

Case No. PGR2019-00036  
U.S. Patent No. 10,158,720  
Docket No. 2215790.00120

Docket No.: 2215790-00120

Filed on behalf of GMG Products LLC

By: David L. Cavanaugh, Reg. No. 36,476  
Richard Goldenberg, Reg. No. 38,895  
Gregory H. Lantier (pro hac vice)  
Richard A. Crudo, Reg. No. 65,245  
Jeffrey M. Soller, Reg. No. 77,119  
Wilmer Cutler Pickering Hale and Dorr LLP  
1875 Pennsylvania Ave., NW  
Washington, DC 20006  
Tel: (202) 663-6000  
Email: David.Cavanaugh@wilmerhale.com

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GMG PRODUCTS LLC,

Petitioner,

v.

TRAEGER PELLET GRILLS LLC,

Patent Owner.

Case PGR2019-00036  
U.S. Patent No. 10,158,720

---

**PETITIONER'S NOTICE OF APPEAL**

Director of the United States Patent and Trademark Office  
c/o Office of the General Counsel  
P.O. Box 1450  
Alexandria, VA 22314-5793

Pursuant to 35 U.S.C. §§ 141-44 and 319, and 37 C.F.R. § 90.2-90.3, notice is hereby given that Petitioner GMG Products LLC appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision entered September 17, 2020 (Paper 24) in PGR2019-00036, attached as Exhibit A, and all prior and interlocutory rulings related thereto or subsumed therein.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Petitioner indicates that the issues for appeal include the holding that claims 4-11, 13-15, 17, 18, and 20 are not unpatentable. Additionally, Petitioner identifies claim construction as an issue for appeal, including any implicit construction of "first input."

Pursuant to 37 C.F.R. § 90.3, this Notice of Appeal is timely.

Case No. PGR2019-00036  
Docket No. 2215790.00120  
Petitioner's Notice of Appeal

A copy of this Notice of Appeal is being filed simultaneously with the Patent Trial and Appeal Board, the Clerk's Office for the United States Court of Appeals for the Federal Circuit, and the Director of the Patent and Trademark Office.

Respectfully submitted,

Dated: September 17, 2020

By: /David Cavanaugh/

David Cavanaugh, Reg. No. 36,476

**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. §§ 90.2(a)(1) and 104.2(a), I hereby certify that, in addition to being filed electronically through the Patent Trial and Appeal Board's End to End (PTAB E2E), a true and correct original version of the foregoing PETITIONER'S NOTICE OF APPEAL is being filed by Express Mail on this 17th day of September, 2020, with the Director of the United States Patent and Trademark Office, at the following address:

Office of the General Counsel  
United States Patent and Trademark Office  
Madison Building East, Room 10B20  
600 Dulany Street  
Alexandria, VA 22314

Pursuant to 37 C.F.R. § 90.2(a)(2) and Federal Circuit Rule 15(a)(1), and Rule 52(a),(e), I hereby certify that a true and correct copy of the foregoing PETITIONER'S NOTICE OF APPEAL is being filed in the United States Court of Appeals for the Federal Circuit using the Court's CM/ECF filing system on this 17th day of September, 2020, and the filing fee is being paid electronically using pay.gov.

I hereby certify that on September 17, 2020, I caused a true and correct copy of the PETITIONER'S NOTICE OF APPEAL to be served via e-mail on the following attorneys of record:

Michael P. Chu  
USPTO Reg. No. 37,112  
McDermott Will & Emery LLP  
444 West Lake Street, Suite 4000  
Chicago, IL 60606  
(312) 984-5485  
Email: mchu@mwe.com

Brian A. Jones  
USPTO Reg. No. 68,770  
Back-up Counsel for Patent Owner  
McDermott Will & Emery LLP  
444 West Lake Street, Suite 4000  
Chicago, IL 60606  
(312) 984-7694  
Email: bajones@mwe.com

By: /Richard A. Crudo/

Richard A. Crudo, Reg. No. 65,245

# EXHIBIT A

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

GMG PRODUCTS LLC,  
Petitioner,

v.

TRAEGER PELLET GRILLS LLC,  
Patent Owner.

---

PGR2019-00036  
Patent 10,158,720 B2

---

Before DEBRA K. STEPHENS, JOSIAH C. COCKS, and  
CHRISTA P. ZADO, *Administrative Patent Judges*.

*Per Curiam*.

JUDGMENT  
Final Written Decision  
Determining Some Challenged Claims Unpatentable  
*35 U.S.C. § 328(a)*

I. INTRODUCTION

We have authority to hear this post-grant review under 35 U.S.C. § 6 and to issue this Final Written Decision pursuant to 35 U.S.C. § 328(a). For the reasons that follow, after reviewing all relevant evidence and arguments, we determine that GMG Products LLC (“Petitioner”) has not shown by a preponderance of the evidence that claims 4–11, 13–15, 17, 18, and 20 of

U.S. Patent No. 10,158,720 B2 (Ex. 1101, “the ’720 Patent”) are unpatentable and that Petitioner has shown by a preponderance of the evidence that claim 30 of the ’720 Patent is unpatentable.

*A. Background and Summary*

GMG Products LLC (“Petitioner”)<sup>1</sup> filed a petition requesting post-grant review of claims 4–11, 13–15, 17, 18, 20, and 30 (the “challenged claims”) of U.S. Patent No. 10,158,720 B2 (Paper 3 (“Pet.”))<sup>2</sup>. Traeger Pellet Grills, LLC<sup>3</sup> (“Patent Owner”)<sup>4</sup> filed a Preliminary Response (Paper 7 (“Prelim. Resp.”)). Petitioner subsequently filed a Reply, authorized by the Board (Paper 9 (“Reply”)). Patent Owner filed a Sur-Reply, also authorized by the Board (Paper 11 (“Sur-Reply”)). Pursuant to 35 U.S.C. § 324(a) and 37 C.F.R. § 42.4(a), we instituted this post-grant review based on our decision that Petitioner had demonstrated a reasonable likelihood of prevailing as to at least one of the challenged claims of the ’720 Patent (Paper 13 (“Inst. Dec.”)).

---

<sup>1</sup> Petitioner identifies only itself as a real party-in-interest to the Petition (Pet. 1).

<sup>2</sup> Petitioner also filed a Petition, PGR2019-00024, challenging claims 1–3, 12, 16, 19, and 21–29 of the ’720 Patent (*see* PGR2019-00024). A Final Written Decision in that proceeding was issued July 16, 2020 (PGR2019-00024, Paper 35).

<sup>3</sup> The mandatory notice and the body of the Preliminary Response each refers to the Patent Owner as Traeger Pellet Grills, LLC (Paper 5, 2; Prelim. Resp. 1). However, the caption of the Preliminary Response omits the comma between “Grills” and “LLC,” referring to the Patent Owner as Traeger Pellet Grills LLC (Prelim. Resp.). In this decision, we treat Traeger Pellet Grills, LLC and Traeger Pellet Grills LLC as the same entity.

<sup>4</sup> Patent Owner identifies only itself as a real party-in-interest to this proceeding (Paper 5, 2).

Patent Owner filed a Patent Owner Response (Paper 15 (“PO Resp.”)). Petitioner filed a Petitioner’s Reply to Patent Owner’s Response (Paper 19 (“Pet. Reply”)). Patent Owner filed a Sur-Reply in response to Petitioner’s Reply (Paper 22 (“PO Sur-Reply”)).

An Oral Hearing was initially requested by both parties (Papers 20–21); however, Petitioner withdrew “its request for oral argument in PGR2019-00036, and the Parties jointly propose[d] that the Board, in place of oral argument, enter into the record the hearing transcript from PGR2019-00024 regarding the same U.S. Patent No. 10,158,720” (Ex. 3001). “[T]he Parties believe that the hearing transcript from PGR2019-00024 reflects the Parties’ positions in PGR2019-00036” (*id.*).

Accordingly, the Oral Hearing Transcript from PGR2019-00024 has been entered into the record for this proceeding (Paper 23 (“Tr.”)).

### *B. Related Matters*

The ’720 Patent is not currently the subject of any litigation (Pet. 1; Paper 5, 2). However, the ’720 Patent is the subject of another post grant review petition filed by Petitioner, PGR2029-00024, in which a Final Written Decision (PGR2019-00024, Paper 35) was entered and which has been appealed (*id.* at Paper 36) (Pet. 1; Paper 5, 2).

U.S. Patent No. 10,218,833, a parent of the ’720 Patent, has been challenged in two post grant review petitions filed by Petitioner: *GMG Prods. LLC v. Traeger Pellet Grills LLC*, PGR2019-00034 and *GMG Prods. LLC v. Traeger Pellet Grills LLC*, PGR2019-00035 (Pet. 1; Paper 5, 2).

The ’720 Patent is a continuation of U.S. Patent Application No. 15/511,319; a continuation-in-part of U.S. Patent Application No. 15/510,996 (issued as U.S. Patent No. 10,218,833 and subject to PGR2019-

00034 and PGR2019-00035, as noted above); and a continuation-in-part of U.S. Patent Application No. 15/114,744 (Pet. 1–2; Paper 5, 2–3).

### C. The '720 Patent

The '720 Patent, titled “Cloud System for Controlling Outdoor Grill with Mobile Application,” issued December 18, 2018 ('720 Patent, code (54)). The '720 Patent describes “cloud computing system for use in remote cooking” in which a “software application is configured to control functions of the electronically-controlled [remote cooking] appliance” (*id.*, code (57)).

The '720 Patent uses “a cloud computing platform . . . for communicating with and controlling operation of electronically-controlled appliances” (*id.* at 4:25–27; *see also id.* at 3:57–58). Figure 1, reproduced below, illustrates an exemplary cloud computing platform (*id.* at 6:26–34).

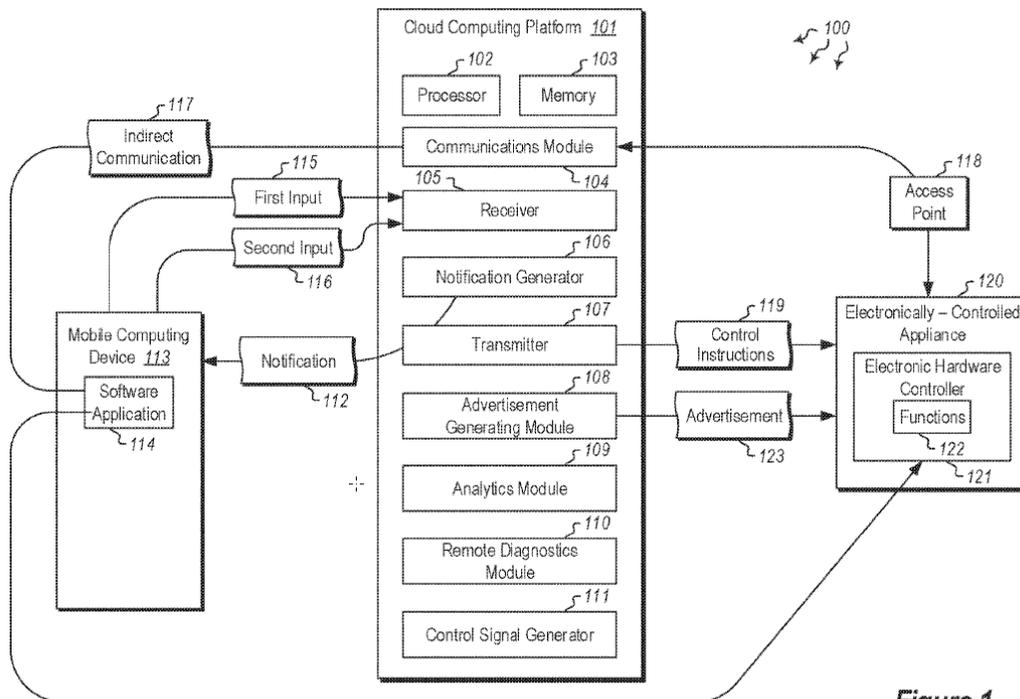
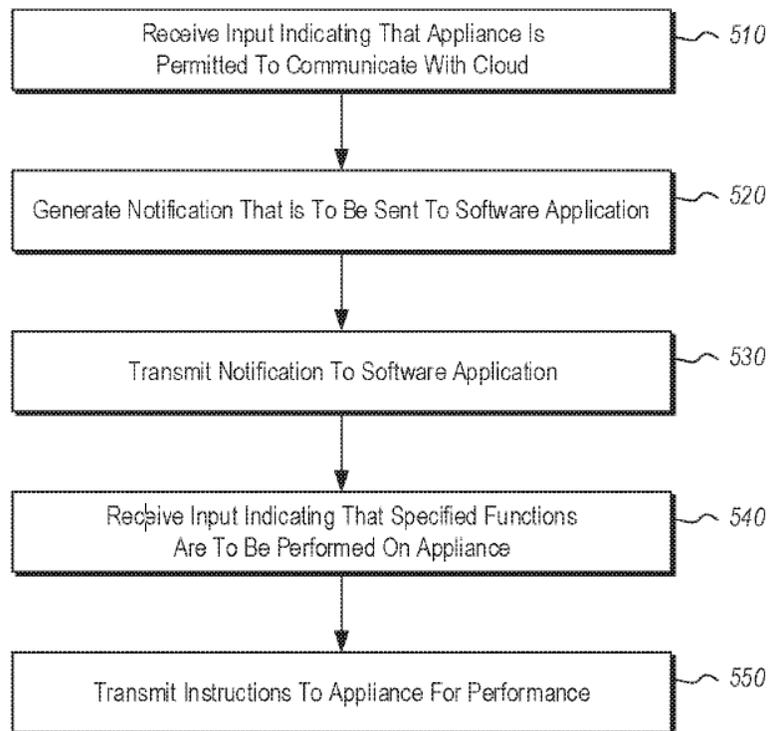


Figure 1

(*id.* at Fig. 1). Figure 1 shows a computer architecture for communication with and controlling operation of electronically-controlled appliances via a mobile computing device (*id.* at 3:26–29). As shown in Figure 1, “[t]he cloud computing platform 101 . . . includes modules for performing a variety of different functions” (*id.* at 6:33–34). Those modules include networking modules, e.g., “[a] communications module 104 . . . to communicate with other computing systems,” “a receiver [105] for receiving inputs from [a] mobile computing device 113,” and “[a] transmitter 107” for sending “a generated notification 112” and “control instructions 119” (*id.* at 6:35–37, 7:11–13, 7:38–41, 7:47–49). “[T]he cloud computing platform 101 . . . communicate[s] with mobile computing device 113 . . . and/or with electronically-controlled appliance 120,” e.g., a grill (*id.* at 6:35–37, 43–44, 60–61), so that mobile computing device 113 can control the electronically controlled appliance through the cloud computing platform (*id.* at 4:32–45, 7:9–16).

“[T]he mobile computing device 113 . . . control[s] the electrically-controlled appliance 120” by executing “[a] software application 114 running on the mobile computing device 113” (*id.* at 7:13–16). Figure 5, reproduced below, illustrates a process for the mobile device 113’s software

application 114 to control the electronically-controlled appliance 120 through cloud computing platform 101 (*id.* at 11:47–49).



**Figure 5**

(*id.* at Fig. 5). Figure 5 shows a flowchart of a cloud-based method for controlling electronically-controlled appliances (*id.* at 3:40–42). First, in step 510, “cloud computing platform 101 may receive first input 115 from mobile computing device 113 indicating that electronically-controlled appliance 120 is permitted to communicate with the cloud computing platform” (*id.* at 11:52–59, Fig. 5). After that indication, in steps 520 and 530, “the cloud computing platform 101 . . . generate[s] notification 112 which is sent . . . to the software application 114 of the mobile computing device 113. The notification 112 indicates that the cloud computing platform is communicably connected to the electronically-

controlled appliance 120” (*id.* at 11:66–12:8, Fig. 5; *see id.* 7:32–43). “After this notification 112 is generated . . . the generated notification [is transmitted] to the software application 114” (*id.* at 12:8–12, Fig. 5). In steps 540 and 550, the software application transmits, to the cloud computing platform, “a second input . . . indicating that one or more specified functions are to be performed on the electronically-controlled appliance” and the cloud computing platform in turn “transmits control instructions 119 to the electronically-controlled appliance 120 to perform the specified functions” (*id.* at 12:12–29, Fig. 5). For example, in the case that the electronically-controlled appliance is a grill, the controlled “functions may include adjusting the temperature by increasing or decreasing burn rate, monitoring internal or external temperatures, monitoring wireless probes, adjusting or setting timers, or performing other functions applicable to the appliance” (*id.* at 12:20–24).

#### *D. Illustrative Claims*

All the challenged claims, claims 4–11, 13–15, 17, 18, 20, and 30, are dependent claims (’720 Patent, 16:14–53, 17:21–54, 18:22–33, 41–45, 20:35–36). Claims 4–11 depend directly or indirectly from independent claim 1; claims 13–15 depend directly or indirectly from independent claim 12; claims 17, 18, and 20 depend directly or indirectly from independent claim 16; and claim 30 depends directly from claim 29, which depends from independent claim 23 (PO Resp. 6–7; ’720 Patent, 16:14–53, 17:21–54, 18:22–33, 41–45, 20:35–36).<sup>5</sup>

---

<sup>5</sup> Claims 29 and 23 are not directly challenged as a part of the Petition in this proceeding.

Claim 1, reproduced below, is illustrative of an independent claim of the '720 patent (annotations in brackets added):

1. [1p] A cloud computing platform for communicating with and controlling operation of an electronically-controlled appliance comprising an outdoor barbecue grill or outdoor barbecue smoker, the cloud computing platform having at least one hardware processor, the cloud computing platform comprising:

[1a] a receiver configured to receive inputs from one or more computing systems including at least a first input indicating that an electronically-controlled appliance is in network communication with the cloud computing platform, the electronically-controlled appliance comprising an outdoor barbecue grill or outdoor barbecue smoker;

[1b] a notification generator configured to generate notifications that are to be sent to one or more software applications being executed at a mobile device, the one or more software applications being configured to control one or more functions of the electronically-controlled appliance;

[1c] a transmitter configured to send at least one generated notification to at least one of the software applications selected from the one or more software applications, the generated notification indicating that the cloud computing platform is communicably connected to the electronically-controlled appliance;

[1d] the receiver receiving a second input from the at least one software application indicating that one or more specified functions are to be performed on the electronically-controlled appliance; and

[1e] the transmitter sending one or more instructions to the electronically-controlled appliance to perform the one or more specified functions, the functions being interpreted and carried out by a hardware controller on the electronically-controlled appliance

(’720 Patent, 15:36–16:2).

### *E. Evidence*

Petitioner relies upon the following references (Pet. 3–4):

<b>Reference</b>	<b>Publication Number</b>	<b>Exhibit</b>
Lee et al. (“Lee”)	US 2015/0134727 A1	1103
Henderson et al. (“Henderson”)	US 2015/0025687 A1	1104
Amer et al. (“Amer”)	US 2016/0072638 A1	1105
Logue et al. (“Logue”)	US 8,539,567 B1	1106
Ebrom (“Ebrom”)	US 9,164,867 B2	1110

Michael E. Porter and James E. Heppelmann, *How Smart, Connected Products are Transforming Competition*, HARVARD BUSINESS REVIEW, 65 (Nov. 2014) (Ex. 1107 (“Porter”));

GMG Product Brochure Publication, available at <https://web.archive.org/web/20101216012026/http://www.Greenmountaingrills.com:80/grills.html> (Ex. 1108 (“GMG Publication”));

Petitioner supports its challenge with a Declaration by Dr. Henry H. Houh, dated December 18, 2018 (Ex. 1102). Patent Owner supports its Response with a Declaration by Mr. Daniel Minoli (Ex. 2125) and a Declaration by Mr. James M. Tomaszewski (Ex. 2126).

### *F. Prior Art and Asserted Grounds*

Petitioner asserts that claims 4–11, 13–15, 17, 18, 20, and 30 are unpatentable on the following grounds:

<b>Claim(s) Challenged</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>
4–7, 20	103	Lee, Henderson
8	103	Lee, Henderson, Porter
9–11	103	Lee, Henderson, Porter, Ebrom
17, 18	103	Lee, Henderson, GMG Publication

<b>Claim(s) Challenged</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>
13–15	103	Lee, Henderson, GMG Publication, Amer
30	103	Lee, Henderson, Amer, Logue

## II. ANALYSIS

### A. *Legal Standards*

Petitioner challenges the patentability of claims 4–11, 13–15, 17, 18, 20, and 30 on the grounds that the claims would have been obvious in light of various references including: Lee, Henderson, Porter, Ebrom, GMG Publication, Amer, and Logue. To prevail in its challenges to the patentability of the claims, Petitioner “has the burden of proving a proposition of unpatentability by a preponderance of the evidence” (35 U.S.C. § 326(e) (2018); *see* 37 C.F.R. § 42.1(d) (2018)).

The ultimate determination of obviousness under 35 U.S.C. § 103 is a question of law based on underlying factual findings (*In re Baxter Int’l, Inc.*, 678 F.3d 1357, 1362 (Fed. Cir. 2012) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1996))). These underlying factual considerations include (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of non-obviousness such as “commercial success, long-felt but unsolved needs, failure of other, etc.” (*KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007) (quoting *Graham*, 338 U.S. at 17–18)).

“To satisfy its burden of proving obviousness, a petitioner cannot employ merely conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal

conclusion of obviousness” (*In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380–81 (Fed. Cir. 2016) (citing *KSR*, 550 U.S. at 418)). The “factual inquiry” into the reasons for “combin[ing] references must be thorough and searching, and the need for specificity pervades” (*In re NuVasive, Inc.*, 842 F.3d 1376, 1381–82 (Fed. Cir. 2016) (internal quotations and citations omitted)). A determination of obviousness cannot be reached where the record lacks “explanation as to how or why the references would be combined to produce the claimed invention” (*TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1066 (Fed. Cir. 2016); see *NuVasive*, 842 F.3d at 1382–85; *Magnum Oil*, 829 F.3d at 1380–81). We analyze the asserted grounds based on obviousness with the principles identified above in mind.

#### *B. Level of Ordinary Skill in the Art*

The level of skill in the art is a factual determination that provides a primary guarantee of objectivity in an obviousness analysis (*Al-Site Corp. v. VSI Int’l Inc.*, 174 F.3d 1308, 1324 (Fed. Cir. 1999) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991))).

Petitioner asserts that a person of ordinary skill in the art at the time of the invention “would have a [Bachelor of Science] degree in Computer Science or an equivalent field, as well as at least two years of academic or industry experience related to Internet connectivity, Internet content delivery, and network applications, as well as familiarity with smart home appliances” (Pet. 12 (citing Ex. 1102 ¶ 41)).

Patent Owner argues Petitioner’s “definition of a [person of ordinary skill in the art] is incorrect because it does not account for the context of the

invention” (PO Resp. 18 (citing Ex. 2126 ¶¶ 34–37, 69–72)). According to the Patent Owner,

[p]roperly considering the relevant factors in the field of outdoor appliances like grills and smokers, the actual level of ordinary skill in the art at the time of the invention was a person with a bachelor’s of science degree in mechanical engineering (or technical degree with equivalent experience) and awareness of appropriate methods for remotely controlling an outdoor appliance.

(*id.* at 18–19 (citing Ex. 2126 ¶¶ 5–7, 40–68)). Patent Owner does not argue the difference in level of ordinary skill in the art would change any determination in this Decision (*id.* at 19). Petitioner responds that “the intrinsic record directly refutes Traeger’s” proposed level of ordinary skill in the art (Reply 3).

Factors that may be considered in determining level of ordinary skill in the art include: (1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.

(*Daiichi Sankyo Co., Ltd. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007) (citations omitted); *see* PO Resp. 17). “These factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art” (*Daiichi* at 1256).

We determine that Petitioner’s description of an ordinarily skilled artisan is supported by the current record. Initially, we note the ’720 Patent does not limit the claims or description to an outdoor appliance; rather, the ’720 Patent states “[t]he electronically-controlled appliance 120 may be *any type* of appliance or device that is electronically-controlled” (’720 Patent, 6:53–54). The ’720 Patent further describes “[o]ther electronically-controlled appliances 115 such as ovens, refrigerators, blenders, toasters,

dishwashers, coffee machines, mixers, bread makers, washers and dryers or other appliances may also be controlled using the software application 114” (*id.* at 8:11–15). Therefore, based on the record before us, we are not persuaded an ordinarily skilled artisan would be limited to one with “awareness of appropriate methods for remotely controlling an outdoor appliance” (*see* PO Resp. 18–19).

The ’720 Patent, in its Background, discusses that “Bluetooth radios allow communication with nearby electronic devices including cell phones” (’720 Patent, 1:51–53). The ’720 Patent further describes that “[r]ange limitations to the Bluetooth radio, however, necessitate that the user of the appliance still be within a certain proximity of the appliance” (*id.* at 1:53–55). Patent Owner admits that proximity is one aspect of the problem the ’720 Patent tries to solve, but contends that food preparation and concerns over flame and heat near a gas outlet are safety concerns the patent seeks to solve (Tr. 35:19–36:21). However, Patent Owner did not identify where in the ’720 Patent preparing food or safety concerns are addressed. Nor do the claims recite elements addressing these concerns. Indeed, as noted above, communication issues, and particularly Bluetooth radio’s proximity concerns, are described as the type of problem encountered and sought to be solved. As apparent from the description in the ’720 Patent, Bluetooth, a communications technology, was the prior art solution to allowing communication with electronic devices, including appliances and cell phones. Thus, based on the record before us, we are not persuaded the level of skill articulated by Petitioner fails to account for the context of the invention.

Additionally, the claims of the ’720 Patent are directed to communication between various elements including a cloud, a mobile

device, transmitters, and receivers and the accompanying software applications but *not* the safety concerns of the grill (*id.* at 15:36–16:13, 16:54–17:20, 17:55–18:21, 18:34–20:24). In particular, independent claims 1 and 12 and dependent claims 4–11 and 13–15 are directed to “[a] cloud computing platform for communicating with and controlling operation of an electronically-controlled appliance”; independent claim 16 and dependent claims 17, 18, and 20 are directed to “[a] method for remotely controlling an electronically controlled appliance”; and independent claim 23 and dependent claim 30 are directed to “[a]n outdoor cooking device for use in a cloud computing environment” (*id.*).

Further, as noted by Petitioner (Pet. Reply 6), the ’720 Patent describes that

[t]hose skilled in the art will appreciate that the principles described herein may be practiced in network computing environments with many types of computing system configurations, including, personal computers, desktop computers, laptop computers, message processors, hand-held devices, multi-processor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, mobile telephones, PDAs, tablets, pagers, routers, switches, and the like[]

and “practiced in a cloud computing environment” (’720 Patent, 5:46–54, 65–67). Therefore, based on the record before us, we determine the sophistication of the technology of the ’720 Patent is of a level requiring knowledge of computer systems and, particularly, cloud computing environments communicating with multiple devices, which knowledge, we find, is not accounted for adequately in Patent Owner’s proposed definition. We further note Patent Owner’s proffered level of skill in the art — “awareness of appropriate methods for remotely controlling an outdoor

appliance”— is overly vague, providing little specifics as to the level of skill.

Lastly, we note that Patent Owner relies on Mr. Minoli as its expert with respect to the claim limitations (Ex. 2125). Mr. Minoli indicates he is “a telecommunications practitioner with 44 years of data communications, telecommunications, cloud computing, Internet, wireless, and Internet of Things (IoT) experience” (*id.* ¶ 9, Appendix A). Mr. Minoli also sets forth that he has a Master of Science in Computer Science and both a Bachelor and Master of Science in Mathematics (*id.* at Appendix A). Thus, in arguing the patentability of the disputed claims, Patent Owner itself relies on an expert having both a degree in Computer Science and at least two years industry experience related to Internet connectivity, Internet content delivery, and network applications. Although a party’s designated expert need not have the same qualifications as the ordinarily skilled artisan, Mr. Minoli’s testimony suggests such artisan would need to possess educational or work experience in these areas of computer science and connectivity to understand and address problems encountered in the prior art advanced here, and, therefore, Mr. Minoli’s qualifications are more consistent with Petitioner’s proposal.

Although Patent Owner also presents Mr. Tomaszewski as an expert, Mr. Tomaszewski only testifies as to the level of skill in the art (Ex. 2126). We are not persuaded that five job postings by manufacturers in the industry, discussed by Mr. Tomaszewski (*id.* ¶¶ 62-67 (Exs. 2110–2114)), is sufficient to evidence the educational level of active workers in the field. Moreover, these job postings are insufficient to evidence the educational area of expertise required to design the recited cloud-computing system. For example, Exhibit 2111 summarizes the job as “design[ing] and test[ing] all

aspects of *mechanical* equipment and machinery” (Ex. 2111, 1 (emphasis added)). Nothing in the other job postings describes any job responsibility related to cloud-computing or network communications (Exs. 2110, 2112–2114).

Thus, based on the record before us, we determine, in light of the Specification and claims, and the factors discussed *supra*, Petitioner’s description of an ordinarily skilled artisan is supported by the current record. We note also that the applied prior art reflects the appropriate level of skill at the time of the claimed invention (*see Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001)).

### C. Claim Construction

We construe the claims “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), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent” (*see Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board*, 83 Fed. Reg. 51,340, 51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.200(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.200(b) (2019)); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005)).

Neither party offers any proposed constructions for any claim terms (Pet. 28–29; PO. Resp. 17). Specifically, Petitioner “contends that no claim terms require construction” and that “[e]ach claim term should be given its plain and customary meaning as understood by one of ordinary skill in the art in accordance with *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir.

2005) (en banc)” (Pet. 12). Patent Owner asserts the challenged claims “shall be construed using the same claim construction standard” as would be used in district court litigation (PO Resp. 17 (citing 37 C.F.R. § 42.200(b))).

On this record and for purposes of this decision, we determine no claim term requires express construction (*see Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

#### *D. References Relied Upon*

##### *1. Overview of Lee (Ex. 1103)*

Lee, a U.S. Patent Application Publication titled “Cloud-Based Data Server Providing Home Appliance Management Service and Method Thereof,” discloses a “cloud-based data server providing a user of a terminal apparatus with a management service for one or more home appliances” so that “the user of the terminal apparatus may remotely monitor states of the home appliances or control actions or operations of the home appliances in a home network system” (Ex. 1103, codes (54), (57)).

Figure 1 of Lee, reproduced below, illustrates “a system in which states of one or more home appliances 150 may be monitored and functions

or operations of the home appliances 150 may be controlled, using a terminal apparatus 160 of a user” (*id.* ¶ 55).

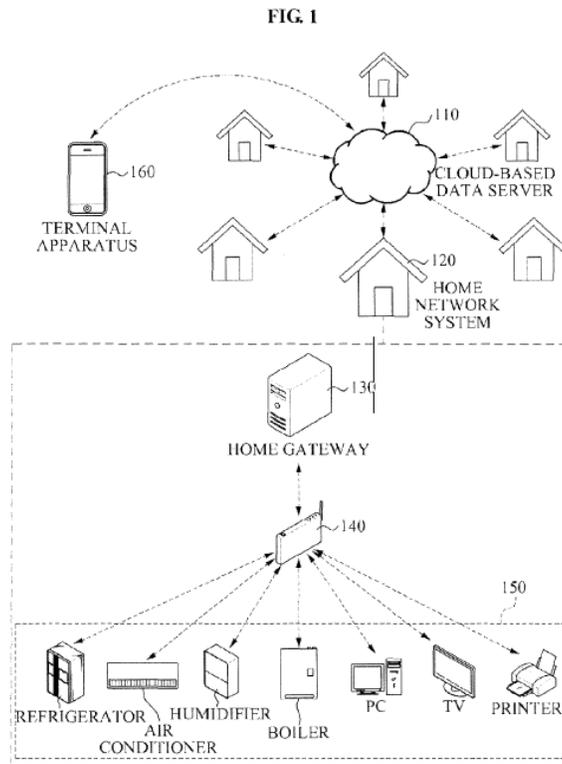


Figure 1 illustrates a system for monitoring and controlling home appliances (*id.*).

As shown in Figure 1, Lee’s “system for managing the home appliances 150 . . . include[s] a cloud-based data server 110,” “a terminal apparatus 160” connected to “the cloud-based data server 110,” and “a home network system 120 connected to the [cloud-based] data server 110” (*id.* ¶¶ 55–58). Further, home network system 120 “include[s] a home gateway 130” connected to the home appliances 150 (*id.* ¶¶ 58–59, 62).

The terminal apparatus 160 monitors the home appliances 150 through metadata generated by the home appliances 150 (*see id.* ¶¶ 65–69).

Figure 5, reproduced below, is a signal flow chart illustrating the signals generated and transmitted to monitor home appliances.

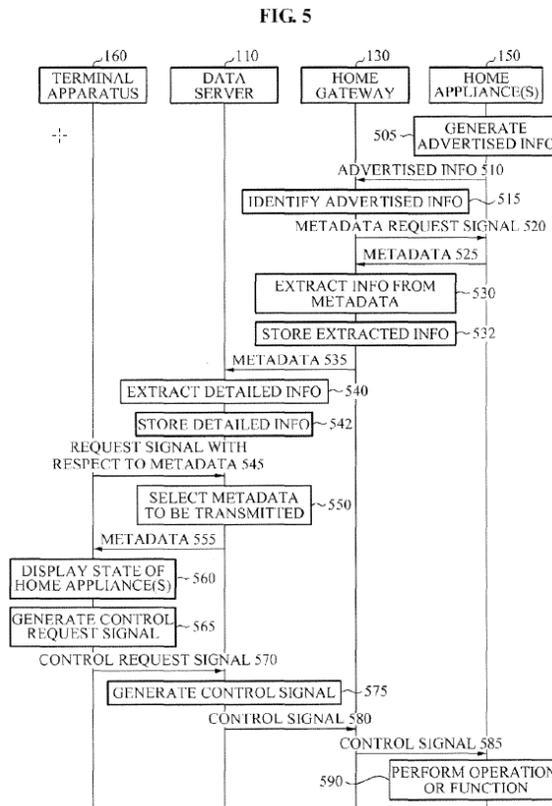


Figure 5 illustrates signals transmitted between networked devices (*id.* ¶ 47). Initially, “each of the home appliances 150 may generate information . . . related to a current state of each home appliance” (*id.* ¶ 175; *see id.* ¶ 68). The “information generated by each home appliance may correspond to metadata associated with each home appliance” (*id.* ¶ 175). In particular, “metadata includ[es] at least one piece of state information on a state of each of the home appliances 150” (*id.* ¶ 190; *see id.* ¶¶ 168, 204). In operation 525, that metadata is transmitted from the home appliance to the home gateway’s device subscription function module (DSFM) (*id.* ¶ 187).

Then, in operation 535, the home gateway 130 “may transfer the metadata from the home appliances 150 to the . . . data server 110 (*id.* ¶ 194,

Fig. 5; *see id.* ¶ 67). Next, in operation 545, data server 110’s monitoring service module (MSM) “may receive, from the terminal apparatus 160, a request signal with respect to the metadata” (*id.* ¶ 201, Fig. 5).

Subsequently, in operation 555, the data server 110’s MSM 245 may transfer the received metadata to the terminal apparatus 160” (*id.* ¶ 203, Fig. 5; *see id.* ¶ 66). As discussed above, “[t]he metadata transferred to the terminal apparatus 160 may include information on states of the home appliances 150,” (*id.* ¶ 203) thus providing “a service for monitoring the home appliances 150 to the user of the terminal apparatus 160” (*id.* ¶ 66).

## 2. *Overview of Henderson (Ex. 1104)*

Henderson, a U.S. Patent Application Publication titled “Remote-Controlled Food-Related Appliance,” discloses a “smoking appliance and [a] remote computing device . . . in communication via [a] communication network” such that “a user of the remote computing device controls the smoking appliance remotely” (Ex. 1104, codes (54), (57)).

Figure 1 of Henderson, reproduced below, illustrates an example system in which “the smoking appliance 102 and remote computing device 104 are in communication via the communication network 106” (*id.* ¶ 13).

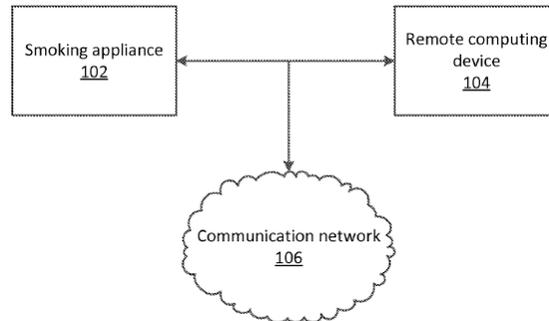


Figure 1

Figure 1 illustrates a cooking system operating over a network (*id.* ¶ 5).

Henderson describes that, in one example, “the smoking appliance 102 is connected to the communication network 106. The communication network 106 is, in turn, connected to the remote computing device 104” (*id.* ¶ 16). Further, Henderson describes that its “smoking appliance 102 functions to, in any combination, cook, smoke, grill, bake, broil, blanch, braise, roast or steam, food” (*id.* ¶¶ 14–15).

### 3. Overview of Porter (*Ex. 1107*)

Porter, a *Harvard Business Review* article titled “How Smart, Connected Products are Transforming Competition,” discloses smart, connected products having “three core elements: physical components, ‘smart’ components, and connectivity components” (*Ex. 1107*, 67). Porter explains that physical components comprise the product’s mechanical and electrical parts (*id.*). Smart components comprise the sensors,

microprocessors, data storage, controls, software, and, typically, an embedded operating system and enhanced user interface (*id.*). Connectivity components comprise the ports, antennae, and protocols enabling wired or wireless connections with the product (*id.*). According to Porter, smart components amplify the capabilities and value of the physical components, whereas connectivity amplifies the value of the smart components, enabling them to exist outside the physical product (*id.*). Porter discloses that smart, connected products allow for monitoring, control, optimization, and autonomous product operation (*id.* at 69–71).

#### 4. *Overview of Ebrom (Ex. 1110)*

Ebrom, a U.S. Patent titled “Network for Communicating Information Related to a Consumable to an Appliance,” discloses an appliance network comprising a networked appliance capable of communicating with a consumable such that information related to the consumable is communicated to the network appliance (Ex. 1110, codes (54), (57)). “[V]arious components and accessories can communicate with the appliance to expand the capability, functionality, and usability of the appliance” (*id.* at 3:32–35). An example accessory is a cell phone which can, for example, be used for “remote diagnostics and service” (*id.* at 21:43–45, 62–64).

#### 5. *Overview of GMG Publication (Ex. 1108)*

GMG Publication, a printout of product descriptions from a website, discloses information about various grills, including the Daniel Boone Grill Model and the Jim Bowie Grill Model, both of which are described as having, for example, a digital control, meat probe with digital readout of food temp, and remote control total grill control (Ex. 1108).

6. Overview of Amer (Ex. 1105)

Amer, a U.S. Patent Application Publication titled “System and Method for Remotely Controlling IR-Enabled Appliances via Networked Device,” discloses a system that “enables one or multiple users to control, monitor, and manage their appliances (e.g., air conditioners, television sets, multimedia systems, window curtains, etc.) both locally and remotely” (Ex. 1105, codes (54), (57)). Figure 2 of Amer, reproduced below, illustrates connected devices for remote control, monitoring, and management of appliances.

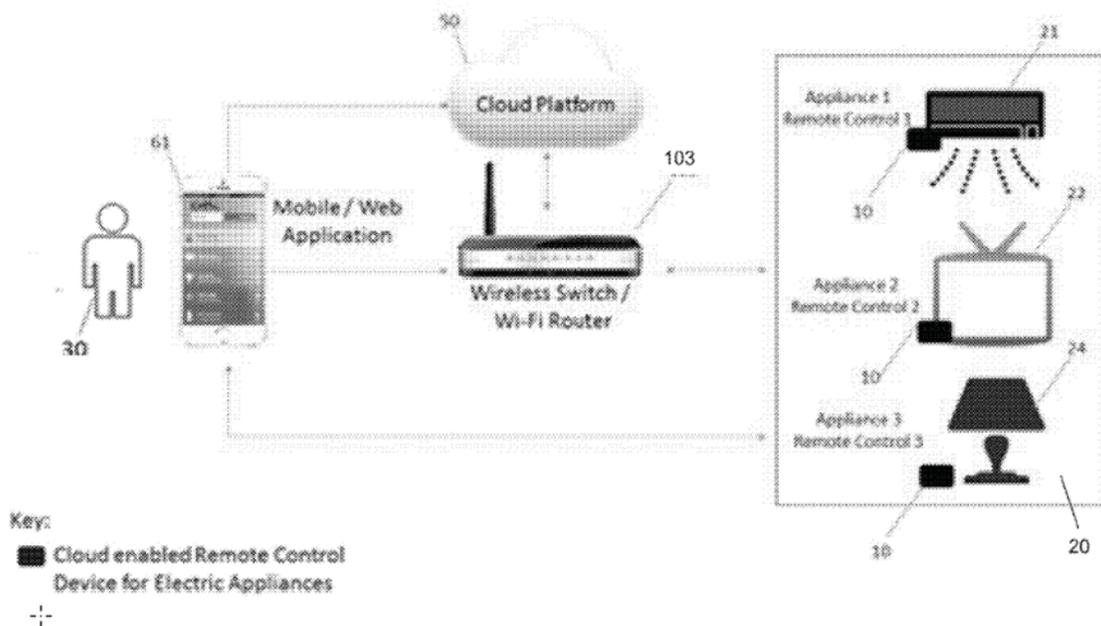


FIG. 2

Figure 2 shows components and relationships between those components for the remote control and monitoring of appliances (*id.* ¶¶ 5, 49).

In Figure 2, “electric appliances 20 denoted by reference numerals 21, 22, and 24” are associated with respective “cloud-enabled remote control

devices 10” (*id.* ¶¶ 49, 53) which control those electric appliances 20 via, e.g., IR control signals (*id.* ¶ 41). Further, “[t]he cloud platform 50 acts as a bridge between . . . [cloud-enabled remote control] devices 10, mobile devices 60, and web applications 61” (*id.* ¶ 50, Fig. 2). “The user 30 can control, monitor, and manage their . . . electric appliances 20” through cloud platform 50’s network connection to the cloud-enabled remote control devices 10 (*id.* ¶ 53, Fig. 2).

### 7. *Overview of Logue (Ex. 1106)*

Logue, a U.S. Patent titled “Multi-Tiered Authentication Methods for Facilitating Communications Amongst Smart Home Devices and Cloud-Based Servers,” discloses a system “for synchronizing distributed states amongst a plurality of entities and authenticating devices to access information and/or services provided by a remote server” (Ex. 1106, codes (54), (57)). In particular, Logue teaches a “client device 104” that “determines whether it requires a software update” by “compar[ing] its current software version 128C with . . . received information indicating the appropriate software version” (*id.* at 38:57–61; *see id.* Fig. 16B). If device’s current software version is not the same as the appropriate software version, “the client device requests the software update from software update server,” “receives an updated version of the software and . . . updates its current software based on the updated version” (*id.* at 38:61–39:2).

### *E. Alleged Grounds*

#### *1. Alleged Obviousness of Claims 4–7 and 20 over Lee and Henderson*

Petitioner contends claims 4–7, and 20 of the ’720 Patent would have been obvious over Lee and Henderson (Pet. 13–51). Patent Owner asserts

Petitioner has failed to show any teaching, suggestion, or motivation to combine the prior art (PO Resp. 46–51). Additionally, Patent Owner asserts Petitioner has failed to show the prior art discloses all of the features of the recited claims, focusing on the limitations recited in independent claims 1 and 16 from which claims 4–7 and 20 depend directly or indirectly (*id.* at 19–29; ’720 Patent, 16:14–37, 18:41–45).

For reasons that follow, Petitioner has not shown that Lee teaches “a receiver configured to receive inputs from one or more computing systems including at least a first input indicating that an electronically-controlled appliance is in network communication with the cloud computing platform,” as recited in independent claim 1. Nor do Petitioner’s arguments for claims 4–7 remedy this deficiency. For the same reasons, Petitioner had not shown that Lee teaches “receiving at a network server of a cloud computing platform a first input from one or more mobile devices, the first input indicating that at least a first electronically-controlled appliance is in network communication with a cloud computing platform,” as recited in independent claim 16 (’720 Patent, 17:55–18:21). Petitioner’s arguments for claim 20 do not remedy this deficiency.

Petitioner asserts Lee teaches “a receiver configured to receive inputs from one or more computing systems including at least a first input indicating that an electronically-controlled appliance is in network communication with the cloud computing platform,” as recited in claim 1 (Pet. 18–19). Petitioner references Lee’s Figure 5 (with annotations added by Petitioner (Pet. 19–20)), reproduced below, which illustrates “a signal

flowchart illustrating a method of providing a home appliance management service” (Ex. 1103 ¶ 47):

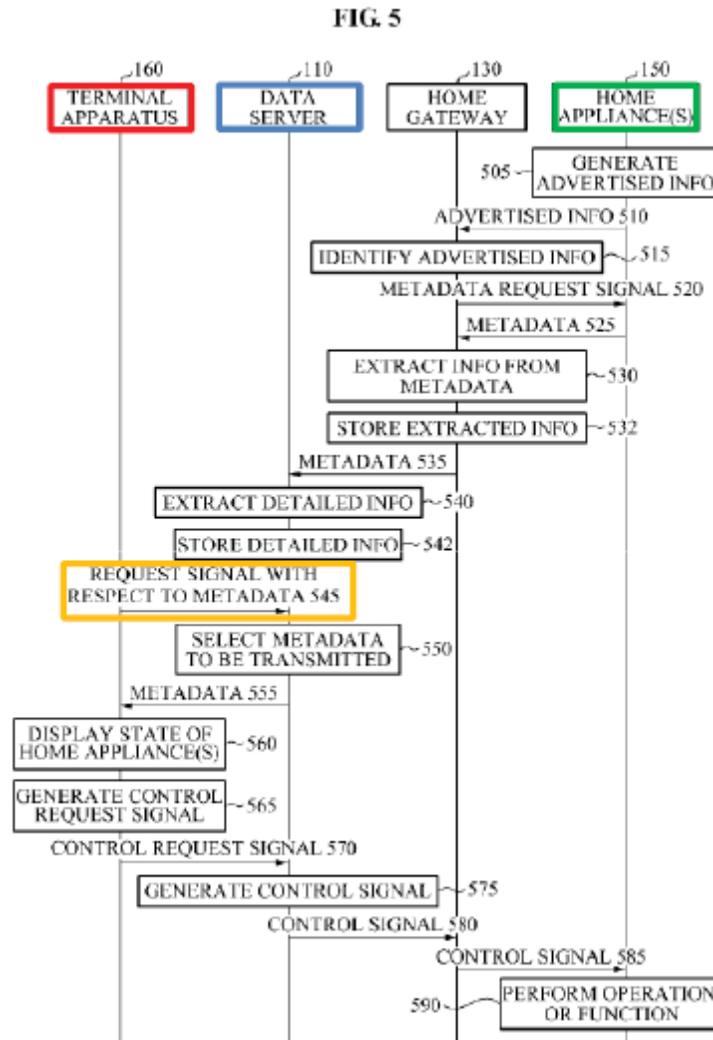


Figure 5 is a signal flowchart illustrating a method of providing a home appliance management service according to an embodiment of the present invention (*id.* ¶ 173, Fig. 5)

Petitioner asserts terminal apparatus 160 is a “computing system,” and Lee’s MSM residing on cloud based data server 110 receives the claimed “first input” (Pet. 20; *see also id.* 18–19 (quoting Ex. 1103 ¶¶ 84, 201, Figs. 2, 5 (“Lee’s monitoring service module (‘MSM’) 245, which resides on the

cloud-based data server 110. . . . may *receive*, from the terminal apparatus 160, a request signal with respect to . . . metadata”). As explained by Petitioner, step 545 in Figure 5 of Lee shows data being transferred from the terminal apparatus 160 (i.e., asserted “computer system”) to the cloud-based data server 110 comprising the MSM (i.e., asserted receiver) (*id.* (citing Ex. 1103 ¶ 201). With reference to step 545, Petitioner asserts “Lee’s cloud-based MSM therefore receives a first input from a computing system, as recited by the limitation” (*id.* at 20). Petitioner asserts further that the “first input” from the computing system also indicates “an electronically-controlled appliance is in network communication with the cloud computing platform,” as required by the claim (*id.*). According to Petitioner, “Lee’s signal 545 satisfies the claimed ‘first input’ [because]. . . Lee makes clear that its request 545 for network connectivity metadata from the cloud is a transmission that ‘indicates’ that the appliance is in fact connected to the cloud” (Pet. Reply 10–11).

More specifically, Petitioner asserts Lee’s MSM (i.e., asserted receiver) receives metadata, explaining that the received metadata includes “state information on a state of each of the home appliances 150” (Pet. 20 (citing Ex. 1103 ¶¶ 68; Ex. 1102 ¶ 132)). As such, Petitioner concludes “[a] skilled artisan would understand from this disclosure that the information received by the MSM [in the cloud-based data server] includes data indicating that the appliance is in network communication with the cloud-based data server” (*id.* at 21 (citing Ex. 1102 ¶¶ 133–134)). Petitioner asserts that its argument that metadata includes network connectivity finds support in Lee’s Figure 5, specifically identifying the signal request from terminal apparatus 160 in step 545 (*id.* at 21). According to Petitioner, the signal request in step 545 requests state information knowing the appliance

is connected to the network, and “that itself is an indication that the appliance is connected to the cloud-computing platform” (*id.*).

Patent Owner disputes Petitioner’s contention that Lee teaches the claim limitation at issue, arguing Petitioner fails to show how the combined art teaches a “first input” indicating a home appliance “is in network communication” with the cloud (PO Resp. 19–29). More specifically, Patent Owner contends Petitioner has failed to show Lee teaches the pertinent limitation and, specifically, “step 545 is a *request* for information” and, thus, “cannot *indicate* anything” (*id.* at 21 (citing Ex. 2125 ¶ 103)).

Based on the record before us, we are not persuaded by Petitioner’s arguments. The claim limitation recites “the cloud computing platform comprising: a receiver configured to receive inputs from one or more computing systems including at least a first input indicating that an electronically-controlled appliance is in network communication with the cloud computing platform” (’720 Patent, 15:36–16:2). Thus, the claim requires the computing system to provide an input to a receiver of the cloud computing platform indicating the appliance is “in network communication” with the cloud computing platform. For reasons discussed below, Petitioner has failed to persuade us Lee teaches data server 110 comprising MSM 245 (i.e., asserted “receiver”) receives an input from terminal apparatus 160 (i.e., asserted “computing system”) indicating home appliance 150 is in network communication with data server 110 (i.e., asserted “cloud computing platform”).

Petitioner contends “[t]he terminal apparatus 160 requests state information from the cloud-based data server in step 545, *knowing* that the appliance is connected to the network . . . and that a request can be made in the first place” (Pet. 21 (emphasis added (citing Ex. 1102 ¶ 135))). In

response, Patent Owner counters that “a user’s *request* to learn a device’s status cannot simultaneously *indicate* the very status the user has just requested” (PO Sur-Reply 8 (citing Ex. 2125 ¶ 103)). Patent Owner further argues “Lee makes no disclosure of how the network connectivity of an appliance is indicated, monitored, or otherwise reported” (PO Resp. 22–23 (citing Ex. 2125 ¶ 95)).

Based on the record before us, we do not find Petitioner’s argument persuasive. In step 545, MSM 245 of data server 110 receives from terminal apparatus 160 a request signal with respect to the metadata (Ex. 1103, Fig. 5, step 545, ¶¶ 194, 201). Lee does not disclose, and Petitioner has identified no teachings or suggestions in Lee, that terminal apparatus 160 has knowledge that home appliance 150 was or is connected to data server 110 before sending the request for metadata to the data server 110. Indeed, we credit Patent Owner’s expert, Mr. Minoli that “Lee makes no disclosure of how the appliances establish network connectivity, let alone how the network connectivity of an appliance is indicated, monitored, or otherwise reported” (Ex. 2125 ¶ 95). In the Reply, Petitioner fails to rebut the argument and testimony that Lee does not expressly disclose how network connectivity of an appliance is monitored, instead asserting the appliance’s state is known because “Lee makes clear that its request 545 for network connectivity metadata” “indicates” the appliance is connected to the cloud (Pet. Reply 11). We find Petitioner’s assertion, however, to be conclusory. Petitioner cites to no disclosure in Lee that terminal apparatus 160 knows the appliance’s state when requesting metadata in step 545 (*id.*). For the reasons stated above, based on the record before us, we find insufficient evidence to show terminal apparatus 160 makes the request with knowledge that home appliance 150 is in network communication with data server 110.

Petitioner further contends “Lee’s appliance is clearly ‘in network communication with’ Lee’s cloud-based server because signals requesting and transmitting metadata are sent from [the cloud-based data server to the appliance] (e.g., signals 525 and 535) and vice versa (e.g., signals 580 and 585)” (Pet. Reply 13–14). Dr. Houh explains terminal apparatus 160 “would not request such data from the data server unless it was already known that the appliance was connected to and producing data sent to the data server” (Ex. 1102 ¶ 135). Patent Owner’s declarant, Mr. Minoli, explains, however, why the request does not indicate home appliance 150 and data server 110 are in network communication, stating “Lee simply assumes that the appliances can communicate within the home network,” and “Lee simply assumes *a priori* the connectivity” (Ex. 2125 ¶ 95). In the Reply, Petitioner does not rebut Mr. Minoli’s testimony (*see generally* Pet. Reply). Petitioner bears the ultimate burden of persuasion. Here, Petitioner fails to identify where Lee teaches that the *request* for metadata itself indicates home appliance 150 and data server 110 are in network communication. For the foregoing reasons, we find Petitioner has not made a sufficient showing that Lee’s request signal in step 545 teaches an indication that home appliance 150 is connected to the cloud.

We further find that although a user’s mobile device (i.e., terminal apparatus 160 of Lee) sends a request signal with respect to metadata to data server 110 in step 545, this step does not teach terminal apparatus 160 sending an input to data server 110 indicating home appliance 150 is in network communication with data server 110 (Ex. 1103, Fig. 5). That the request signal is “with respect to metadata,” does not change that the signal is a request signal. As we discussed above, Petitioner argues the metadata includes information regarding home appliance 150’s network

communication status. Assuming, without deciding, that the metadata includes such information, the request signal at step 545 does not have such information, but rather is *requesting* it.

For the foregoing reasons, based on the record before us, Petitioner has failed to show a skilled artisan would have understood, from Lee's teaching of terminal apparatus 160 sending a request signal with respect to metadata, that terminal apparatus 160 has received any indication that home appliance 150 is in network communication with data server 110, and therefore knows when it sends the request signal to data server 110, that the home appliance 150 is in network communication with data server 110.

Petitioner contends "a skilled artisan would have understood . . . that the information received by the MSM includes data indicating the appliance is in network communication with the cloud-based data server" (Pet. 21). According to Petitioner, Lee's signals 525 and 535 "show that the requested metadata derives from the appliance" (Pet. Reply 11, n. 3 (citing Pet. 21)). Patent Owner disputes that the metadata received by MSM 245 (i.e., asserted "receiver") includes information about home appliance 150's network connection with the cloud (PO Resp. 25–27).

We need not, and therefore do not, decide whether Lee teaches that the metadata includes information indicating whether home appliance 150 is in network communication with data server 110. Regardless of whether the transfer of metadata in step 535 indicates home appliance 150 is in communication with the cloud computing platform, the claim requires that the indication is sent from "one or more computing systems" (i.e., terminal apparatus 160). As discussed above, Petitioner has not shown terminal apparatus 160 has received any indication that home appliance 150 is in network communication with data server 110. The metadata transferred in

step 535 does not originate from terminal apparatus 160. Accordingly, under Petitioner’s mapping, the transfer of metadata in any of step 525, step 535, or a combination of steps 525 and 535 does not teach “a receiver configured to *receive input from one or more computing systems* including at least a first input indicating” network communication (PO Resp. 21–22). Thus, based on the record before us, regardless of whether Lee teaches the metadata provides an indication that home appliance 150 is in network communication with data server 110, Petitioner has not shown Lee teaches a “*computing system*” providing such indication.

It is Petitioner’s burden to prove its proposition of unpatentability by a preponderance of the evidence. Satisfaction of that burden must be based on evidence of record (*see In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d at 1380–81). We have considered the parties’ respective positions and, on the record before us, we are not persuaded Lee teaches “a receiver configured to receive inputs from one or more computing systems including at least a first input indicating that an electronically-controlled appliance is in network communication with the cloud computing platform,” as recited in independent claim 1. For the same reasons, based on the record before us, we are not persuaded Lee teaches “receiving at a network server of a cloud computing platform a first input from one or more mobile devices, the first input indicating that at least a first electronically-controlled appliance is in network communication with a cloud computing platform,” as recited in independent claim 16 (’720 Patent, 17:55–18:31). Therefore, after review of the record before us, and based on this record, we determine Petitioner has failed to demonstrate by a preponderance of the evidence that claims 1 and 16 are unpatentable based on Lee and Henderson.

It follows also that, due to claims 4–7 and claim 20 dependence on independent claims 1 and 16, respectively, Petitioner has failed to demonstrate by a preponderance of the evidence that dependent claims 4–7 and 20 are unpatentable.

*2. Alleged Obviousness of Claim 8 over Lee, Henderson, and Porter*

Claim 8 depends indirectly from independent claim 1 ('720 Patent, claim 8). Petitioner does not contend Porter teaches “a receiver configured to receive inputs from one or more computing systems including at least a first input indicating that an electronically-controlled appliance is in network communication with the cloud computing platform,” as recited in independent claim 1 (Pet. 51–53). Therefore, for the reasons set forth above, Petitioner has failed to demonstrate by a preponderance of the evidence that dependent claim 8 is unpatentable based on Lee, Henderson, and Porter.

*3. Alleged Obviousness of Claims 9–11 over Lee, Henderson, Porter, and Ebrom*

Claims 9–11 depend indirectly from independent claim 1 ('720 Patent, claims 9–11). Petitioner does not contend Porter, Ebrom, or a combination of the additional references teaches “a receiver configured to receive inputs from one or more computing systems including at least a first input indicating that an electronically-controlled appliance is in network communication with the cloud computing platform,” as recited in independent claim 1 (Pet. 53–60). Therefore, for the reasons set forth above, Petitioner has failed to demonstrate by a preponderance of the evidence that dependent claims 9–11 are unpatentable based on Lee, Henderson, Porter, and Ebrom.

4. *Alleged Obviousness of Claims 17 and 18 over Lee, Henderson, and GMG Product Brochure*

Claims 17 and 18 depend directly and indirectly from independent claim 16 ('720 Patent, 18:22–33). Petitioner does not contend GMG Product Brochure teaches “receiving a network server of a cloud computing platform a first input from one or more mobile devices, the first input indicating that at least a first electronically-controlled appliance is in network communication with a cloud computing platform,” as recited in independent claim 16 (Pet. 60–64). Therefore, for the reasons set forth above, Petitioner has failed to demonstrate by a preponderance of the evidence that dependent claims 17 and 18 are unpatentable based on Lee, Henderson, and GMG Product Brochure.

5. *Alleged Obviousness of Claims 13–15 over Lee, Henderson, GMG Product Brochure, and Amer*

Claims 13–15 depend directly and indirectly from independent claim 12 ('720 Patent, 17:21–54). Petitioner contends the combination of Lee, Henderson, GMG Product Brochure, and Amer teaches the elements recited in independent claim 12 (Pet. 64–76). In particular, Petitioner asserts Lee teaches “a receiver at the cloud computing platform configured to receive inputs from one or more mobile devices including at least a first input indicating that the electronically-controlled appliance is in network communication with the cloud computing platform,” as recited in independent claim 12 (*id.* at 65–66).

Patent Owner asserts Petitioner has failed to show the prior art discloses all of the features of the recited claims, focusing on the limitations

recited in independent claim 12. For the reasons set forth above, Petitioner has failed to demonstrate by a preponderance of the evidence that Lee teaches the disputed limitation. Moreover, Petitioner does not contend GMG Product Brochure, Amer, or a combination of the references teaches “a receiver at the cloud computing platform configured to receive inputs from one or more mobile devices including at least a first input indicating that the electronically-controlled appliance is in network communication with the cloud computing platform,” as recited in independent claim 12 (Pet. 76–84). For the reasons set forth above, Petitioner has failed to demonstrate by a preponderance of the evidence that dependent claims 13–15 are unpatentable based on Lee, Henderson, GMG Product Brochure, and Amer.

*6. Alleged Obviousness of Claim 30 over Lee, Henderson, Amer, and Logue*

Claim 30 depends indirectly from claim 29, which depends from independent claim 23 ('720 Patent, 20:25–36). Claim 30, therefore, requires all of the features set out in each of claims 29 and 23, although those claims are not directly challenged in the Petition. Claims 23, 29, and 30 are reproduced below:

23. An outdoor cooking device for use in a cloud computing environment, the outdoor cooking device comprising an electronically-controlled appliance in the form of an outdoor barbecue grill or outdoor barbecue smoker that is configured to implement instructions from a network server of a cloud computing platform, and to relay information to one or more user-controlled mobile devices at a remote location, the outdoor cooking device comprising:
- a combustion area; and
  - an electronic hardware controller comprising at least a processor, a temperature sensor for providing grill temperature data, a digital probe for providing food temperature data, a

network communication component for communicating over the internet via an access point, and a computer memory having computer-executable instructions stored thereon that, when executed through the electronic hardware controller, cause the outdoor cooking device, to perform the following:

- communicate wirelessly via an initial direct connection with a mobile device to link the mobile device with the outdoor cooking device;

- after the initial direct connection with the mobile device, communicate directly with the cloud computing platform over the internet to send a first input indicating that the outdoor cooking device is in network communication with the cloud computing platform, and cause the outdoor cooking device to disconnect from the mobile device;

- after disconnecting from the initial direct connection with the mobile device, receive one or more second inputs from the network server over the internet, the one or more second inputs comprising one or more user selection made on the mobile device regarding control of the outdoor cooking device;

- send usage data over the internet to the network server, wherein the usage data comprises temperature data intended for display on the mobile device, and data intended to be stored at the cloud computing platform but not displayed on the mobile device; and

- adjust temperature of the outdoor cooking device in response to user-selected instructions provided at the mobile device and received at the outdoor cooking device from the network server over the internet.

29. The outdoor cooking device as recited in claim 23, wherein the outdoor cooking device is further configured to:

- identify a status of software installed on the electronically-controlled appliance; and

- install an updated version of the software received over the internet from the cloud computing platform.

30. The outdoor cooking device as recited in claim 29, wherein the outdoor cooking device is further configured to:

- send a request to the cloud computing platform upon identifying that the software is out of date;

wherein the request:

informs a user that new operating instructions exist and provides the user with an opportunity to direct an update to the software; or

requests the cloud computing system to directly update the outdoor cooking device with the software update over the internet.

(’720 Patent, 18:53–19:28, 20:19–24). Petitioner contends the combination of Lee, Henderson, Amer, and Logue teaches all the elements required by claim 30 (Pet. 84–99). Patent Owner asserts Petitioner’s ground applied to claim 30 is deficient because the combined references allegedly fail to teach the following features of claim 23:

the outdoor cooking device comprising: . . . an electronic hardware controller . . . [that] cause[s] the outdoor cooking device to perform the following: . . . after the initial direct connection with the mobile device, communicate directly with the cloud computing platform over the internet to send a first input indicating that the outdoor cooking device is in network communication with the cloud computing platform, and cause the outdoor cooking device to disconnect from the mobile device[.]

(PO Resp. 29–33, 45–46; ’720 Patent, 20:25–36). Patent Owner further asserts Petitioner does not provide an adequate rationale to combine Lee and Henderson, and to combine Lee, Henderson, and Amer (*id.* at 46–54).

a) *Alleged Lack of Teaching*: “*after the initial direct connection . . .*”

Patent Owner contends “the first input[, sent from the outdoor grill,] “must also ‘cause the outdoor cooking device to disconnect from the mobile device” (PO Resp. 29 (quoting ’720 Patent, 19:9–13)). We are not persuaded. Claim 23 requires that an electronic controller includes a computer memory having computer-executable instructions stored thereon that, when executed through the controller, causes an outdoor cooking

device to perform certain functions ('720 Patent, 18:53–19:28). For instance, claim 23 specifies that the instructions cause the cooking device to first “communicate wirelessly via an initial direct connection with a mobile device to link the mobile device with the outdoor cooking device” (*id.* at 19:4–7). Next, claim 23 recites the limitation:

after the initial direct connection with the mobile device, *communicate* directly with the cloud computing platform over the internet to send a first input indicating that the outdoor cooking device is in network communication with the cloud computing platform, *and cause* the outdoor cooking device to disconnect from the mobile device[.]

(*id.* at 19:8–14 (emphases added)). The above-quoted limitation recites two verbs of the same tense: “communicate” and “cause” (*id.*). Based on rules of parallelism and the phrase structure and verb tenses, the logical implication is that the executed instructions initiate two actions as a part of the limitation, a “communicate” action and a “cause” action. As a part of the “communicate” action, a first input is sent which is recited as “indicating that the outdoor cooking device is in network communication with the cloud computing platform.” Notably, the next specified action of the limitation, the “cause” action, is not referenced as “causing.” In light of the verb tenses, the natural inference is not to link the “indicating” of the first input with the “cause” action. Rather, it is the instructions executed through the electronic controller that perform the “cause” action. We, thus, are not persuaded the first input “causes” the outdoor cooking device to disconnect.

We determine this interpretation is consistent with the '720 Patent. More specifically, the '720 Patent does not explicitly describe the outdoor cooking device having a controller that, “after the initial direct connection with the mobile device,” causes the outdoor cooking device, “to disconnect

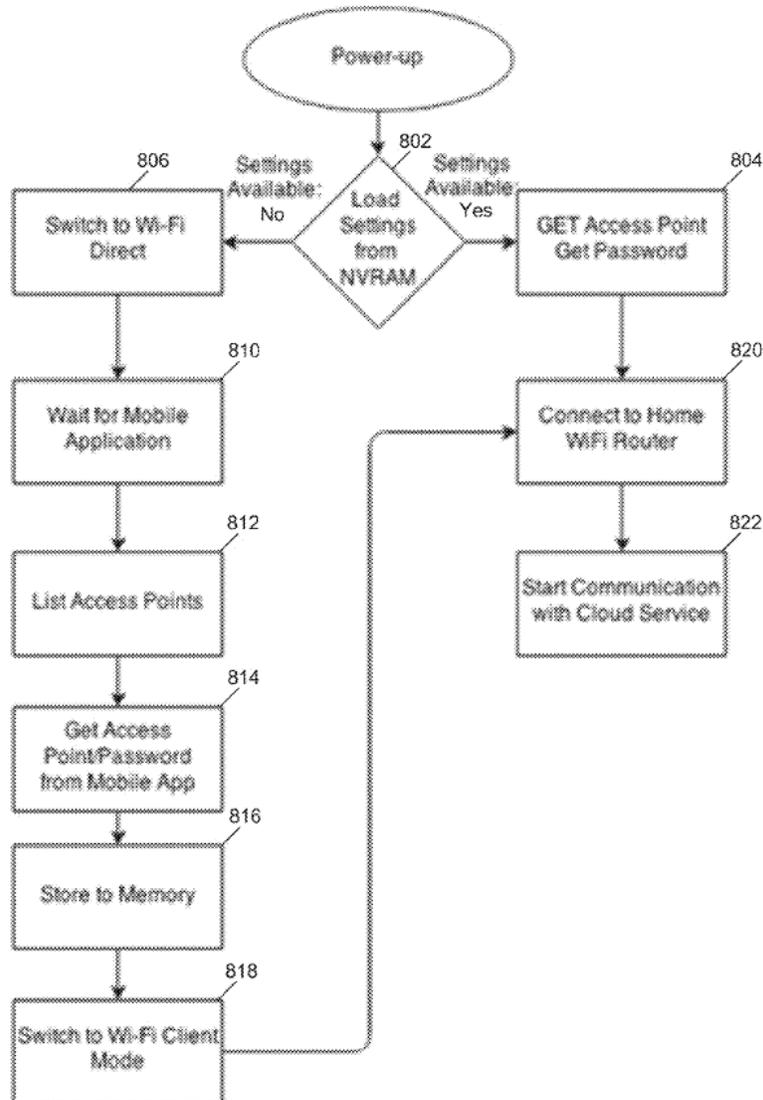
from the mobile device.” The ’720 Patent describes in some embodiments, “the cloud computing platform 101 may be configured to communicate directly with the electronically-controlled appliance . . . . As such, the electronically-controlled device 120 may send and receive data from the cloud computing platform 101” (’720 Patent, 13:1–11). The ’720 Patent, however, does not describe the specifics of the feature, nor does the ’720 Patent, aside from the claims, discuss any “disconnect” from the mobile device. As such, absent any guidance from the Specification of the ’720 Patent, we find this interpretation is not inconsistent with the ’720 Patent.

According to Petitioner,

Amer discloses an initial direct connection between the user’s mobile device and electronically-controlled appliance in order to configure the device’s Wi-Fi access parameters, as well as a subsequent cloud based connection therebetween once the required parameters to configure access to the wireless network have been received.

(Pet. 68 (citing Ex. 1102 ¶ 307–309), 89). Petitioner relies on Figure 8 of Amer to show the disputed limitation (Pet. 67–69, 89–91). Figure 8, reproduced below, illustrates “a flow diagram showing steps typically

performed by a device at power up in accordance with some embodiments of the technology” (Ex. 1105 ¶ 11):



**FIG. 8**

Figure 8’s flow diagram shows steps performed by a device, such as an electronically-controlled appliance, “at power up to start communication with a cloud service” (*id.* ¶ 90, Fig. 8). Amer discloses that “[u]pon power up, at block 802, the system searches . . . for system settings” (*id.* at ¶ 90, Fig. 8). When the settings are absent, as shown in block 806, remote control

device 10 switches Wi-Fi module to Wi-Fi direct mode (*id.* ¶ 90, Fig. 8; Pet. 68) —“the initial direct connection with the mobile device,” as recited in claim 23. In blocks 812, 814, and 816 of Figure 8, the device is in direct communication with a mobile device and receives data to connect to a selected access point (Pet. 68 (citing Ex. 1102 ¶ 305); Ex. 1105 ¶ 90, Fig. 8). Amer further describes “[a]t block 818, the remote control device then switches Wi-Fi module back to client mode [(disconnect from the mobile device)] and at block 820 connects to the home Wi-Fi router from where at block 822 the communication to cloud platform establishes” (Ex. 1105 ¶ 90, Fig. 8; Pet. 68). Thus, based on the record before us, we are persuaded Amer teaches “after the initial direct connection with the mobile device, communicate directly with the cloud computing platform over the internet to send a first input indicating that the outdoor cooking device is in network communication with the cloud computing platform, and cause the outdoor cooking device to disconnect from the mobile device,” as recited in claim 23. Accordingly, based on the record before us, we are persuaded Amer teaches the disputed limitation.

Patent Owner argues Petitioner admits Amer does not disclose the “first input,” as recited in claim 23, but instead, “implies that a [person of skill in the art (POSITA)] would have known how Amer could be ‘configured’ to arrive at the claimed invention” (PO Resp. 29 (citing Pet. 89)). More specifically, according to Patent Owner, “Amer’s solution is to introduce a new, intermediate device into the system so that the new device ([infrared remote] control device 10) can communicate with the Wi-Fi and also send IF commands to the appliance” (PO Resp. 31 (citing Ex. 2115 ¶¶ 116–120)). Therefore, Patent Owner asserts, no direct communications exist between the cloud and the appliance because Amer teaches “the

appliance remains unchanged” and the “conventional IR appliances are unidirectional” (*id.* at 31–32 (citing Ex. 1105 ¶¶ 25, 33; Ex. 2125 ¶¶ 116–120), 45–46).

Initially, we determine Amer discloses “the device 10 or a selection of subsystems may be *embedded within* an appliance to provide the control and management functionalities to the user over their appliances” (Ex. 1105 ¶ 46 (emphasis added); *see also id.* ¶ 47 (describing an embodiment with the cloud enabled remote control device 10 embedded internally in an appliance); Pet. Reply 21, 25). Indeed, Amer teaches this embedding of device 10 may occur at the manufacturing stage (Ex. 1105 ¶ 46.). Thus, Amer teaches device 10 may be an element of the appliance. We note the ’720 Patent similarly discloses an electronic hardware controller, which may include a radio, is part of the electronically-controlled appliance (’720 Patent 6:67–7:4; Pet. Reply 25).

Amer’s appliance with embedded device 10, communicates with Wi-Fi router 103 (Ex. 1105 ¶ 49, Fig. 2; Pet. Reply 22–23). The ’720 Patent discloses electronically-controlled appliance 120 communicates with “an access point 118 (such as a router) that permits flow of data between the appliance 120 and the cloud computing platform 101 and/or between the appliance 120 and the mobile computing device 113” (’720 Patent, 8:37–41, Fig. 1). Thus, based on the record before us, we find Amer teaches the outdoor cooking device “communicate[s] directly with the cloud computing platform over the internet,” as recited in claim 23.

Patent Owner next points to paragraph 25 of Amer to support its contention that Amer’s appliances cannot send information to the cloud (PO Resp. 31); however, this paragraph discusses “conventional remote controls,” the disadvantages of which Amer seeks to overcome with a bi-

directional remote control (Ex. 1105 ¶¶ 25, 33–34). Other disclosure in Amer teaches device 10 includes IR *transceiver* 101 and thus, Amer’s device 10 communicates bi-directionally (Ex. 1105 ¶ 40; *see also id.* ¶ 41 (“The IR transceiver 101 has onboard implementation of IR modulators and demodulators for transmission and reception of data”), Claims 1–3 (“[T]he IR transceiver assembly comprises an IR emitter and an IR transceiver”). Amer teaches device 10 (which may be embedded in the appliance and thus, is part of the appliance) communicates with the cloud via a router 103 (*id.* ¶¶ 41, 49, 53, Figs. 1A, 2, 5A). Accordingly, Amer’s appliances can send information to the cloud. Therefore, based on the record before us, we are not persuaded by Patent Owner’s contention that Amer fails to disclose direct communications between the cloud and the appliance.

Patent Owner additionally argues “the Petition provides no motivation or reason for reconfiguring Amer so that the mobile device disconnects from device 10 after it switches to Wi-Fi client mode” (PO Resp. 30 (Ex. 2125 ¶ 126)). According to Patent Owner:

Amer never explains that switching modes means that the mobile device disconnects from device 10 or that the device 10’s connections are mutually exclusive. Instead, Amer suggests simultaneous connections in that the device may use “onboard algorithms to switch amongst various modes of operation, for example, Wi-Fi client mode or Wi-Fi direct mode.” Ex. 1105 (Amer) ¶ [0089].

(*id.*).

Based on the record before us, we are not persuaded by Patent Owner’s contention. Rather, we credit Dr. Houh’s testimony that a skilled artisan would understand “to switch amongst various modes of operation” to mean “when one mode is enabled, the other is disabled” . . . and “‘switching’ models involves exiting a first mode and activating a second

mode” (Ex. 1139 ¶ 55) because this is consistent with the disclosure in Amer. As noted by Petitioner, Amer teaches “switching” amongst various modes of operation (Ex. 1105 ¶¶ 34, 89–90; Pet Reply 23). More specifically, paragraph 89 of Amer, relied upon by Patent Owner as disclosing simultaneous connections, teaches:

If the device is registered, . . . [t]he device 10 *switches* to Wi-Fi client mode 711 and connects to the registered Wi-Fi network 706. If the device is unregistered, the state will *switch* to Wi-Fi Direct mode 702 and search for Wi-Fi Direct clients. After successfully connecting to a Wi-Fi Direct client 703, and getting and verifying Wi-Fi communication credentials 704, the remote control device state will *switch* to Wi-Fi client mode 705 and connect to a Wi-Fi network 706, e.g., a home wireless router.

(Ex. 1105 ¶ 89 (emphases added)). Patent Owner argues “Amer teaches *maintaining* a connection with the mobile device so that ‘cloud platform 50 is not required for communications’” (PO Resp. 30 (quoting Ex. 1105 ¶ 62; *see also id.* ¶ 81, Fig. 5G; Ex. 2125 ¶ 123)). However, these paragraphs of Amer teach an *embodiment* in which appliances communicate directly through a user’s smartphone: “The cloud platform 50 is *not* required for device 10 operation *in such embodiments*” (Ex. 1105 ¶ 62 (emphases added); *see also id.* ¶ 82 (describing an embodiment illustrated in Figure 5G, in which a local user(s) controls the appliance through their smartphone)). Moreover, neither paragraph teaches *maintaining* a connection with the mobile device and the cloud at the same time. As such, based on the record before us, we are persuaded by Petitioner’s contention that Amer’s disclosure of switching between modes teaches or suggests computer-executable instructions that “cause the appliance to disconnect from the mobile device,” as recited in claim 23.

Patent Owner further contends, “the Petition fails to identify any input that is sent from Amer’s *appliance* to the cloud . . . because the appliance in Amer are infrared-controlled devices that can only *receive* IR-communications from Amer’s IR remote control device 10; the appliances never *send* any communications” (PO Resp. 31 (citing Ex. 1105 ¶ 25; Ex. 2125 ¶ 116)). Amer, however, as discussed *supra*, teaches device 10, embedded in the appliance (Ex. 1105 ¶¶ 45–47), is bi-directional (*id.* ¶¶ 40–41; Fig. 2). Thus, the appliance includes device 10 (*see e.g.* Amer’s example of an air conditioner with device 10 embedded within (*id.* ¶ 47)). Accordingly, communications from device 10 teaches information from the appliance to the cloud (*id.* ¶¶ 41, 53, Figs. 1A, 2). Further, Amer teaches the IR transmission occurs between device 10 and an appliance(s) while transmission between device 10 and cloud platform 50 uses LAN/WAN (Local Area Network/Wide Area Network) communication (Ex. 1105 ¶¶ 56–57; *see* Pet. Reply 26–27). Thus, Amer does not teach or suggest IR communications between device 10 and cloud platform 50. We further note Amer teaches when device 10 is embedded in an appliance, “[t]he data receiving unit 129 and data transmission unit 130 communicate with the air conditioner appliance directly rather than through the IR transceiver of FIG. 1A” (Ex. 1105 ¶ 47).

Petitioner additionally relies on an embodiment in Amer, in which, once connected to the cloud, the appliance “starts sending ‘heartbeats’ according to a ‘Heartbeat Protocol’ after automatically adjusted intervals” . . . [that] “help[] in **detecting whether the device 10 is online or offline.**” (Pet. 90). Patent Owner contends that “Amer never discloses disconnecting any device as a response to receiving or not receiving a heartbeat” (PO Resp. 33 (citing Ex. 2125 ¶ 122)). However, in light of our findings above in which

we determined, based on the record, Amer teaches the requirement in claim 23, of disconnecting from the mobile device, we need not address this contention. Therefore, we find, based on the record before us, the combination of Lee, Henderson, and Amer teaches the following element of claim 23:

after the initial direct connection with the mobile device, communicate directly with the cloud computing platform over the internet to send a first input indicating that the outdoor cooking device is in network communication with the cloud computing platform, and cause the outdoor cooking device to disconnect from the mobile device[,]

(’720 Patent, 18:53–19:28).

*b) Remaining Limitations*

Petitioner sets forth for each of the other limitations required by claim 30, where the combination of Lee, Henderson, Amer, and/or Logue teaches or suggests each of the limitations (Pet. 13–18, 67–76, 84–99). Patent Owner does not argue specifically any of these limitations (*see generally* PO Resp.). Upon review of the record before us, we find that the combination of Lee, Henderson, and Amer teaches these remaining limitations.

*c) Rationale to Combine Lee and Henderson*

Petitioner states that a “skilled artisan would have been motivated to use Lee’s cloud-based system with Henderson’s networked grill” (Pet. 16–18, 85). In response, Patent Owner contends Petitioner “fails to articulate adequate reasoning for combining the complex IoT gateway-based system of Lee with the outdoor grills/smoker of Henderson” to combine the teachings of Lee and Henderson” (PO Resp. 46).

*(1) Level of Skill*

Initially, Patent Owner challenges the Petitioner’s basis for combining the teachings of Lee and Henderson on the premise that Petitioner’s level of skill in the art is incorrect because it “discount[s] the unique nature of outdoor grills” (*id.* at 47–48). As discussed *supra*, however, we adopt Petitioner’s articulated level of skill in the art for an ordinarily skilled artisan.

*(2) Reason to Combine Lee and Henderson*

Petitioner argues “Lee discloses a cloud-based system that allows a mobile device to communicate with and control various household appliances” listed as covering “a wide array of electronically-controlled appliances” (Pet. 13 (citing Ex. 1103 ¶ 247, Fig. 4), 15 (citing Ex. 1103 ¶ 62)). Petitioner then asserts:

Applying cloud-computing technology to outdoor grills reflects a natural progression of IoT technology, as market forces incentivized appliance manufacturers to develop new kinds of “smart home” devices.

(*id.* at 16 (citing Ex. 1102 ¶ 121)). Petitioner identifies prior art that discloses controlling devices such as an outdoor grill, using a cloud-computing platform (*id.* at 6–7 (citing Ex. 1120; Ex. 1122)).

According to Petitioner, an ordinarily skilled artisan “would allow a user to remotely control the grill from virtually anywhere,” addressing Henderson’s criticism of prior art grills and extending Henderson’s solution to the problem (*id.* at 17 (citing Ex. 1102 ¶ 124; Ex. 1104 ¶ 2)). Petitioner states “[t]here is nothing unique about a grill that would dissuade a skilled artisan from following Lee’s suggestion to add home appliances to the cloud-based network” (*id.* at 16). Petitioner further contends:

[A] skilled artisan would recognize that there are many

advantages to using Lee's cloud-based platform to control Henderson's networked grill. Doing so would allow a user to remotely control the grill from virtually anywhere, without any geographic limitations.

(*id.* at 17). Petitioner further states "Lee's cloud-based network was a wireless platform known at the time, and employing it in Henderson would have been routine for a skilled artisan and would have produced no unexpected results" (*id.* at 16–17). Petitioner still further states a "predictable benefit of employing Lee's cloud-based platform with Henderson's grill is the improved data storage capacity that cloud technology provides" and "Lee itself describes such a benefit" (*id.* at 17 (citing Ex. 1103 ¶ 8)). Petitioner also states "an additional expected benefit of using the cloud-based data network of Lee with the networked grill of Henderson is the cloud's well-known ability to continuously collect data" (*id.* at 18 (citing Ex. 1102 ¶ 126)).

Lee contemplates use of its system with home appliances which "may refer to electrical devices used at home" (Ex. 1103 ¶ 61). Based on the record before us, we are persuaded an outdoor grill, as described in the '720 Patent, would have been regarded reasonably as an electrical device used at home. Indeed, Lee provides a non-limiting array of examples of home appliances that includes "a refrigerator, an air conditioner, a humidifier, a boiler, a PC [(personal computer)], a television (TV), and a printer" (*id.* at ¶ 62 ). Thus, we are persuaded by Petitioner's assertion that Lee "encourag[es] the connection of any home appliance to that network" (Pet. 16 (citing Ex. 1103 ¶ 6)). We find Lee's description of use of its system with multiple, various examples of home appliances reasonably suggests use with other types of known appliances associated with a user's home, such as an outdoor grill. Furthermore, Henderson supports that an outdoor grill can

be connected to a communication network and controlled by a remote computing device (Ex. 1104 ¶ 13; *see* Pet. 8, 16).

Patent Owner argues, however, “outdoor grills are unique as compared to indoor home appliances” (PO Resp. 49 (citing Ex. 2126 ¶¶ 40–44; Ex. 2125 ¶ 180)). According to Patent Owner, because of “environmental conditions and other factors (such as rapid, unintentional increases in temperature) lead to unpredictable situations and constantly changing conditions, it is important to be physically located at the grill” (*id.* (citing Ex. 2126 ¶¶ 40–41)). Patent Owner additionally argues an ordinarily skilled artisan would not have been motivated to use Lee’s IoT gateway-based system for remotely controlling an outdoor grill because “Lee’s system is overly complex and introduces a potential failure point that may negatively impact the safety, reliability, and robustness of the remote control” (*id.* at 49 (citing Ex. 2125 ¶¶ 182–183)).

We credit Dr. Houh’s testimony that “applying Lee’s cloud-based system to Henderson’s grill represents a natural progression of [Internet of Things] technology” (Ex. 1102 ¶¶ 120–121) because “Lee articulates the benefit of controlling ‘home appliances through a network formed among the home appliances in ubiquitous environments,’ and the inclusion of a grill—an appliance already prevalent in many homes—would have been a logical addition to that ubiquitous network” (*id.* (citing Ex. 1103, ¶ 6)). In addition, prior art discloses that “IoT devices may include . . . grills” (Ex. 1122 ¶ 37 (hereinafter, “Gupta”)) and further prior art discloses a system and method of monitoring and controlling powered gas or electric appliances, such as an outdoor grill, using Internet connectivity and a cloud platform (*see e.g.*, Ex. 1122, Abstract, 1:41–47, 3:17–33, 4:63–5:5, 11:37–42 (hereinafter “Jablokov”)) and a grill control device which remotely

controls a grill allowing the grill to be “unattended” and used remotely (Ex. 1131, 1:8–12, 1:21–50, 2:33–35, 4:42–55 (hereinafter “Durian”)) (Ex. 1102 ¶¶ 63–64).

Additionally, based on the record before us, we are not persuaded that an “outdoor environment” or the “more complex, interactive cooking hardware like an outdoor grill” would have been “uniquely challenging or difficult for one of ordinary skill in the art” or “represented an unobvious step over the prior art” for an ordinarily skilled artisan to incorporate into the system of Lee (*Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 418-19)). The disclosure in the proffered prior art teaches connection of a grill to the internet. Indeed, each of Henderson, Gupta, Jablovkov, and Durian describes internet-based systems for remotely controlling an outdoor grill. We are persuaded by Petitioner’s assertion that application of IoT to outdoor grills was known before the filing date of the ’720 Patent. We further are persuaded the application of IoT to outdoor grills, using cloud-computing technology, was a natural extension of IoT and cloud-computing technology (*see* Pet. 6 (citing Ex. 1120; Ex. 1122; Ex. 1102 ¶¶ 51–65)).

Additionally, we are unpersuaded that use of Lee’s system, which includes a home gateway, would have dissuaded an ordinarily skilled artisan from combining Lee’s system with an outdoor grill. Indeed, although Patent Owner contends Lee’s system is “overly complex” and use of the gateway “introduces a potential failure point,” Patent Owner has not proffered sufficient evidence or argument as to why addition of a home gateway would make a system utilizing the Internet (which has multiple intermediate devices and, thus, potential failure points) so complex that an ordinarily

skilled artisan would not be motivated, even in light of Lee’s disclosure of connecting home appliances, to connect an outdoor grill.

Accordingly, we are persuaded by Petitioner’s articulated rationale that an ordinarily skilled artisan would have been motivated to use Lee’s cloud-based system with Henderson’s networked grill.

We have reviewed the record before us, and based on this record, we determine Petitioner has articulated sufficiently why an ordinarily skilled artisan would have found it obvious to combine the teachings of Lee and Henderson.

*d) Rationale to Combine Lee, Henderson, and Amer*

Petitioner asserts an ordinarily skilled artisan would have been motivated to use Amer’s teachings of switching between several modes of operation when powering up a household appliance (Pet. 69–71 (citing Ex. 1102 ¶¶ 311–316)). According to Petitioner, an ordinarily skilled artisan would have been motivated to implement Amer’s teaching because “Lee does not describe how its home appliance are initially connected to the local wireless access point” (*id.* at 69 (citing Ex. 1102 ¶ 311)). Thus, Petitioner asserts, an ordinarily skilled artisan “would have been motivated to provide a convenient and common method of connecting a variety of home appliances to a user’s wireless network via an access point” (*id.* at 70 (citing Ex. 1102 ¶ 312)).

Patent Owner contends an ordinarily skilled artisan “would not look to Amer’s infrared (‘IR’) communication in the context of designing a system to remotely monitor and control an outdoor grill” (PO Resp. 51 (citing Ex. 2125 ¶¶ 186–187)). According to Patent Owner,

IR communication requires both line-of-sight and a clear path between transmitter and receiver. An outdoor environment is

generally unpredictable, as there are numerous objects that may interfere with the line-of-sight between objects.

(*id.* at 52 (citing Ex. 2125 ¶ 189)).

Based on the record before us, we are persuaded by Petitioner’s contentions. Petitioner contends the IR transmission of data in Amer occurs between its remote control device and appliance, and Amer describes an embodiment in which the remote control device is embedded in the appliance (Pet. Reply 25; Ex. 1105 ¶¶ 46–47). Amer describes an appliance with an embedded device, as illustrated in Figure 1C (Ex. 1105 ¶ 47). Thus, because the device may be embedded in the appliance, Amer describes embodiments in which line-of-sight and a clear path would not pose an issue. Moreover, Amer teaches, in an embodiment in which the device 10 is embedded in the appliance, “[t]he data receiving unit 129 and data transmission unit 130 communicate with the air conditioner appliance directly rather than through the IR transceiver of FIG. 1A” (Ex. 1105 ¶ 47). Additionally, as discussed *supra*, communication between cloud platform 50 and device 10 is not IR communication (*id.* ¶ 56; Pet. Reply 26).

Patent Owner further contends “IR involve[s] an excess amount of ambient light or heat, which can overload an IR sensor, preventing it from receiving a command signal” (PO Resp. 52). Again, this contention is not persuasive given Amer’s teaching of device 10 being embedded in the appliance and communicating directly (Ex. 1105 ¶¶ 46–47).

Patent Owner additionally asserts “adding the IR communication system of Amer adds yet another device, which adds yet another layer of complexity into Lee’s IoT gateway system” and “would also add unnecessary cost and vulnerabilities” (PO Resp. 53 (citing Ex. 2125 ¶¶ 193–194)). Patent Owner relies on Mr. Minoli’s testimony, but does not proffer

adequate evidence that an ordinarily skilled artisan would be dissuaded from incorporating Amer’s teachings into Lee’s system due to the “complexity” or “unnecessary cost and vulnerabilities.”

We have considered the respective positions of the parties, and are persuaded Petitioner has articulated adequate reasons why an ordinarily skilled artisan would have combined the teachings and suggestions of Lee, Henderson, and Amer.

*e) Rationale to Combine Lee, Henderson, Amer, and Logue*

Petitioner also contends that a skilled artisan would have had adequate reason to add Logue’s teachings to the proposed combination because doing so “would have been a matter of adding well-known IoT functionality to achieve expected results” (Pet. 96 (citing Ex. 1102 ¶ 414)), and Logue’s teachings, as well as Lee and Amer, are directed to a cloud-based system and “employ a similar architecture for carrying out a similar goal—i.e., managing smart appliances (*id.* citing Ex. 1102 ¶ 415). Patent Owner does not offer any arguments challenging the combination of Logue’s teachings with those of Lee, Henderson, and Amer.

We have considered the respective positions of the parties, and are persuaded Petitioner has articulated adequate reasons why an ordinarily skilled artisan would have combined the teachings and suggestions of Lee, Henderson, Amer, and Logue with a reasonable expectation of success in arriving at the subject matter of claim 30.

*f) Conclusion*

Based on the record before us, Petitioner has persuaded us the combination of Lee, Henderson, and Amer teaches claim 23. Claim 30

depends from claim 23. Patent Owner has not proffered arguments specifically directed to dependent claim 30. Upon review of and based on the record before us, (*see e.g.*, Pet. 87–94; Exs. 1103–1105), we are persuaded Petitioner has shown the combination of Lee, Henderson, and Amer teaches claim 30. Accordingly, we have reviewed the record before us, and based on this record, we determine Petitioner has demonstrated by a preponderance of the evidence that claim 30 of the '720 Patent is unpatentable under 35 U.S.C. § 103.

### III. CONCLUSION<sup>6</sup>

Petitioner has shown by a preponderance of the evidence:

Claim 30 of the '720 Patent would have been obvious under 35 U.S.C. ¶ 103 over Lee, Henderson, Amer, and Logue; and

Petitioner has *not* shown by a preponderance of the evidence:

Claims 4–7 and 20 of the '720 Patent would have been obvious under 35 U.S.C. ¶ 103 over Lee and Henderson;

Claim 8 of the '720 Patent would have been obvious over Lee, Henderson, and Porter;

---

<sup>6</sup> Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding* (*see* 84 Fed. Reg. 16,654 (Apr. 22, 2019)). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices (*see* 37 C.F.R. § 42.8(a)(3), (b)(2)).

Claims 9–11 of the '720 Patent would have been obvious over Lee, Henderson, Porter, and Ebrom;

Claims 17 and 18 of the '720 Patent would have been obvious over Lee, Henderson, and GMG Publication; and

Claims 13–15 of the '720 Patent would have been obvious under 35 U.S.C. ¶ 103 over Lee, Henderson, GMG Publication, and Amer.

#### IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that,

Petitioner has shown by a preponderance of the evidence that claim 30 of the '720 Patent is unpatentable;

FURTHER ORDERED that Petitioner has *not* shown by a preponderance of the evidence that claims 4–11, 13–15, 17, 18, and 20 of the '720 Patent are unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to this proceeding seeking judicial review of our decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

In summary:

<b>Claim(s)</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Claims Shown Unpatentable</b>	<b>Claims Not shown Unpatentable</b>
4–7, 20	103	Lee, Henderson		4–7, 20
8	103	Lee, Henderson, Porter		8
9–11	103	Lee, Henderson, Porter, Ebrom		9–11
17, 18	103	Lee, Henderson, GMG Publication		17, 18

PGR2019-00036  
Patent 10,158,720 B2

13-15	103	Lee, Henderson, GMG Publication, Amer		13-15
30	103	Lee, Henderson, Amer, Logue	30	
<b>Overall Outcome</b>			30	4-11, 13-15, 17, 18, 20

PGR2019-00036  
Patent 10,158,720 B2

FOR PETITIONER:

David L. Cavanaugh  
Richard Goldenberg  
Richard A. Crudo  
Jeffrey M. Soller  
WILMER CUTLER PICKERING HALE AND DORR, LLP  
david.cavanaugh@wilmerhale.com  
richard.goldenberg@wilmerhale.com  
richard.crudo@wilmerhale.com  
jeff.soller@wilmerhale.com

FOR PATENT OWNER:

Michael P. Chu  
Brian A. Jones  
MCDERMOTT WILL & EMERY LLP  
mchu@mwe.com  
bajones@mwe.com