

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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WESTINGHOUSE AIR BRAKE TECHNOLOGIES CORPORATION  
Petitioner,

v.

SIEMENS INDUSTRY, INC.,  
Patent Owner.

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Case IPR2017-02044  
Patent 6,609,049 B1

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Before KRISTEN L. DROESCH, MEREDITH C. PETRAVICK, and  
TIMOTHY J. GOODSON, *Administrative Patent Judges*.

DROESCH, *Administrative Patent Judge*.

DECISION

Institution of *Inter Partes* Review  
35 U.S.C. § 314, 37 C.F.R. § 42.108

## I. INTRODUCTION

### A. Background

Westinghouse Air Brake Technologies Corporation (“Petitioner”) filed a Petition (Paper 1, “Pet.”) for *inter partes* review of claims 1–9 and 11–19 (“the challenged claims”) of U.S. Patent No. 6,609,049 B1 (“the ’049 Patent”). *See* 35 U.S.C. §§ 311–312. Siemens Industry, Inc. (“Patent Owner”) timely filed a Preliminary Response (Paper 11, “Prelim. Resp.”). *See* 35 U.S.C. § 313.

We have authority under 35 U.S.C. § 314 and 37 C.F.R. § 42.4. An *inter partes* review may not be instituted unless it is determined that “the information presented in the petition filed under section 311 and any response filed under section 313 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).

For the reasons discussed below, we institute an *inter partes* review.

### B. Related Matters

The parties indicate the ’049 Patent is asserted in *Siemens Industry, Inc. v. Westinghouse Air Brake Technologies Corporation*, Case No. 1:16-cv-00284 (D. Del.). *See* Pet. viii; Paper 8, 1. The parties also indicate that U.S. Patent No. 6,821,110 is a continuation of the ’049 Patent, for which Petitioner filed a petition for *inter partes* review in Case No. IPR2017-01669. *See* Pet. viii; Paper 8, 1. We instituted *inter partes* review in IPR2017-01669.

*C. The '049 Patent (Ex. 1001)*

The '049 Patent discloses a system and method for automatically activating a train warning device, such as a train horn, at a grade crossing. *See* Ex. 1001, 1:8–12, 2:47–50. The system includes a control unit, a global positioning system (GPS) receiver, a database of crossing locations in the system, and an electrically activated horn. *See id.* at 2:22–50, Fig. 1. The control unit determines the next crossing based on the train location reported by the GPS receiver by indexing the database. *See id.* at 2:53–56, Fig. 2:210. If the next crossing is subject to state regulations, the warning is activated in accordance with state regulations. *See id.* at 2:56–60, Fig. 2:220, 230. If the next crossing is not subject to state regulations, the system treats the grade crossing as subject to Federal Regulation 49 C.F.R. § 222. *See id.* at 2:59–63, Fig. 2:220. In that case, the control unit determines whether the train is within  $\frac{1}{4}$  mile of the crossing, and if it is, calculates the estimated time of arrival at the crossing based on the position and speed of the train reported by the GPS receiver. *See id.* at 2:63–3:2, Fig. 2:240, 250. If the estimated time of arrival is less than 24 seconds, the horn is activated. *See id.* at 3:4–6, Fig. 2:260, 270.

*D. Illustrative Claims*

Of the challenged claims, claims 1 and 11 are independent, with claims 2–9 dependent from claim 1, and claims 12–19 dependent from claim 11. Claims 1 and 11 are illustrative and reproduced below with labels added by Petitioner for ease of reference:

1. A computerized method for activating a warning device on a train at a location comprising the steps of:

- [a] maintaining a database of locations at which a warning device must be activated and corresponding regulations concerning activation of the warning device;
- [b] obtaining a position of a train and a speed of the train from a positioning system;
- [c] selecting a next upcoming location from among the locations in the database based on the speed and the position;
- [d] determining a point at which to activate the warning device in compliance with a regulation corresponding to the next upcoming location; and
- [e] activating the warning device at the point.

11. A system for automatically activating a warning device on a train at a location, the system comprising:

- [a] a control unit;
- [b] a storage device connected to the control unit, the storage device having stored therein a database of locations at which a warning device must be activated and corresponding regulations concerning activation of the warning device;
- [c] a positioning system in communication with the control unit, the positioning system being configured to supply a position of a train and a speed of the train to the control unit; and
- [d] a warning device connected to the control unit;
- [e] wherein the control unit is configured to perform the steps of
  - selecting a next upcoming location from among the locations in the database;
  - [f] determining a point at which to activate the warning device in compliance with a regulation corresponding to the next upcoming location; and
  - [g] activating the warning device at the point.

Ex. 1001, 3:35–48, 4:11–34; *see* Pet. 66, 67–68 (reproducing claims with added labels).

*E. Asserted Grounds of Unpatentability*

Petitioner challenges the patentability of the following claims of the '049 Patent on the following grounds and prior art (Pet. 10–64):

Claims	Statutory Basis	Reference(s)
1–9 and 11–19	§ 103	FR2230 <sup>1</sup> and Blesener <sup>2</sup>
1–7, 9, 11–17, 19	§ 103	FR2230 and Haas <sup>3</sup>
1–7, 9, 11–17, 19	§ 103	Byers <sup>4</sup>
8 and 18	§ 103	Byers and Michalek <sup>5</sup>

The Petition also relies on the Declaration of Steven R. Ditmeyer (Ex. 1002).

II. ANALYSIS

*A. Claim Construction*

Claims of an unexpired patent are interpreted using the broadest reasonable interpretation in light of the specification. *See* 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). Under the broadest reasonable interpretation standard, claim terms are given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Although claims are construed in the context of the patent, it is well settled that limitations from the specification are not to be read into the claims. *See Commark Comm'cns Inc. v. Harris Corp.*, 156 F.3d 1182, 1186–87 (Fed. Cir. 1998).

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<sup>1</sup> Ex. 1006, Use of Locomotive Horns at Highway-Rail Grade Crossings, 65 Fed. Reg. 2230–2270 (Jan. 13, 2000) (“FR2230”).

<sup>2</sup> Ex. 1007, WO 02/091013 A2, published Nov. 14, 2002 (“Blesener”).

<sup>3</sup> Ex. 1008, US 6,519,512 B1, issued Feb. 11, 2003 (“Haas”).

<sup>4</sup> Ex. 1011, US 7,095,861 B2, issued Aug. 22, 2006 (“Byers”).

<sup>5</sup> Ex. 1010, US 5,620,155, issued Apr. 15, 1997 (“Michalek”).

*“corresponding regulations”*

Claims 1 and 11 each recite: “a database of locations at which a warning device must be activated and corresponding regulations concerning activation of the warning device,” and “a regulation corresponding to the next upcoming location.” Petitioner does not submit proposed constructions for any claim term or phrase. *See* Pet. 9–10. Patent Owner asserts that “corresponding regulations” should be construed as “governing regulations applicable for each location at which a warning device must be activated, such as federal or state rules.” *See* Prelim. Resp. 9–10, 13. Patent Owner contends that its proposed construction is supported by the ’049 Patent Specification and by the context in which the term is used in the claims. *See id.* at 10–13 (reproducing a portion of Ex. 1001, Fig. 2 and certain clauses of claims 1 and 11; citing Ex. 1001, 1:64–2:6, 2:63–3:5; *Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1062–63 (Fed. Cir. 2016)).

We do not adopt Patent Owner’s proposed claim construction for “corresponding regulations.” Although the ’049 Patent discloses governing federal and state regulations, we decline to read limitations from the ’049 Patent Specification into the claims, because it is improper to do so. *See Commark*, 156 F.3d at 1186–87. Moreover, the proposed language “applicable for each location at which a warning device must be activated” is redundant in view of the limitation “a database of locations at which a warning device must be activated and corresponding regulations concerning activation of the warning device,” recited in claims 1 and 11.

Patent Owner also implicitly argues that “corresponding regulations” recited in claims 1 and 11 requires different regulations. *See* Prelim. Resp. 26–28, 30, 34–37, 40–42. Patent Owner’s arguments again propose to read

limitations into the claims from the Specification. We decline to do so. The language of claims 1 and 11 makes clear that the “corresponding regulations” correspond to (i.e., are related to) the “locations at which a warning device must be activated,” but does not require different regulations for each location. The scope of claims 1 and 11 includes “corresponding regulations” that may be identical for all of the “locations at which a warning device must be activated.”

Accordingly, for purposes of this decision, we decline to adopt both Patent Owner’s explicit proposed construction and implicit construction for “corresponding regulations.” Aside from declining to adopt Patent Owner’s construction, as demonstrated in our analysis below, for purposes of this decision we need not provide an explicit claim construction for “corresponding regulations.”

#### *Other Claim Terms and Phrases*

Aside from addressing “corresponding regulations,” for purposes of this Decision, we need not construe explicitly any additional claim terms or phrases. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

#### *B. Unpatentability of Claims 1–9 and 11–19 over FR2230 and Blesener*

##### *1. Overview of FR2230 (Ex. 1006)*

FR2230 is a notice of proposed rulemaking by the Federal Railroad Administration (FRA) in the Federal Register entitled “Use of Locomotive

Horns at Highway Rail Grade Crossings.” *See* Ex. 1006, 2230.<sup>6</sup> In addressing proposed § 222.21, FR2230 explains that, in drafting proposed § 222.21 paragraph (b), the FRA attempted to address the fact that various states have long established requirements governing the location at which a horn must be sounded. *See id.* at 2240. “Although those requirements would be preempted by this rule, rather than require immediate wholesale changes of whistle boards and timetable instructions, FRA is not proposing to immediately change the practical effects of present state requirements, if any.” *Id.* at 2244. If a railroad changes the maximum authorized track speed approaching a grade crossing, the location of the whistle boards notifying the engineer to sound must be adjusted to reflect the change such that the train will provide 20 seconds of warning time. *See id.* “[I]f the railroad uses methods or systems other than whistle boards to indicate when the horn should be sounded (such as positive train control systems), that system should ensure that the horn is sounded not less than 20, nor more than 24 seconds before the locomotive enters the grade crossing.” *Id.*

FR2230 also discloses installation of electronic controls for operation of horns on newer locomotives. *See* Ex. 1006, 2240. FR2230 defines “positive train control territory” as

a line of railroad on which railroad operations are governed by a train control system which is capable of determining the position of the train in relation to a highway-rail grade crossing and capable of computing the time of arrival of the train at the crossing which results in the automatic operation of the locomotive horn or the automatic prompting of the locomotive

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<sup>6</sup> All references are to the original page numbers of FR2230.



engineer such that the horn is sounded at a predetermined time prior to the locomotive's arrival at the crossing.

Ex. 1006, 2243.

## 2. Overview of Blesener (Ex. 1007)

Blesener discloses a railroad crossing warning system that includes control and warning systems located at railroad crossings and vehicle control systems located on locomotives. *See* Ex. 1007, 8:16–24, Figs. 1–2. The crossing control and warning systems and the locomotive control systems each have global positioning system (GPS) receivers and communication devices enabling two-way communication. *See id.* at 3:12–16, 3:26–28, 5:8–9. Each locomotive GPS receiver can calculate the position, velocity, and heading of a locomotive. *See id.* at 3:12–13, 5:8–9, 12:14–15. The locomotive control system includes a database containing the geo-location and track direction through the crossing. *See id.* at 13:5–6. The control system at the railroad crossing includes software that can calculate locomotive arrival time at the crossing based on GPS data received via radio from the locomotive and activate motorist warning devices at appropriate times. *See id.* at 3:21–24, 9:20–31, 10:1–2, 11:10–22.

The railroad crossing GPS receiver also can provide the location of the crossing to passing locomotives and other crossings. *See* Ex. 1007, 3:13–15, 12:14–15. The locomotive control system includes a Smart Self Updating System (SSUS) including a database of the status of all known crossings, and each crossing controller has a copy of a smaller localized database. *See id.* at 10:5–6, 10:22–23. “Each time a locomotive and crossing interact, the databases are compared and whoever has the latest

information, passes this data to the other. In this manner, locomotives will have the most up to date status of the system.” *Id.* at 10:23–26.

### *3. Analysis of Claims 1–9 and 11–19*

For purposes of this Decision and based on Petitioner’s citations to specific prior art disclosures and supporting testimony of Petitioner’s declarant (Ex. 1002), we are persuaded that Petitioner establishes sufficiently that the teachings of FR2230 and Blesener would have rendered obvious the invention recited in claim 1 and independent claim 11. For example, Petitioner asserts that FR2230 teaches the preambles of claims 1 and 11 based on FR2230’s electronic controls for sounding the locomotive horn. *See* Pet. 21 (citing Ex. 1006, 2240), *id.* at 28–29 (incorporating by reference Pet. 21); *see also* Ex. 1006, 2243 (disclosing automatic operation of the locomotive horn with a positive train control system). Petitioner also points out that Blesener teaches a positive train control (PTC) system can be used to trigger events based on upcoming crossings. *See* Pet. 28–29 (citing Ex. 1007, 14:6–8; Ex. 1014, 23, 26). As another example, Petitioner contends that the combination of FR2230 and Blesener teaches or suggests limitations [a] and [d] of claim 11 based on Blesener’s vehicle warning system that includes a vehicle control system or controller located on the locomotive, and FR2230’s teaching of using a PTC system to sound the train’s horn. *See* Pet. 29–30 (citing Ex. 1007, 8:16–22; Ex. 1014, 29; Ex. 1006, 2243–2244, 2264–2265).

As yet another example, Petitioner contends that the combination of FR2230 and Blesener teaches or suggests limitation [a] of claim 1 and limitation [b] of claim 11. *See* Pet. 21–22, 29. Specifically, Petitioner asserts that Blesener teaches: (1) an onboard database containing up-to-date

information regarding upcoming crossings, including the location of an upcoming crossing; (2) a system that calculates an arrival time at the next crossing; and (3) sending a message to an upcoming crossing a predetermined time before the train reaches the upcoming crossing. *See id.* at 21 (citing Ex. 1007, 3:21–24, 9:27–33, 10:22–26; Ex. 1014, 3, 15, 18, 20–22; Ex. 1002 ¶ 54), *id.* at 29 (citing Ex. 1007, 13:5–6; Ex. 1014, 21; incorporating by reference Pet. 21–22). Petitioner further contends that FR2230 teaches a horn should be blown in compliance with a regulation, for example, a maximum of a ¼ mile for at least 20 seconds before the train reaches a crossing. *See id.* at 22 (citing Ex. 1006, 2244), *id.* at 29 (incorporating by reference Pet. 21–22). Petitioner also asserts that FR2230 suggests that other regulations should be accounted for when determining when to activate a warning device, more specifically, that regulations, both local and federal, are to be accounted for (e.g., stored) when implementing FR2230 in a PTC context. *See id.* at 22 (citing Ex. 1006, 2244; Ex. 1002 ¶¶ 42, 86), *id.* at 29 (incorporating by reference Pet. 21–22). Petitioner contends a person of ordinary skill in the art

would have understood that by storing the location of the crossing and an algorithm for calculating an arrival time at the crossing (as taught by *Blesener*) such that a message is generated and sent to the crossing at a point before the crossing (Ex. 1007, p.9, ll. 27-33; Ex. 1014, 18), it would have been obvious for the database to instead store a point at which to activate the horn.

Pet. 22 (citing Ex. 1002 ¶ 88); *see id.* at 29 (incorporating by reference Pet. 21–22). Petitioner further asserts that the system resulting from the combination of FR2230 and *Blesener* includes a database of locations of upcoming crossings as well as instructions for activating a train horn at those

locations, based on the relevant regulations governing the horn. *See id.* at 20 (citing Ex. 1002 ¶ 88), *id.* at 29 (incorporating by reference Pet. 21–22).

As still another example, Petitioner contends that Blesener teaches limitation [b] of claim 1 and limitation [c] of claim 11 based on Blesener's locomotive with a GPS tracking device to calculate position, speed, and heading. *See* Pet. 23 (citing Ex. 1007, 3:9–15, 5:7–9; Ex. 1014, 3), *id.* at 29 (incorporating by reference Pet. 23). As a further example, Petitioner asserts that Blesener teaches limitation [c] of claim 1 and limitation [e] of claim 11 based on Blesener's system that can determine what crossing is the next crossing and the time at which the locomotive will arrive at the next crossing based on the locomotive's present location and speed returned from the GPS receiver. *See* Pet. 23–24 (quoting Ex. 1007, 9:27–33, 12:16–18, 22:11–16; Ex. 1014, 18, 21, 23–24; citing Ex. 1007, 3:21–24, 5:7–9, 12:16–18; Ex. 1014, 3, 19–21; Ex. 1002 ¶¶ 52, 54), *id.* at 30 (incorporating by reference Pet. 23–24).

As a final example, Petitioner contends that the combination of FR2230 and Blesener teaches limitations [d] and [e] of claim 1 and limitations [f] and [g] of claim 11. *See* Pet. 24–25, 30. Specifically, Petitioner asserts that Blesener's system determines when the train is a predefined point away from the crossing and sends an activation message to the upcoming crossing at that point. *See id.* at 24 (citing Ex. 1007, 9:20–33; Ex. 1014, 18; Ex. 1002 ¶¶ 55, 84), *id.* at 30 (incorporating by reference Pet. 24–25). Petitioner further contends that FR2230 teaches a horn should be blown a maximum of ¼ mile before a crossing and for at least 20 seconds before the locomotive enters a crossing. *See id.* at 24 (citing Ex. 1006, 2244), *id.* at 30 (incorporating by reference Pet. 24–25). Petitioner also

asserts that FR2230 suggests that other regulations should be accounted for when determining when to activate a warning device because it discloses that the FRA did not wish to immediately trump local and state horn activation regulations. *See id.* at 24–25 (citing Ex. 1006, 2244), *id.* at 30 (incorporating by reference Pet. 24–25).

For purposes of this Decision and based on Petitioner’s citations to specific prior art disclosures and supporting evidence, we are persuaded Petitioner sets forth sufficient articulated reasoning with rational underpinning to support the conclusion that it would have been obvious to one with ordinary skill in the art to combine the teachings of FR2230 and Blesener to implement the PTC-driven horn contemplated by FR2230 that would be automatically sounded according to the regulatory framework outlined in FR2230. *See* Pet. 16–21; *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). For example, Petitioner asserts that FR2230 includes a specific motivation to combine its teachings with a PTC system because it teaches the idea of automating the activation of a train horn in compliance with a regulation. *See* Pet. 16–17 (quoting Ex. 1006, 2243; citing Ex. 1006, 2243–2244, 2264–2265; Ex. 1002 ¶¶ 45, 83). Petitioner further contends that a person of ordinary skill in the art “would have looked to available PTC disclosures to determine how to automate the activation of the horn,” and

would have been drawn to the database system of *Blesener* because it specifically teaches ‘computing the time of arrival of the train at the crossing’ from *FR2230* by storing and indexing each crossing in a database and using the current location of the train to determine the distance to the next upcoming crossing.

Pet. 17 (citing Ex. 1007, 14:6–13, Ex. 1014, 20–23, 26; Ex. 1002 ¶¶ 81–82). As another example, Petitioner contends that a person of ordinary skill in the art “seeking to implement the teachings of *FR2230* would have looked to other PTC disclosures such as *Blesener* as examples of known solutions to *FR2230*’s identified problems,” i.e., human error in train horn activation, and “would have understood that such known solutions included systems that store crossing locations in an onboard database and use these stored locations and the current position of the train to determine a point at which to activate the train horn in compliance with a regulation.” *Id.* at 19 (citing Ex. 1002 ¶¶ 82, 88–89); *see id.* at 18 (citing *KSR*, 550 U.S. at 420; *Allergan, Inc. v. Sandoz, Inc.*, 726 F.3d 1286, 1292 (Fed. Cir. 2013); Ex. 1006, 2244, 2247; Ex. 1002 ¶¶ 44, 82, 87).

Patent Owner argues that *Blesener* does not mention “warning devices *on the train*.” Prelim Resp. 26. For purposes of this Decision, we are persuaded by Petitioner’s contentions and do not agree with Patent Owner’s arguments because they address the teachings of *Blesener* alone, instead of addressing the combined teachings of *FR2230* and *Blesener*. One cannot show non-obviousness by analyzing a reference individually, as Patent Owner has done here, where the asserted ground of unpatentability is based on a combination of references. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). Petitioner relies on *FR2230* for teaching the use of a warning device (i.e., horn) on the train, in combination with *Blesener*’s teachings. *See* Pet. 21.

Patent Owner also argues the combination of *FR2230* and *Blesener* does not teach the “corresponding regulations” according to Patent Owner’s explicit proposed construction, i.e., “governing regulations applicable for

each location at which a warning device must be activated, such as federal or state rules.” *See* Prelim. Resp. 25–26, 27 n.6 (case law citations omitted).

Patent Owner further contends:

There is no disclosure of storing information on different regulations (such as governing state and federal rules), nor any analysis by an onboard system of which regulation governs any particular location on the track, as required by the claims. For example, there would be no recognition in *Blesener’s* system of different rules that may be in effect to govern activation of a gate (let alone the sounding of a warning device on a train).

To remedy this deficiency, the Petition . . . argues that *FR2230* “suggests that regulations both local and federal, are to be accounted for (*e.g.*, stored) when implementing *FR2230* in a PTC context.” (Petition at 22). But *FR2230* says nothing about storing regulations in a database or how to determine which regulation would govern which location on the track. . . .

Simply, there is no disclosure of a database that maintains different governing regulations, such as governing federal or state rules, and a system that determines when to activate a warning device in compliance with rules applicable at the next upcoming location.

Prelim. Resp. 26–28 (footnote omitted). On similar bases, Patent Owner argues the Petition fails to establish how the references would have been modified to arrive at the claimed invention. *See* Prelim. Resp. 30 (citing *Westinghouse Air Brake Tech. Corp. v. Siemens Industry, Inc.*, Case IPR2017-00584, slip op. at 15 (PTAB July 20, 2017) (Paper 12); *Westinghouse Air Brake Tech. Corp. v. Siemens Industry, Inc.*, Case IPR2017-00581, slip op. at 15 (PTAB July 25, 2017) (Paper 11)). Patent Owner further contends that the testimony of Petitioner’s declarant does not remedy these deficiencies. *See id.* at 31–32 (citing Ex. 1002 ¶¶ 81–89; *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1327

(Fed. Cir. 2012); *InTouch Techs., Inc. v. VGO Commc'ns, Inc.*, 751 F.3d 1327, 1351 (Fed. Cir. 2014)).

For purposes of this Decision, and based on this record, we are persuaded by Petitioner's contentions and do not agree with Patent Owner's arguments. Patent Owner premises its arguments on its explicit proposed construction for "corresponding regulations" and its implicit construction requiring different regulations. As explained above in Section II.A., we do not adopt Patent Owner's explicit and implicit proposed constructions for "corresponding regulations." Patent Owner's arguments also are not commensurate in scope with the claim language because claims 1 and 11 do not recite or otherwise require an analysis or determination by an onboard system of which regulation governs any particular track location.

Patent Owner further argues that the Petition fails to establish that a person of ordinary skill in the art would have been motivated to combine FR2230 with Blesener to arrive at the claimed invention. *See* Prelim. Resp. 28–29. Patent Owner contends it is telling that Blesener did not select an approach that incorporates any aspect of FR2230, even though FR2230 was a set of rules that train operators should have been familiar with at the time Blesener was published. *See id.* at 28. Patent Owner asserts that Blesener provides a gate warning solution that was criticized expressly in FR2230 as contributing to highway collisions and death. *See id.* Patent Owner further contends, "[a]ny suggestion that such modification would have been obvious is directly contrary to the solution implemented by *Blesener* to activate a stationary gate crossing warning device, and can only be rationalized with impermissible hindsight." *Id.* at 29–30 (citing *St. Jude Medical, Inc. v.*



*Access Closure, Inc.*, 729 F.3d 1369, 1381 (Fed. Cir. 2013); *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 (Fed. Cir. 2001)).

For purposes of this Decision, and based on this record, we are persuaded by Petitioner's contentions and do not agree with Patent Owner's arguments. Patent Owner's arguments are misplaced because they focus on Blesener's disclosure of a gate warning solution, while Petitioner's contentions rely on FR2230's teachings of sounding a horn according to regulations and Blesener's teachings of using a PTC system including a database and system to determine the distance/time to the next railroad crossing. The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned, as they are a part of the literature and are relevant for all they contain. *See In re Heck*, 699 F.2d 1331, 1333 (Fed. Cir. 1983) (citing *In re Lemelson*, 397 F.2d 1006, 1009 (CCPA 1968)). Thus, contrary to Patent Owner's suggestion that Blesener's teachings are limited to providing gate warnings, Blesener remains relevant for teaching a database and determining the distance/time to the next railroad crossing. Lastly, we recognize that

[a]ny judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper.

*In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971). For purposes of this Decision and based on this record, we are persuaded by Petitioner's contentions and do not agree that Petitioner's rationale to combine FR2230 and Blesener is based on improper hindsight.

Accordingly, for purposes of this Decision and based on the current record before us, there is a reasonable likelihood Petitioner would prevail in showing claims 1 and 11 are unpatentable over FR2230 and Blesener.

For purposes of this Decision and based on this record, we also are persuaded by Petitioner's citations to specific prior art disclosures and supporting testimony by Petitioner's declarant (Ex. 1002), that the combination of FR2230 and Blesener teaches or suggests each of the additional limitations recited in dependent claims 2–9 and 12–19. *See* Pet. 26–28, 30–32. Patent Owner does not present substantive arguments addressing claims 2–9 and 12–19. *See* Prelim. Resp. 32. Therefore, for purposes of this Decision and based on the current record before us, there is a reasonable likelihood that Petitioner would prevail in showing claims 2–9 and 12–19 are unpatentable over FR2230 and Blesener.

*C. Unpatentability of Claims 1–7, 9, 11–17, and 19 over FR2230 and Haas*

*1. Overview of Haas (Ex. 1008)*

Haas discloses a system where a locomotive horn is sounded automatically and radio frequency (RF) alert signal is transmitted from a locomotive based on automatic vehicle location (AVL) information indicating that the locomotive is near a heightened alert area, such as a railroad crossing. *See* Ex. 1008, 3:32–63, Fig. 2. The locomotive includes, *inter alia*, a processor, RF transmitter, RF interface, a location database, and an AVL interface comprising a GPS receiver for receiving location information associated with the locomotive. *See id.* at 2:63–3:1, 3:13–17, 3:44–53, Fig. 1. Upon receiving the location information, the locomotive processor is operable to compare the location information to map data stored in the location database to determine the proximity of the locomotive to the

heightened alert area. *See id.* at 3:50–53. If the proximity is within a predetermined distance threshold from the heightened alert area, the processor activates the train whistle automatically. *See id.* at 3:53–58; 4:47–59; Fig. 2:216. The processor also may communicate location alert information to a railway system infrastructure base station transceiver and a communication unit associated with a motor vehicle or pedestrian approaching the heightened alert area independent from the train whistle. *See id.* at 3:62–4:2.

## *2. Analysis of Claims 1–7, 9, 11–17, and 19*

For purposes of this Decision and based on Petitioner’s citations to specific prior art disclosures and supporting testimony by Petitioner’s declarant (Ex. 1002), we are persuaded that Petitioner establishes sufficiently that the teachings of FR2230 and Haas would have rendered obvious the invention recited in claim 1 and independent claim 11. For example, Petitioner contends that the combination of FR2230 and Haas teaches or suggests limitation [a] of claim 1 and limitation [b] of claim 11. *See Pet.* 38–39, 44–45. Specifically, Petitioner asserts that Haas teaches: (1) stored map data including locations of heightened alert areas; (2) an onboard database containing information about the crossings including the location; and (3) storage of a location at which the warning device must be activated. *See id.* at 38 (citing Ex. 1008, 3:44–59; Ex. 1002 ¶¶ 59–60), *id.* at 44 (citing Ex. 1008, Fig. 1; incorporating by reference Pet. 38–39). Petitioner further contends that FR2230 teaches a horn should be blown in compliance with a regulation, and suggests that other regulations should be accounted for (e.g., stored) when determining when to activate a warning device when implementing FR2230 in a PTC context. *See id.* at 39

(incorporating by reference Pet. 21–22). Petitioner contends that a person of ordinary skill in the art

would have understood that by storing the location of the crossing and an algorithm for comparing the present location of the train with the upcoming crossing (as taught by *Haas*), such that the horn is activated at a threshold distance from the crossing (Ex. 1008, 2:53–62, 3:50–53), the system resulting from the combination renders obvious the database storing a *position* at which to activate the horn. (Ex. 1002 ¶ 98).

Prelim. Resp. 39. Petitioner asserts the system resulting from the combination of FR2230 and *Haas*, in which *Haas*' distance threshold is determined based on a regulation, maintains a database of locations at which the warning device must be activated and corresponding regulations concerning activation of the warning device. *See id.* (citing Ex. 1002 ¶ 98).

As yet another example, Petitioner contends that *Haas* teaches limitation [b] of claim 1 and limitation [c] of claim 11 based on *Haas*'s AVL interface connected to the processor that includes a GPS receiver connected to a GPS antenna for receiving GPS-assisted locomotive location information. *See* Pet. 39 (citing Ex. 1008, 3:45–49), *id.* at 45 (citing Ex. 1008, 3:45–49, Fig. 1). Petitioner further asserts that a person of ordinary skill in the art would have known that a GPS is able to provide the velocity of the locomotive. *See id.* at 39–40 (citing Ex. 1002 ¶ 60), *id.* at 45 (citing Ex. 1002 ¶ 60). As a further example, Petitioner asserts that *Haas* teaches limitation [c] of claim 1 and limitation [e] of claim 11 based on *Haas*'s processor comparing received location information to stored map data to determine the proximity of the locomotive to the heightened alert area, and activating the train whistle if the proximity is within a predetermined

threshold. *See id.* at 40 (citing Ex. 1008, 3:50–56; Ex. 1002 ¶¶ 60, 95), *id.* at 45 (incorporating by reference Pet. 40).

As a final example, Petitioner contends that the combination of FR2230 and Haas teaches limitations [d] and [e] of claim 1 and limitations [f] and [g] of claim 11. *See* Pet. 40–41, 44–45. Specifically, Petitioner contends that Haas teaches the current location of the train is compared to the stored map data to determine proximity to an upcoming crossing, and the processor causes the train whistle to be activated. *See id.* at 40 (citing Ex. 1008, 3:50–58, 4:47–61), *id.* at 46 (incorporating by reference Pet. 40–41). Petitioner also asserts that FR2230 teaches a PTC system that determines when to blow a horn in compliance with a federal regulation. *See id.* at 41 (citing Ex. 1006, 2244; incorporating by reference Pet. 24–25), *id.* at 46 (incorporating by reference Pet. 40–41). Petitioner further contends the combined system of Haas and FR2230 teaches determining a point in space or time where the warning device should be activated in compliance with a regulation corresponding to the next upcoming crossing as suggested by FR2230. *See id.* at 41 (citing Ex. 1008, 3:50–58, 4:47–61; Ex. 1002 ¶¶ 94, 98), *id.* at 46 (incorporating by reference Pet. 40–41).

For purposes of this Decision and based on Petitioner’s citations to specific prior art disclosures and supporting evidence, we are persuaded Petitioner sets forth sufficient articulated reasoning with rational underpinning to support the conclusion that it would have been obvious to one with ordinary skill in the art to combine the teachings of FR2230 and Haas to develop an automated system for activating a train horn in compliance with a regulation. *See* Pet. 34–38; *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d at 988). For example, Petitioner asserts that

FR2230's teaching of automating a train horn activation with PTC provides a specific motivation to combine its teachings with references that disclose other techniques for automating train safety. *See* Pet. 34 (citing Ex. 1006, 2243–2244, 2264–2265; incorporating by reference Pet. 16–17). Petitioner contends that a person of ordinary skill in the art would have been drawn to the database system of Haas to ensure that each crossing was stored and indexed with the current location of the train to determine the next upcoming crossing. *See id.* at 34–35 (citing Ex. 1008, 3:50–53; 1002 ¶¶ 95, 97). As another example, Petitioner contends that a person of ordinary skill in the art would have been motivated to automate the train horn activation process of FR2230 using the crossing database system of Haas to solve known problems of human error in manual train horn activation using known solutions of storing crossing locations in a database and using the current location and stored locations to determine a point at which to activate the train horn in compliance with a regulation. *See id.* at 35–37 (citing Ex. 1006, 2244, 2247; Ex. 1008, 3:44–58; Ex. 1002 ¶¶ 60, 91–98).

Similar to its arguments addressing FR2230 and Blesener, Patent Owner argues the combination of FR2230 and Haas does not teach the “corresponding regulations” according to Patent Owner’s explicit proposed construction. *See* Prelim. Resp. 32–34 (case law citations omitted), *id.* at 34 n.7. Also similar to its arguments addressing FR2230 and Blesener, Patent Owner contends:

There is no disclosure of storing or maintaining information on “corresponding regulations” (*i.e.*, governing regulations, such as federal and state rules, applicable for each location at which a train’s warning device must be activated), nor any determination by a system on the train of which regulation governs any particular location on the track, as required by the claims.

Applying a uniform threshold to all gate crossing locations is a fundamentally different approach than the invention claimed in the '049 Patent. For example, *Haas's* system would not take into account different rules that may mandate quiet zones and/or quiet times, such as certain locations where the horn should not be sounded in the middle of the night.

To supplement *Haas's* deficient disclosure, the Petition . . . argues that *FR2230* “suggest[s]” that the “warning device should be activated in compliance with a regulation corresponding to the next upcoming crossing.” (*See* Petition at 41). But . . . *FR2230* says nothing about storing such regulations in a database or how to go about determining which regulations govern which locations on the track. . . .

. . . [T]here is no disclosure of a database that maintains different governing regulations, such as federal and state rules, or a system that determines when to activate a warning device in compliance with rules applicable at the next upcoming location.

Prelim. Resp. 34–35 (footnote omitted). On similar bases, Patent Owner contends the Petition fails to establish how the references would be modified to arrive at the claimed invention. *See* Prelim. Resp. 36–37 (citing *Westinghouse v. Siemens*, Case IPR2017-00584, slip op. at 15 (Paper 12); *Westinghouse v. Siemens*, IPR2017-00581, slip op. at 15 (Paper 11)). Patent Owner further asserts that the testimony of Petitioner’s declarant does not remedy these deficiencies. *See id.* at 37–38 (citing *ActiveVideo*, 694 F.3d at 1327; *InTouch Techs.*, 751 F.3d at 1351).

For purposes of this Decision, and based on this record, we are persuaded by Petitioner’s contentions and do not agree with Patent Owner’s arguments. Patent Owner premises its arguments on its explicit proposed construction for “corresponding regulations” and its implicit construction requiring different regulations. As explained above in Section II.A., we do not adopt Patent Owner’s explicit and implicit proposed constructions for

“corresponding regulations.” Patent Owner’s arguments also are not commensurate in scope with the claim language because claims 1 and 11 do not recite or otherwise require a determination by a train system of which regulation governs any particular track location.

Patent Owner further argues that the Petition fails to establish that a person of ordinary skill in the art would have been motivated to combine FR2230 with Haas to arrive at the claimed invention. *See* Prelim. Resp. 36. Patent Owner contends that Haas provides a solution that applies a uniform threshold  $\frac{1}{4}$  mile ahead of crossings to activate the horn. *See id.* Patent Owner asserts, “even though the *Haas* inventors were aware (or should have been aware) that there may be different regulations, such as federal and state rules, governing different locations on the track, it elected to apply a one size fits all ‘predetermined threshold’ approach to all crossings.” *See id.* Patent Owner further argues, “[a]ny suggestion that it would have been obvious to modify *Haas* to arrive at the invention of the ’049 Patent is directly contrary to the solution described by *Haas* itself, and can only be rationalized by impermissible hindsight.” *Id.* (citing *St. Jude Medical v. Access Closure*, 729 F.3d at 1381; *McGinley v. Franklin Sports*, 262 F.3d at 1351).

For purposes of this Decision, and based on this record, we are persuaded by Petitioner’s contentions and do not agree with Patent Owner’s arguments. Patent Owner again premises its arguments on “corresponding regulations” requiring different regulations. As explained above in Section II.A., we do not adopt Patent Owner’s implicit construction for “corresponding regulations.” Patent Owner’s arguments also are misplaced because Patent Owner incorrectly premises its argument on Haas disclosing a uniform distance threshold for activating the horn. In contrast, Haas



discloses  $\frac{1}{4}$  mile as an exemplary “(e.g.,  $\frac{1}{4}$  mile)” predetermined distance threshold. *See* Ex. 1008, 3:53–56, 4:53–56, 5:5–9.

Accordingly, for purposes of this Decision and based on the current record before us, there is a reasonable likelihood Petitioner would prevail in showing claims 1 and 11 are unpatentable over FR2230 and Haas.

For purposes of this Decision and based on this record, we also are persuaded by Petitioner’s citations to specific prior art disclosures and supporting testimony by Petitioner’s declarant (Ex. 1002) that the combination of FR2230 and Haas teaches or suggests each of the additional limitations recited in dependent claims 2–7, 9, 12–17, and 19. *See* Pet. 41–44, 46–47. Patent Owner does not present substantive arguments addressing claims 2–7, 9, 12–17, and 19. *See* Prelim. Resp. 38. Therefore, for purposes of this Decision and based on the current record before us, there is a reasonable likelihood Petitioner would prevail in showing claims 2–7, 9, 12–17, and 19 are unpatentable over FR2230 and Haas.

*D. Unpatentability of Claims 1–7, 9, 11–17, and 19 over Byers*

*1. Overview of Byers (Ex. 1011)*

Byers discloses digital signal processing techniques to modify the shape of the sound field for a train whistle. *See* Ex. 1011, 1:44–56. Byers discloses: “Federal regulations specify that locomotive 130 audibly signal as it approaches the grade crossing with a minimum sound pressure level at defined distances from the crossing.” *Id.* at 2:27–30. The locomotive electronics assembly includes sensors to determine the train’s position and velocity, and a control processor for determining when to activate the whistle and how to shape the sound field. *See id.* at 2:37–38, 2:57–60. The control processor receives inputs from a position sensor (e.g., differential

GPS receiver) in order to calculate the distance to the crossing. *See id.* at 2:66–3:14. A speed transducer measures the velocity of the locomotive and a distance sensor determines how far the locomotive advances as it approaches the crossing using wheel rotation sensors. *See id.* at 3:14–17. The control processor includes a database, and may include information about the latitude and longitude of all crossings on a railroad line. *See id.* at 3:21–25. The positions of the crossings in the database are compared with the position sensor output to determine the distance to the crossing and when to activate the system. *See id.* at 3:25–27.

Byers further discloses a process for automatic activation of the audible alert system. *See Ex. 1011, 3:62–67, Fig. 3.* First, coefficients, tables, and values needed by the processor’s algorithm are read from the database. *See id.* at 4:1–4, Fig. 3:305. Next, the current position of the vehicle is determined and compared with trigger positions previously retrieved from the database to determine whether audible signaling should begin. *See id.* at 4:4–12, Fig. 3:310, 315. If a trigger event is detected and audible signaling should begin, the desired sound file is loaded from the database and produced by the sound transducers. *See id.* at 4:21–41, Fig. 3:315, 320, 330.

## *2. Analysis of Claims 1–7, 9, 11–17, and 19*

For purposes of this Decision and based on Petitioner’s citations to specific prior art disclosures and supporting testimony by Petitioner’s declarant (Ex. 1002), we are persuaded that Petitioner establishes sufficiently that the teachings of Byers would have rendered obvious the invention recited in claim 1 and independent claim 11. For example, Petitioner contends that Byers teaches limitation [a] of claim 1 and limitation

[b] of claim 11. *See* Pet. 49–50, 55. Specifically, Petitioner asserts that Byers teaches: (1) making a determination whether to begin audible signaling by comparing the current position with trigger positions previously retrieved from the database; (2) the database stores information about the latitude and longitude of all crossings on railroad line, and these position are compared to the position sensor output to determine when to activate the system and the distance to the intersection; and (3) federal regulations specify that a locomotive audibly signal as it approaches the crossing with a minimum pressure level at defined distances from the crossing. *See id.* at 49–50 (citing Ex. 1011, 2:27–30, 3:21–27, 4:10–13), *id.* at 55 (citing Ex. 1011, 3:21–27, Fig. 2; incorporating by reference Pet. 49–50). Petitioner asserts a person of ordinary skill in the art “would understand that in *Byers*, the trigger positions are points stored in the onboard database at which the train horn is activated in compliance with governing regulations.” *Id.* at 50 (citing Ex. 1002 ¶ 65); *see id.* at 55 (incorporating by reference Pet. 49–50). In other words, Petitioner asserts that one with ordinary skill would recognize that Byers’s trigger positions stored in the database comply with Byers’s disclosed federal regulations specifying that the locomotive audibly signal at defined distances from the crossing.

As another example, Petitioner contends that Byers teaches limitation [b] of claim 1 and limitation [c] of claim 11 based on Byers’s position sensor and speed sensor. *See* Pet. 50 (citing Ex. 1011, 3:7–13, Fig. 2; Ex. 1002 ¶ 64), *id.* at 55 (citing Ex. 1011, Fig. 2; incorporating by reference Pet. 50). As a further example, Petitioner asserts that Byers teaches limitation [c] of claim 1 and limitation [e] of claim 11 based on Byers’s teaching of comparing the location and speed information returned from the positioning

system to stored locations from the database to determine when to activate the horn and the current distance between the train and upcoming crossing. *See id.* at 50–51 (citing Ex. 1011, 3:21–27, 4:10–20, Fig. 2; Ex. 1002 ¶ 64), *id.* at 55 (incorporating by reference Pet. 50–51).

As a final example, Petitioner contends that Byers teaches limitations [d] and [e] of claim 1 and limitations [f] and [g] of claim 11. *See id.* at 51–52, 56. Specifically, Petitioner contends that Byers teaches: (1) making a determination whether to begin audible signaling by comparing the current position with trigger positions previously retrieved from the database; (2) federal regulations specify that a locomotive audibly signal as it approaches the grade crossing with a minimum pressure level at defined distances from the crossing; and (3) activating the whistle as it approaches the crossing. *See id.* at 51–52 (citing Ex. 1011, 1:55–2:6, 2:27–31, 4:10–20), *id.* at 56 (incorporating by reference Pet. 51–52). Petitioner asserts that a person of ordinary skill in the art “would understand *Byers* as disclosing a database that has stored crossing locations and programmed horn activation instructions to comply with federal regulations, and the locomotive system determines if it has reached the trigger position before activating the warning device.” *Id.* at 51–52 (citing Ex. 1002 ¶¶ 63–65); *see id.* at 56 (incorporating by reference Pet. 51–52).

Similar to its arguments addressing the previous grounds of unpatentability, Patent Owner argues Byers does not disclose “corresponding regulations” according to Patent Owner’s explicit proposed construction. *See* Prelim. Resp. 38–40, 40 n.8. Also similar to its arguments addressing the previous grounds of unpatentability, Patent Owner contends:

But *Byers* says nothing else about any regulations, including anything about storing “corresponding regulations” for particular locations in a database. Nor does it say anything about storing or maintaining information on different and potentially conflicting regulations (such as federal and state rules), or anything about a determination by an onboard system of which regulation governs any particular location on the track, all as required by the claims. Rather, *Byers* merely asserts that the federal regulation requires minimum sound pressure “at defined distances from the crossing.”

*Byers*’ reliance on “defined distances” appears to be the same approach as that described in *Haas*, discussed above, which applies a uniform threshold of  $\frac{1}{4}$  mile ahead of crossings to activate the horn. For example, there is no suggestion that the *Byers* system would function any differently when approaching a crossing subject to state rules that may dictate conditions, such as quiet zones or times, that prohibit the horn from being sounded. Certainly there is nothing in the scant disclosure of *Byers* on this point to suggest anything more than *Haas*’s threshold approach. . . . And, still further, an approach that utilizes a uniform threshold clearly does not require, or even suggest, maintaining information on different, potentially conflicting corresponding regulations (such as governing state and federal rules), nor any determination by a system on the train of which regulation governs any particular location on the track, as required by the claims.

Prelim. Resp. 39–41 (footnote omitted); *see id.* at 41–42 (presenting similar arguments).

For purposes of this Decision, and based on this record, we are persuaded by Petitioner’s contentions and do not agree with Patent Owner’s arguments. Patent Owner premises its arguments on its explicit proposed construction for “corresponding regulations” and its implicit construction requiring different regulations. As explained above in Section II.A., we do not adopt Patent Owner’s explicit and implicit proposed constructions for

“corresponding regulations.” Patent Owner’s arguments also are not commensurate in scope with the claim language because claims 1 and 11 do not recite or otherwise require a determination by an onboard system of which regulation governs any particular track location.

Accordingly, for purposes of this Decision and based on the current record before us, there is a reasonable likelihood Petitioner would prevail in showing claims 1 and 11 are unpatentable over Byers.

For purposes of this Decision and based on this record, we also are persuaded by Petitioner’s citations to specific prior art disclosures and supporting testimony by Petitioner’s declarant (Ex. 1002) that Byers teaches or suggests each of the additional limitations recited in dependent claims 2–7, 9, 12–17, and 19. *See* Pet. 52–54, 56–57. Patent Owner does not present substantive arguments addressing claims 2–7, 9, 12–17, and 19. *See* Prelim. Resp. 42. Therefore, for purposes of this Decision and based on the current record before us, there is a reasonable likelihood Petitioner would prevail in showing claims 2–7, 9, 12–17, and 19 are unpatentable over Byers.

*E. Unpatentability of Claims 8 and 18 over Byers and Michalek*

*1. Overview of Michalek (Ex. 1010)*

Michalek discloses a signaling system providing a locomotive the capability to wirelessly signal its approach to upcoming railroad crossing in order for the crossing to activate warning devices. *See* Ex. 1010, 4:39–43, 4:48–51, 6:45–50, 8:24–26, 8:31–39. The locomotive includes a global positioning system (GPS) receiver to provide a determination of the train location and the proximity to known crossings. *See id.* at 3:40–47, 3:61–65, 4:43–48, 6:5–8, 6:15–18, 8:1–23. The crossing includes a self-diagnostic mechanism for checking the function of the warning devices. *See id.* at

3:33–35, 4:51–54, 6:16–21, 9:49–53. The information, along with identification data of the particular crossing is wirelessly transmitted to the locomotive as it passes the crossing, and subsequently stored in the locomotive’s memory. *See id.* at 3:26–28, 4:54–61, 6:21–35, 9:22–39, 9:53–56.

## 2. *Analysis of Dependent Claims 8 and 18*

Claims 8 and 18 depend from claim 1 and 11. Claim 8 recites, “updating the database via wireless communication,” and claim 18 recites, “the control unit is further configured to update the database with information received via the wireless transceiver.” *See* Ex. 1001, 4:11–12, 4:52–56. Petitioner asserts that Byers is silent as to the inclusion of automatically updating the database and does not detail a mechanism for ensuring that the database stores currently-accurate information. *See* Pet. 60–61 (citing Ex. 1002 ¶¶ 101–103, 107). Petitioner contends that Michalek recognizes the problem of outdated data in an onboard database and proposes a wireless update solution in order to give railroad maintenance personnel accurate information concerning which crossings are in need of attention. *See id.* at 60 (citing Ex. 1010, 7:16–34; Ex. 1002 ¶ 103). Petitioner explains that, in Michalek, crossing devices perform self-diagnostic checks, the results of which are transmitted from the crossing to the locomotive and stored in the locomotive’s memory. *See id.* at 60–61 (citing Ex. 1010, 7:15–35, 9:22–39; Ex. 1002 ¶ 106).

For purposes of this Decision and based on Petitioner’s citations to specific prior art disclosures and supporting evidence, we are persuaded Petitioner sets forth sufficient articulated reasoning with rational underpinning to support the conclusion that it would have been obvious to

one with ordinary skill in the art to combine the teachings of Byers and Michalek “to develop an automated system for activating a train horn in compliance with a regulation that automatically updates the locomotive database.” Pet. 60; *see id.* at 60–62; *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d at 988). For example, Petitioner contends that a person of ordinary skill in the art “recognizing that the problem identified in *Michalek* would be present in *Byers* would have looked to *Michalek*’s solution as to how to update the database system in *Byers*.” *Id.* at 61 (citing Ex. 1002 ¶¶ 100, 103, 109). As another example, Petitioner asserts a person of ordinary skill in the art “would have noticed the similarities between *Byers* and *Michalek*, and would thus have expected the combination to be successful.” *Id.* (citing Ex. 1010, 8:14–31; Ex. 1002 ¶¶ 100, 104, 105).

Patent Owner argues, “the Petition does not present any reason to combine the references that has rational underpinnings.” Prelim. Resp. 43. Patent Owner asserts that Byers discusses activating horns solely based on the location of the train with respect to a crossing, and has nothing to do with the maintenance status of railroad crossings. *See id.* at 44; *see also id.* at 45 (“*Byers* cares only about shaping a sound field at a particular location: there would be no reason to incorporate the wireless transmission of maintenance conditions of gate crossings.”). On this basis, Patent Owner concludes there would be no rational reason for a person of ordinary skill in the art looking at Byers to incorporate the wireless updating of maintenance conditions of railroad crossings as taught by Michalek. *See id.* at 44–45 (case citations omitted).

For purposes of this Decision, and based on this record, we are persuaded by Petitioner’s contentions and do not agree with Patent Owner’s



arguments. Patent Owner's arguments are misplaced because they focus on Michalek's disclosure of a wireless updating of crossing maintenance information, while Petitioner's contentions rely on Byers's locomotive database and Michalek's teachings of wirelessly updating information in the locomotive database. *See In re Heck*, 699 F.2d at 1333 (citing *In re Lemelson*, 397 F.2d at 1009). Thus, contrary to Patent Owner's suggestion, Michalek remains relevant for teaching wirelessly updating information in the onboard (locomotive) database, and is not limited to updating maintenance information.

Accordingly, for purposes of this Decision and based on the current record before us, there is a reasonable likelihood Petitioner would prevail in showing claims 8 and 18 are unpatentable over Byers and Michalek.

*F. Discretion to Reject Petition under 35 U.S.C. § 325(d)*

Patent Owner argues that because three asserted grounds of unpatentability "rel[y] on prior art that is the same as, or works the same way as, prior art that was fully considered by the Examiner during prosecution, the Board should exercise its discretion under 35 U.S.C. § 325(d) to deny institution." Prelim. Resp. 15; *see id.* at 13, 45–46 (citing *Unified Patents Inc. v. Berman*, IPR2016-01571 (PTAB Dec. 14, 2016) (Paper 10) (informative), *id.* at 45–45 (citing *Lower Drug Prices for Consumers, LLC v. Forest Labs. Holdings Ltd.*, IPR2016-00379 (PTAB July 1, 2016) (Paper 14)). For the ground of unpatentability based on FR2230 and Haas, Patent Owner argues "FR2230 . . . was discussed in detail in the background section of the '049 Patent, and Haas . . . was considered by the Examiner during prosecution." *Id.* at 14. Patent Owner concludes, "this ground was fully considered during prosecution." *Id.*

Our discretionary determination of whether to institute review is guided by 35 U.S.C. § 325(d), which states, in relevant part, that “[i]n determining whether to institute or order a proceeding . . . the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” The statutory language gives the Director the authority not to institute review on the basis that the same or substantially the same prior art or arguments were presented previously to the Office, but does not require that result.

The Board “may take into account” under 35 U.S.C. § 325(d) that Haas and a summary of FR2230 were previously presented to the Office. Patent Owner, however, does not show that FR2230, in its entirety (i.e., apart from the summary in the Background of the Invention section), was considered by the Examiner during prosecution of the application that issued as the ’049 Patent. The ’049 Patent itself indicates it was not considered substantively because FR2230 is not listed among the numerous references cited. *See* Ex. 1001, (56); *see also* Pet. 7 (presenting arguments addressing consideration of FR2230 by the Examiner). Although Haas is listed as a reference cited in the ’049 Patent (*see* Ex. 1001, (56)), Patent Owner does not show that the Examiner considered substantively Haas as pertinent prior art. The prosecution history of the ’049 Patent suggests the contrary because Haas was cited by the Examiner in a Notice of References Cited issued together with the Notice of Allowability on March 21, 2003 (*see* Ex. 1004, 23–25), yet the Examiner did not address Haas in the Notice of Allowability (*see id.*). *See also* Pet. 7 (presenting arguments addressing substantive consideration of Haas). Patent Owner also does not show that the Examiner

considered substantively the combination of FR2230 and Haas. *See also id.* (presenting arguments addressing consideration of the combination of FR2230 and Haas).

For the grounds of unpatentability based on FR2230 and Blesener, and based on Byers alone, Patent Owner argues Blesener and Byers each use “the same threshold approach for activating the warning device as *Haas*.” Prelim. Resp. 14. For FR2230 and Blesener, Patent Owner concludes, “this ground relies on references that were either fully considered or that work the same way as prior art that was fully considered during prosecution.” *Id.* For Byers, Patent Owner concludes, “this ground relies only on a reference that works the same way as art that was fully considered during prosecution.” *Id.* Because we are not persuaded that the Examiner substantively considered FR2230, Haas, and the combination of FR2230 and Haas during prosecution of the ’049 Patent, we, likewise, are not persuaded that Petitioner’s unpatentability arguments based on the combination of FR2230 and Blesener, and based on Byers alone constitute substantially the same prior art or arguments previously presented to the Office.

Accordingly, for the foregoing reasons, we decline to exercise discretion under 35 U.S.C. § 325(d) to not institute *inter partes* review.

#### *G. Discretion to Deny Grounds*

Patent Owner argues that redundant grounds of unpatentability should be eliminated to avoid wasting Board and party resources. *See* Prelim. Resp. 47; *see also id.* at 46–47 (quoting *Liberty Mut. Ins. Co. v. Progressive Cas. Ins. Co.*, Case CBM2012-00003 (PTAB Oct. 25, 2012) (Paper 7); *Oracle Corp. v. Clouding IP, LLC*, Case IPR2013-00075, slip op. at 5 (PTAB June 13, 2013 (Paper 15))). Specifically, Patent Owner contends:

Petitioner has presented substantially the same obviousness arguments for each of its three grounds directed to the independent claims. Essentially, Petitioner asserts in each of the grounds that, to achieve the claimed invention, it would have been obvious to modify a system that uses a uniform, one size fits all threshold approach to activate a warning system in view of a federal regulation.

Prelim. Resp. 47. Patent Owner further asserts that Petitioner does not argue that there are any significant differences among the grounds it has raised, and has not provided any reason why each ground should be instituted and reviewed separately. *See id.*

We have considered Patent Owner's arguments in light of the challenges articulated in the Petition, and we are not persuaded that we should exercise our discretion and not go forward with certain grounds. That the Petition includes three asserted grounds of unpatentability challenging the independent claims does not affect our ability "to secure the just, speedy, and inexpensive resolution of [this] proceeding." 37 C.F.R. § 42.1(b).

### III. CONCLUSION

For the foregoing reasons, based on this record, there is reasonable likelihood Petitioner would prevail in showing the challenged claims are unpatentable. At this stage of the proceeding, we have not made a final determination with respect to the patentability of the challenged claims including the claim construction.

#### IV. ORDER

Accordingly, it is

ORDERED that pursuant to 35 U.S.C. § 314, *inter partes* review of the '049 Patent is instituted hereby on the following grounds:

Claims 1–9 and 11–19 under 35 U.S.C. § 103 as unpatentable over FR2230 and Blesener;

Claims 1–7, 9, 11–17, and 19 under 35 U.S.C. § 103 as unpatentable over FR2230 and Haas;

Claims 1–7, 9, 11–17, and 19 under 35 U.S.C. § 103 as unpatentable over Byers; and

Claims 8 and 18 under 35 U.S.C. § 103 as unpatentable over Byers and Michalek;

FURTHER ORDERED that the trial is limited to the grounds identified above; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is given hereby of the institution of a trial on the grounds of unpatentability authorized above; the trial commences on the entry date of this Decision.

IPR2017-02044  
Patent 6,609,049 B1

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