NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

VIVINT, INC.,
Appellant

v.

ALARM.COM INC.,
Cross-Appellant

2017-2218, 2017-2219, 2017-2220, 2017-2260, 2017-2261, 2017-2262

Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Nos. IPR2016-00116, IPR2016-00161, IPR2016-00173.

Decided: December 20, 2018

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New York, NY; WILLIAM MANDIR, DAVID PHILLIP EMERY, Sughrue Mion PLLC, Washington, DC.

Before PROST, *Chief Judge,* O'MALLEY and HUGHES, *Circuit Judges.*

O'MALLEY, *Circuit Judge*.

In three inter partes review proceedings requested by Alarm.com, Inc., the Patent Trial and Appeal Board ("the Board") invalidated various claims of Vivint Inc.'s U.S. Patent Nos. 6,147,601 ("'601 patent"), 6,462,654 ("'654 patent"), and 6,535,123 ("'123 patent").[1] It also found other claims patentable over the prior art.

Vivint now appeals the Board's decision invalidating its claims. Alarm.com cross-appeals, arguing that the surviving claims should also be invalidated. Because the Board did not err in invalidating the patent claims at issue in Vivint's appeal, we *affirm*. With respect to Alarm.com's cross-appeal, we conclude that the Board's construction of "communication device identification codes" is not consistent with the broadest reasonable interpretation of the relevant claims. We therefore *reverse* its construction, *vacate* its related conclusions, and *remand* for further consideration. We *affirm* the Board's decision on the claims at issue in the cross-appeal in all other respects.

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[1] *See Alarm.com Inc. v. Vivint, Inc.*, IPR2016-00116, Paper No. 39 (P.T.A.B. May 2, 2017) ("'601 Decision"); *Alarm.com Inc. v. Vivint, Inc.*, IPR2016-00173, Paper No. 40 (P.T.AB May 2, 2017) ("'123 Decision"); *Alarm.com Inc. v. Vivint, Inc.*, IPR2016-00161, 2017 WL 1969742 (P.T.A.B. May 10, 2017) ("'654 Decision").

I. BACKGROUND

A. The Technology

The patents at issue describe systems and methods for remotely monitoring equipment, such as a heating, ventilating, and cooling system ("HVAC system"). *See, e.g.,* '601 patent, col. 1, ll. 10–14.[2] These systems and methods work by using a centralized server to communicate with monitored equipment so that a user, *e.g.* a property owner or contractor, is contacted if the equipment encounters problems.

There are two ways, generally, that the server learns equipment has encountered an issue. First, the equipment can report a problem directly to the server. For example, if the equipment has low battery, then an interface unit connected to the equipment sends an "exception" message to the server. The server then processes this message and, depending on how the server is configured, sends a notification to certain users. Second, interface units can be configured to send status messages to the server. At some defined interval, the server compares the list of interfaces that relayed a status message with a list of all the equipment being monitored. For each missing entry, *i.e.* equipment that did not send a status message, the server "sends out the appropriate messages to the proper individuals." *Id.* col. 5, ll. 6–10.

In either case, users are contacted based on what the patents call a "message profile." *Id.* col. 2, ll. 14–16. This message profile essentially directs the server where to send messages if a problem arises. *Id.* For example, a user might configure a message profile so that different

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[2] The '601 patent, the '123 patent, and the '654 patent are all related and share similar specifications. For simplicity, we refer to the '601 patent unless otherwise noted.

people are notified if an issue is encountered during the day or at night, if an issue is high priority or low, etc. A user might similarly configure a message profile so that multiple people are notified about the same problem.

B. The Prior Art

Although Alarm.com raised several prior art references before the Board, only three are relevant to this appeal. We will briefly discuss each in turn.

1. Shetty

U.S. Patent 5,808,907 ("Shetty") describes a method for monitoring machines and notifying users if certain events occur. J.A. 2111. It works by having a "batch processing means 102" retrieve a list of events that have occurred, stored in an "event database," and a list of which users should be contacted and under what conditions, stored in a "user profile database." J.A. 2115. The batch processing means then compares the list of events that have occurred with the list of events that trigger a notification for each profile. "If all the conditions of a user profile are met, then the user is notified, via a notification means 112." *Id.* ("Each profile may also trigger a different mode or modes of communication (page, Email, fax).").

According to Shetty, users may "access" the user profile database and the event database through a user interface. *Id.* ("A user interface 110 allows a user to access both the user profile database 106 and the event database 108.").

2. Britton

U.S. Patent 6,040,770 ("Britton") describes a system for supervising the communication path between an alarm panel and a centralized server. J.A. 2125. This path is supervised by the "continual transmission" of check-in messages sent from the alarm panel to the server. *Id.* If a check-in message is received before the

expiration of a predefined interval, "then the integrity of the communication path for that certain panel 32 has been proven." J.A. 2126. If it is not, the server generates an alert. J.A. 2125–26.

3. Levac

U.S. Patent 6,034,970 ("Levac") describes systems and methods for transmitting messages generated by one or more "message source(s)" to different types of communication devices. J.A. 2136. As relevant to this appeal, Levac explains that these messages are embedded in an ".msa file" along with information about the message, such as when and where it should be sent. J.A. 2137. For example, the preferred embodiment in Levac incorporates a "RUNTIME" variable that relays information about the second, minute, hour, day, month, or year when a message should "start running" and "end running." J.A. 2138.

C. Procedural History

Based on Alarm.com's petitions, the Board instituted review of claims 1, 2, 4–15, 17–23, 25–31, and 33–41 of the '601 patent, claims 9, 10, 14, 17, 18, 22, and 25–28 of the '654 patent, and all claims of the '123 patent. The Board ultimately invalidated as obvious claims 1, 2, 4, 6, 7, 10–15, 17, 18, 22, 23, 25, 29, and 38 of the '601 Patent; claims 9, 10, 14, and 27 of the '654 Patent; and claims 1, 2, 4–6, 10, 13, and 15–17 of the '123 Patent. But it rejected Alarm.com's arguments for the remaining instituted claims.

II. DISCUSSION

A. Vivint's Appeal

Vivint contends that the Board erroneously construed the "message profile" limitation and unreasonably concluded that Shetty discloses "remotely configur[ing]" a message profile. These limitations are both required by all the invalidated claims. For the remaining limitations,

Vivint insists that the Board failed to adequately explain its findings. After a careful examination of the Board's findings and conclusions as well as a review of the record upon which they were based, however, we find no error warranting reversal. We therefore *affirm* the Board's conclusion on these issues and its decisions on these claims.

B. Alarm.com's Cross-Appeal

Alarm.com argues that the Board erred in construing a limitation relating to "communication device identification codes." Alarm.com also contends that the Board erred in finding various claims relating to "normal status message[s]" patentable over the prior art. Finally, Alarm.com maintains that the Board similarly erred with respect to claim 19 of the '601 patent. We address each argument in turn.

1. "communication device identification codes"

Several claims of the '601 patent and the '123 patent recite a message profile that is further configured to include "communication device identification codes."[3] For example, claim 26 of the '601 patent reads:

> 26. A system according to claim 22, said system monitoring a plurality of pieces of equipment, each piece having an identification code, said server further comprising:

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[3] This limitation is required by claims 26–28, 30–31, 33–37, and 41 of the '601 patent and claims 3 and 14 of the '123 patent. Some claims of the '654 patent also include this limitation. *See, e.g.,* '654 patent, col. 17, ll. 63–67. But the proper construction of "communication device identification codes" in the '654 patent is not presented here.

> a first memory on which equipment identification codes of all monitored equipment are stored;
>
> a second memory in which *communication device identification codes* of all of said user-defined communication remote devices are stored, said *communication device identification codes being configured in a plurality of said user-defined message profiles*.

See, e.g., '601 patent, col. 11, ll. 20–29 (emphases added); '123 patent, col. 16, ll. 48–57.

Before the Board, Alarm.com argued that "communication device identification codes" refer to phone numbers or email addresses. '601 Decision at 19 ("Alarm.com reiterates that . . . storing telephone numbers and email addresses are the only disclosure of storing any data about communication devices."); '123 Decision at 17 (same). The Board disagreed. Instead, it construed "communication device identification codes" to include "either a device ID (e.g., a [mobile identification number ("MIN")]) or a serial number of a device (e.g., an [electronic serial number ("ESN")])." *See* '601 Decision at 20–21; '123 Decision at 17–20.

We review the Board's conclusions of law *de novo* and its findings of fact for substantial evidence. *In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000). Substantial evidence is "such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016); *see also Consol. Edison Co. of New York v. N.L.R.B.*, 305 U.S. 197, 229 (1938). This same framework applies to claim construction. *PPC Broadband, Inc. v. Corning Optical Commc'ns RF, LLC*, 815 F.3d 747, 751 (Fed. Cir. 2016). We therefore conduct a *de novo* review of the Board's determination of the broadest reasonable

interpretation of the claims, reviewing any underlying factual findings for substantial evidence. *Id.*

At the outset, Vivint argues that the Board's construction is entitled to deference because it relied on extrinsic evidence. We disagree. The Board construed "communication device identification codes" without reference to any extrinsic evidence. '601 Decision at 20 ("Based on our review of *the claims and Specification of the '601 patent* . . . ." (emphasis added)); '123 Decision at 13 (same). The Board did credit Vivint's expert, but only in applying its construction of "communication device identification codes" to the prior art:

> In our claim construction section above, we construe the claim term "communication device identification codes" as including either a device ID or serial number of a device. Shetty's telephone numbers and email addresses are not consistent with this construction because they do not identify uniquely a specific device. We also credit Vivint's declarant, Mr. Denning's, testimony on this particular issue. *See* Ex. 2010 ¶¶ 127–130.

'601 Decision at 52 (internal citations omitted); '123 Decision at 48 (same); *see also* J.A. 4894–95 (relevant portion of Mr. Denning's testimony, explaining his views on the scope of Shetty). The Board's construction of "communication device identification codes" is therefore not entitled to deference. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 841 (2015) ("As all parties agree, when the district court reviews only evidence intrinsic to the patent . . . the judge's determination will amount solely to a determination of law, and the Court of Appeals will review that construction *de novo*.").

Turning to the merits, we agree with Alarm.com that the Board erred in construing "communication device identification codes." As the Board acknowledged, neither the '601 patent nor the '123 patent define "communication

device identification codes" in the specification. '601 Decision at 20; '123 Decision at 17. And yet, the Board decided that "communication device identification codes" must refer to something "capable of uniquely identifying communication devices." '601 Decision at 20; '123 Decision at 20 (same). Even assuming this is correct, however, the Board's conclusion that a phone number or email address cannot uniquely identify a communication device defies the patents' teachings. For example, both patents explain that a mobile identification number refers to a device in the same way that a phone number refers to a cellular phone, *i.e.* a communication device. '601 patent, col. 6, ll. 61–65 ("Every interface unit 10 is provided, like a cellular telephone, with an electronic serial number (ESN, to identify the specific interface unit sending the message) and a mobile identification number (MIN, similar to a cellular telephone's phone number)."); '123 patent, col. 10, ll. 38–42 (same).[4] But the Board's construction suggests the opposite. The '123 patent also expressly teaches that a phone number can uniquely identify a delivery address, *i.e.* a communication device. *See, e.g.,* '123 patent, col. 14, ll. 57–60 ("Multiple deliveries are accomplished by having multiple delivery records in the delivery tables 722–725 with the same Message Delivery ID each having a unique delivery address i.e. fax number, phone number, etc."). But the Board construction also suggests the opposite. Its construction is therefore not reasonable. *PPC Broadband*, 815 F.3d at 755 ("Above all, the broadest reasonable interpretation must be reasonable in light of the claims and specification.").

Vivint insists that the Board's construction is consistent with the plain meaning of "communication device

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[4] The patents also suggest that an email address is used to identify a certain communication device. '601 patent, col. 6, ll. 7–23; '123 patent, col. 9, ll. 17–33 (same).

identification codes." We disagree. At most, Vivint's citations to the '601 patent show that serial numbers or mobile identification numbers might be examples of "communication device identification codes." But this falls short of explaining why phone numbers and email addresses are not. Vivint's argument as to the '123 patent fares no better. That the '123 patent includes "Device ID" and "Serial Number" variables in a particular figure, for example, suggests these variables might *also* be used to identify communication devices.[5] It does not suggest that phone numbers and email addresses cannot also do so. *See Polaris Indus., Inc. v. Arctic Cat, Inc.*, 882 F.3d 1056, 1065–66 (Fed. Cir. 2018) ("Even if Polaris is correct that Figure 1 shows a mounting plate that does not extend across the entire passenger compartment, Denney's specification is broader than the embodiment illustrated in that figure.").

Accordingly, we *reverse* the Board's construction of "communication device identification codes," *vacate* its related conclusions, and *remand* for further consideration in light of the foregoing analysis.[6]

2. "normal status message"

Several of the claims at issue recite limitations relating to "normal status message[s]." In some claims, this

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[5] Alarm.com argues that the "Device ID" and "Serial Number" variables describe the equipment sensors rather than the communication devices. We need not resolve that question. Even assuming Vivint is correct, nothing about this single figure undoes the other teachings in the '123 patent. *See, e.g.*, '123 patent, col. 14 ll. 57–60.

[6] Because we find that the Board erred in construing the claims at issue, we do not address the Board's application of that construction to the prior art.

"normal status message" must be "indicative of" some equipment operating properly. *See, e.g.* '601 patent, col., ll. 19–22 ("5. A method according to claim 1, wherein step (e) further comprises the step of determining whether an incoming message is a normal status message indicative of proper operation of the piece of remote equipment."). In other claims, the "normal status message" is sent "if [some] equipment is functioning properly." *See, e.g.,* '654 patent, col. 19, ll. 56–59 ("25. A system for monitoring remote equipment, comprising . . . an interface unit . . . having a message generating mechanism for periodically sending a normal status message if the piece of remote equipment is functioning properly . . . .").

Alarm.com argues that Shetty, in view of Britton, satisfies these various normal status message limitations because Britton teaches sending status messages that indicate whether equipment is functioning properly.

The Board disagreed based on, among other things, its interpretation of what Britton discloses. '601 Decision at 67–69, '123 Decision at 58–60, '654 Decision at 55–57. We review that determination for substantial evidence. *In re Warsaw Orthopedic, Inc.*, 832 F.3d 1327, 1332 (Fed. Cir. 2016) ("An examination of the scope and content of the prior art produces factual findings reviewed for substantial evidence."); *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966) (acknowledging that obviousness raises "several basic factual inquiries" including "the scope and content of the prior art").

The Board's conclusion about the scope of Britton is supported by substantial evidence. As the Board explained, Britton differs from the claimed inventions because Britton's status messages reflect the integrity of a *communication path*, such as a cellular network, linking alarm equipment and a central alarm monitor. *See, e.g.,* J.A. 2125 (explaining that status messages are "designed

to test the communication channel between the protected premise panel 32 and receiving equipment 34 for a compromise" (emphasis added)). If a message is received, or not, it indirectly relays information about the communication path. *See, e.g.,* J.A. 2126 ("If the transmission of the message corresponding to the value seventeen (17) is properly received by the receiving equipment 34—before the expiration of the thirty-seventh (37th) minute—then *the integrity of the communication path* for that certain panel 32 *has been proven*." (emphasis added)); J.A. 2124 ("[T]he 'interrogation' message corresponds to an inquiry, 'address no, 'x,' do you respond?' If there is no satisfactory response, then the central alarm monitoring station follows up with further error checking *to detect a compromised communication path*." (emphasis added)). But Britton's status messages do not confirm that equipment, sensors, or interfaces are functioning properly. *See* Oral Arg. at 34:18–34:30, *available at* http://oralarguments.cafc.uscourts.gov/default.aspx?fl=2017-2218.mp3 ("[Court:] But isn't the problem that you could get that message in Britton, saying that the telephone connection is okay, but still have an underlying problem with the system. [Counsel for Alarm.com:] That certainly is the issue the Board identified . . . ."). By contrast, the patents at issue explain that normal status messages convey information, directly or indirectly, about monitored equipment, *e.g.* sensors, interfaces, or other equipment. *See, e.g.,*'601 patent, col. 5, ll. 1–23; '123 patent, col. 6, ll. 23–53; '654 patent, col. 6, ll. 24–55. This is also what the claims require. *See* '601 Decision at 67–69, '123 Decision at 58–60, '654 Decision at 55–57.

We therefore *affirm* the Board's conclusion that the normal status message claims[7] are patentable over the prior art.

3. Claim 19 of the '601 patent

Claim 19 of the '601 patent requires "enabling selection of different user-defined communication devices to receive outgoing exception messages at different time periods." '601 patent, col. 10, ll. 28–34.

Alarm.com argues that, because it would have been possible to modify Shetty in view of Levac, claim 19 is obvious. Cross-Appellant Br. at 76 ("Through its finding that 'it might have been possible [to] us[e] Levac's system' parameters to practice claim 19, the Board effectively acknowledged . . . that some uses of Levac in combination with Shetty would meet the time-related elements of claim 19. That is all that is required."). But this misunderstands the Board's reasoning. Rather than stating that Shetty in view of Levac could not render claim 19 obvious, the Board focused on the absence of a motivation to modify Shetty to practice claim 19 based on Levac:

> Although it might have been *possible* using Levac's system to define two 'messages' in the manner proposed by Alarm.com—with one to run from 9:00 AM to 5:00 PM and the second to run from 5:00 PM to 9:00 AM, with each specifying a different mode of notification—Alarm.com points to no evidence that the ordinarily skilled artisan at the time of the alleged invention of claim 19 actually would have had reason to do so in the absence of the teachings of the '601 patent itself. In

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[7] This includes claims 5, 8–9, 20–21, 30–31, 37, and 39–41 of the '601 patent; claims 17, 18, 22, 25, 26, and 28 of the '654 patent; and claims 7–9, 11–12, and 18–20 of the '123 patent.

> other words, in light of the evidence before us, we are not persuaded that the subject matter of claim 19 would have been obvious to a person of ordinary skill in the art in the absence of improper hindsight knowledge.

See, e.g., '601 Decision at 60–61 (internal citations omitted).

We review a decision by the Board about the presence or absence of a motivation to combine for substantial evidence. *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1366 (Fed. Cir. 2016). Substantial evidence supports the Board's conclusion here. For example, Shetty does not suggest that it is desirable to notify different users depending on the time of day. Nor does Levac teach using its system to accomplish that goal, even if such a configuration is possible.[8] *Cf. Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) ("[O]bviousness concerns whether a skilled artisan not only *could have made* but w*ould have been motivated to*

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[8] To the extent Alarm.com invites us to reverse because the Board acknowledged a possible motivation in its Institution Decision or found a motivation with respect to *different claims*, we decline to do so. *See Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) ("Contrary to TriVascular's assertions, the Board is not bound by any findings made in its Institution Decision. At that point, the Board is considering the matter preliminarily without the benefit of a full record. The Board is free to change its view of the merits after further development of the record and *should do so* if convinced its initial inclinations were wrong." (emphasis in original)); Oral Arg. at 31:30–32:40, *available at* http://oralarguments.cafc.uscourts.gov/default.aspx?fl=2017-2218.mp3 (discussing motivation to combine with respect to claim 19).

make the combinations or modifications of prior art to arrive at the claimed invention."). We therefore *affirm* the Board's conclusion as to claim 19 being patentable over the prior art.

III. CONCLUSION

We have considered Vivint's and Alarm.com's remaining arguments and find them unpersuasive. Accordingly, we *reverse* the Board's construction of "communication device identification codes," *vacate* its related conclusions, and *remand* for further consideration consistent with this opinion. We *affirm* in all other respects.

AFFIRMED AS TO CASE NOS. 17-2218, 17-2219, 17-2220

AFFIRMED IN PART, VACATED IN PART, REVERSED IN PART, AND REMANDED AS TO CASE NOS. 17-2260, 17-2261, 17-2262

COSTS

No costs.