

Google LLC v. EcoFactor, Inc., Patent No. 11,835,394, Chart of Prior Determinations Involving Related Patents

The chart below summarizes aspects of prior determinations involving related patents which are relevant to the present petition for inter partes review.

Google LLC v. EcoFactor, Inc., IPR2021-01218 (U.S. Patent 8,019,567)(the '567 patent)

The Board found claims 1–3, 7, and 15–20 of the '567 patent unpatentable in view of prior art including Hildebrand, Van Ostrand, and Rosen. (Ex. 1018)(*See also* Ex. 1017). The Board's Final Written Decision was affirmed without opinion by the Federal Circuit on July 15, 2024. (Ex. 1036)(CAFC Case No. 23-1757).

Ex Parte Reexamination Control No. 90/015,086 (U.S. Patent 8,423,322)(the '322 patent)

The Central Reexamination Unit ("CRU") initially determined that all original claims 1-14 of the '322 patent were unpatentable in reexamination. (Ex. 1020)(*See also* Ex. 1019). In response, Patent Owner EcoFactor did not specifically argue against the prior art rejections, but instead amended the claims, and a reexamination certificate was issued with the amended claims. (Ex. 1021).

In the Matter of Certain Smart Thermostats, Smart HVAC Systems, and Components Thereof, Inv. No. 337-TA-1185 (ITC) (the '322 patent)

The International Trade Commission ("ITC") issued an Initial Determination finding that Hildebrand anticipated claim 1 of the '322 patent and that Hildebrand and Rosen rendered obvious claims 2 and 5 of the '322 patent. (Ex. 1010)(*See also* Ex. 1028).

'394 patent claim language	IPR2021-01218 (the '567 patent)	Ex Parte Reexamination Control No. 90/015,086 (the '322 patent)	ITC Inv. No. 337-TA-1185 (the '322 patent)
"1[a]. A control system for an environment inside a structure, comprising:"	The Board found (and PO did not dispute) that Hildebrand teaches: "['567 patent, 1a] A system for evaluating changes in the operational efficiency of an HVAC system over time comprising."	The CRU found that Hildebrand teaches: "['322 patent, 1] A system for evaluating changes in the operational efficiency of an HVAC system over time comprising:"	The ITC found that Hildebrand teaches: "['322 patent, 1] A system for evaluating changes in the operational efficiency of an HVAC system over time comprising:"

Google LLC v. EcoFactor, Inc., Patent No. 11,835,394, Chart of Prior Determinations Involving Related Patents

“[1b] a climate control device in the structure that receives first temperatures from inside the structure;”	(Ex. 1018, 21-22, 24). The Board found (and PO did not dispute) that Hildebrand teaches: “[’567 patent, 1b] at least one HVAC control system associated with a first structure that receives temperature measurements from at least a first structure conditioned by at least one HVAC system, and receives status of said HVAC system.” (Ex. 1018, 21-22, 24).	(Ex. 1020, 8). The CRU found that Hildebrand teaches: “[’322 patent, 1] at least one HVAC control system associated with a first structure that receives temperature measurements from at least a first structure conditioned by at least one HVAC system, and receives status of said HVAC system.” (Ex. 1020, 8-9).	(Ex. 1010, 470-477). The ITC found that Hildebrand teaches: “[’322 patent, 1] at least one HVAC control system associated with a first structure that receives temperature measurements from at least a first structure conditioned by at least one HVAC system, and receives status of said HVAC system.” (Ex. 1010, 482-489).
“[1c] a processor that: receives second temperatures from outside the structure from at least one source outside the structure; and”	The Board found that Hildebrand and Rosen render obvious: “[’567 patent, 1c] one or more processors that receive measurements of outside temperatures from at least one source other than said HVAC system.” (Ex. 1018, 24-25, 33-34, 35-38). The Board found it obvious to combine Hildebrand and Rosen. (Ex. 1018, 32-38).	The CRU found that Hildebrand teaches: “[’322 patent, 1] one or more processors that receive measurements of outside temperatures from at least one source other than said HVAC system.” (Ex. 1020, 9).	The ITC found that Hildebrand teaches: “[’322 patent, 1] one or more processors that receive measurements of outside temperatures from at least one source other than said HVAC system.” (Ex. 1010, 482-489).

Google LLC v. EcoFactor, Inc., Patent No. 11,835,394, Chart of Prior Determinations Involving Related Patents

“[1d] [a processor that:] compares the first temperatures and the second temperatures over time to calculate a current operating profile for the climate control device; and”	The Board found (and PO did not dispute) that Hildebrand renders obvious: “[’567 patent, 1d] compare said temperature measurements from said first structure, wherein said one or more processors compares the inside temperature of said first structure and the outside temperature over time to derive an estimation for the rate of change in inside temperature of said first structure when said HVAC system is in a first state of repair.” (Ex. 1018, 22-24).	The CRU found that Hildebrand teaches: “[’322 patent, 1] one or more processors that . . . compare said temperature measurements from said first structure, wherein said one or more processors compares the inside temperature of said first structure and the outside temperature over time.” (Ex. 1020, 9).	The ITC found that Hildebrand teaches: “[’322 patent, 1] one or more processors that . . . compare said temperature measurements from said first structure, wherein said one or more processors compares the inside temperature of said first structure and the outside temperature over time.” (Ex. 1010, 482-489).
“[1e] a database that stores the current operating profile for the climate control device,”	The Board found that Hildebrand renders obvious: “[’567 patent, 1e] one or more databases that store at least said temperature measurements obtained from said first structure over time.” (Ex. 1018, 26-32).	The CRU found that Hildebrand teaches: “[’322 patent, 1] one or more databases that store at least said temperature measurements obtained from said first structure over time.” (Ex. 1020, 9).	The ITC found that Hildebrand teaches: “[’322 patent, 1] one or more databases that store at least said temperature measurements obtained from said first structure over time.” (Ex. 1010, 482-489).

Google LLC v. EcoFactor, Inc., Patent No. 11,835,394, Chart of Prior Determinations Involving Related Patents

“[1f] wherein the processor (a) compares a portion of the current operating profile for the climate control device with a stored temperature profile that represents a previous operating profile for the climate control device calculated at a different time to evaluate whether an operational efficiency of the climate control device has decreased over time, and”	The Board found (and PO did not dispute) that Hildebrand and Van Ostrand render obvious: “[’567 patent, 1f] wherein said one or more processors compares an inside temperature recorded inside the first structure with said estimation for the rate of change in inside temperature of said first structure to determine whether the operational efficiency of the HVAC system has decreased over time.” (Ex. 1018, 23-24). The Board found that it would have been obvious to combine Hildebrand and Van Ostrand. (Ex. 1018, 32-38).	The CRU found that Hildebrand teaches: “[’322 patent, 1] wherein said one or more processors compares an inside temperature recorded inside the first structure with an inside temperature of said first structure recorded at a different time to determine whether the operational efficiency of the HV AC system has decreased over time.” (Ex. 1020, 9-10).	The ITC found that Hildebrand teaches: “[’322 patent, 1] wherein said one or more processors compares an inside temperature recorded inside the first structure with an inside temperature of said first structure recorded at a different time to determine whether the operational efficiency of the HV AC system has decreased over time.” (Ex. 1010, 482-489).
2. The control system of claim 1, wherein the first temperatures are received from a programmable thermostat located inside the structure communicating with the climate control device.	The Board found that Hildebrand, Van Ostrand and Rosen render obvious: “[’567 patent] 3. A system as in claim 1 wherein said temperature measurements are obtained from a programmable thermostat that communicates using the Internet.”	The CRU found that Hildebrand and Rosen render obvious: “[’322 patent] 3. A system as in claim 1 wherein said temperature measurements are obtained from a programmable thermostat that	The ITC found that Hildebrand and Rosen render obvious: “[’322 patent] 5. A system as in claim 1 in which said HVAC system includes a programmable thermostat and said programmable

Google LLC v. EcoFactor, Inc., Patent No. 11,835,394, Chart of Prior Determinations Involving Related Patents

	(Ex. 1018, 38). The Board found it obvious to combine Hildebrand, Van Ostrand, and Rosen. (Ex. 1018, 32-38).	communicates using a network.” “[’322 patent] 5. A system as in claim 1 in which said HVAC system includes a programmable thermostat and said programmable thermostat is the sole source for current data regarding temperature inside said first structure conditioned by said HVAC system.” (Ex. 1020, 10-11).	thermostat is the sole source for current data regarding temperature inside said first structure conditioned by said HVAC system.” (Ex. 1010, 489-493).
4. The control system of claim 1, wherein the second temperatures comprise outside air temperatures for a geographic region surrounding the structure measured by one or more sensors positioned remotely from the structure.	The Board found that Hildebrand, Van Ostrand and Rosen render obvious: “[’567 patent] 2. A system as in claim 1 in which said processors receive measurements of outside temperatures for geographic regions such as ZIP codes from sources other than said HVAC control systems.” (Ex. 1018, 38). The Board found it obvious to combine Hildebrand, Van	The CRU found that Hildebrand teaches: “[’322 patent] 2. A system as in claim 1 in which said processors receive measurements of outside temperatures for geographic regions such as ZIP codes from sources other than said HVAC control systems.” (Ex. 1020, 9-10).	The ITC found that Hildebrand and Rosen render obvious: “[’322 patent] 2. A system as in claim 1 in which said processors receive measurements of outside temperatures for geographic regions such as ZIP codes from sources other than said HVAC control systems.” (Ex. 1010, 489-493).

Google LLC v. EcoFactor, Inc., Patent No. 11,835,394, Chart of Prior Determinations Involving Related Patents

	Ostrand, and Rosen. (Ex. 1018, 32-38).		
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