1005) as disclosing these limitations as set forth in the Petition for claim 1. *See* Pet. 35–37 (claim 10), 41–43 (claim 17), 46–49 (claim 24).

For the same reasons discussed above with regard to claim 1, Petitioner has not shown that the cited art teaches or suggests all the limitations of claims 10, 17, and 24 and has, therefore, failed to establish a reasonable probability that any of these claims (or the claims that depend from them) are unpatentable.

E. Denial under § 325(d)

Because we deny institution on the merits, we do not reach Patent Owner's arguments as to discretionary denial under § 325(d).

F. Conclusion

We determine that Petitioner has not demonstrated a reasonable likelihood of showing any of the claims challenged in the Petition would have been obvious.

III. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), no *inter partes* review as to any claim of U.S. Patent 10,645,881 B2 is instituted.

IPR2022-00792
Patent 10,645,881 B2

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