

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC and ECOBEE, INC.,
Petitioners,

v.

ECOFACITOR, INC.,
Patent Owner.

IPR2021-00054¹
Patent 10,534,382 B2

Before WESLEY B. DERRICK, JEFFREY W. ABRAHAM, and
SCOTT B. HOWARD, *Administrative Patent Judges*.

HOWARD, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

¹ Ecobee, Inc., has been joined as a party to this proceeding. IPR2021-01052, Paper 7.

INTRODUCTION

A. Background and Summary

Google LLC (“Petitioner”) filed a Petition seeking to institute an *inter partes* review of claims 1–20 of U.S. Patent No. 10,534,382 B2 (Ex. 1001, “the ’382 patent”).² Paper 2 (“Petition,” “Pet.”). EcoFactor, Inc. (“Patent Owner”) filed a Patent Owner’s Preliminary Response. Paper 6. We instituted an *inter partes* review of claims 1–20 of the ’382 patent on all grounds of unpatentability alleged in the Petition. Paper 9 (“Institution Decision” or “Inst. Dec.”).

After institution of trial, Patent Owner filed a Response (Paper 19, “PO Resp.”), Petitioner filed a Reply (Paper 24, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 26, “PO Sur-reply”).

An oral hearing was held on February 8, 2022, and the record contains a transcript of this hearing. Paper 34 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–20 of the ’382 patent are unpatentable.

B. Real Parties in Interest

Petitioner identifies itself as the real party in interest. Pet. 6.

Joined party ecobee, Inc. identifies ecobee, Inc. and ecobee Ltd. as the real parties in interest. *Ecobee, Inc. v. EcoFactor, Inc.*, IPR2021-01052,

² ecobee, Inc., was joined to this proceeding upon instituting *inter partes* review in IPR2021-01052 and granting ecobee’s motion for joinder. See Paper 20.

Paper 1, 6 (Petition); IPR2021-015052, Paper 7, 5–7 (Grant of Motion for Joinder).

Patent Owner identifies itself as the real party in interest. Paper 3, 1 (Patent Owner’s Mandatory Notices).

C. Related Matters

The parties identify various district court proceedings, including *EcoFactor, Inc. v. Google LLC*, 6:20-cv-00075 (W.D. Tex. Jan. 31, 2020). Pet. 6; Paper 3, 2. On February 10, 2022, a jury determined that Petitioner did not prove by clear and convincing evidence that claims 2 and 12 were invalid. Verdict Form, *EcoFactor, Inc. v. Google LLC*, 6:20-cv-00075, 3 (W.D. Tex. Feb. 10, 2021), ECF 215.³

D. The ’382 Patent

The ’382 patent is entitled “System and Method for Using a Wireless Device as a Sensor for an Energy Management System.” Ex. 1001, code (54). The ’382 patent is directed to “the use of thermostatic HVAC [(heating, ventilation, and cooling)] and other energy management controls that are connected to a computer network” and, more specifically “to the use of user interactions with an interface such as a personal computer or an Internet-enabled television as signal related to occupancy to inform an energy management system.” *Id.* at 1:16–23.

The ’382 patent describes the advantages of programmable thermostats for HVAC systems. Ex. 1001, 1:24–50. The ’382 patent further

³ As discussed *infra*, Petitioner relies on Gadelmann and Ehlers in this proceeding. Petitioner relied on different prior art references to challenge the claims of the ’382 patent in the district court proceeding. See Jury Instructions, *EcoFactor, Inc. v. Google LLC*, 6:20-cv-00075, 25 (W.D. Tex. Feb. 10, 2021), ECF 208 (relying on “Rhee”).

describes how hotels use occupancy detectors to control HVAC systems. *Id.* at 2:35–48. Such systems detect occupancy by either requiring the guest to use a keycard to control the system or motion detectors. *Id.* at 2:48–59.

According to the '382 patent, “[a]dding occupancy detection capability to residential HVAC systems could . . . add considerable value in the form of energy savings without significant tradeoff in terms of comfort.” Ex. 1001, 2:60–63. “It would thus be desirable to provide a system that could detect occupancy without requiring the installation of additional hardware; that could accurately detect occupancy regardless of which room in the house is occupied, and could optimize energy consumption based upon dynamic and individually configurable heuristics.” *Id.* at 3:15–20.

E. Illustrative Claim

Claims 1 and 17 are independent claims and claim 1, reproduced below with bracketed materials added in the Petition, is illustrative of the subject matter of the challenged claims.

1. [1a] A system for controlling an HVAC system at a user’s building, the system comprising:

[1b] a memory; and

[1c] one or more processors with circuitry and code designed to execute instructions;

[1d] the one or more processors with circuitry and code designed to execute instructions to receive a first data from at least one sensor, wherein the first data from the at least one sensor includes a measurement of at least one characteristic of the building;

[1e] the one or more processors with circuitry and code designed to execute instructions to receive a second data from a network connection, wherein the second data from the network connection is collected from a source external to the building,

wherein the second data from the network connection is received via the Internet;

[1f] the one or more processors with circuitry and code designed to execute instructions to receive a first temperature setpoint for the building corresponding to a desired temperature setting when the building is occupied, and a second temperature setpoint for the building corresponding to a desired temperature setting when the building is unoccupied;

[1g] the one or more processors with circuitry and code designed to execute instructions to receive commands through the Internet by way of a remote interface on a mobile, wireless device running software application code; [1h] wherein the interface is configured to allow the user to adjust temperature setpoints for the HVAC system;

[1i] the one or more processors with circuitry and code designed to execute instructions to send user-specific data through the Internet, wherein user-specific information about the building and HVAC system is generated based at least in part on the user-specific data, [1j] wherein the user-specific information is configured to be presented on a user interface on a mobile, wireless device running software application code via the Internet;

[1k] the one or more processors with circuitry and code designed to execute instructions to determine whether the building is occupied or unoccupied, and based on that determination, to control the HVAC system to provide heating or cooling to the building at an operational temperature;

[1l] wherein the one or more processors comprises a first processor with circuitry and code designed to execute instructions, which is located remotely from the memory and is not electrically connected to the memory;

[1m] the first processor with circuitry and code designed to execute instructions to communicate with the memory;

wherein the memory is configured to store historical values of the first data and second data.

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