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15/286,427	10/05/2016	MATTHEW AUSTIN	90908US02 (U301709US2)	2569
87059	7590	09/02/2020	EXAMINER	
Cantor Colburn LLP - Carrier 20 Church Street, 22nd Floor Hartford, CT 06103			FURDGE, LARRY L	
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* MATTHEW AUSTIN and DEREK LEMAN

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Appeal 2020-000706  
Application 15/286,427  
Technology Center 3700

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Before EDWARD A. BROWN, ANNETTE R. REIMERS, and  
CARL M. DEFRANCO, *Administrative Patent Judges*.

DEFRANCO, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1–18, which constitute all the claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Carrier Corporation. Appeal Br. 1.

### CLAIMED SUBJECT MATTER

Of the claims on appeal, claims 1 and 9 are independent. Claim 1 is directed to a “method for operating an HVAC system,” while claim 9 is directed to the “HVAC system” itself. Claim 1 is reproduced below.

1. A method for operating an HVAC system, the HVAC system including an HVAC unit including a unit temperature sensor, a unit controller, and *a compressor configured to operate at multiple speeds*, and a two-stage system controller in communication with the unit controller, the method comprising:

a. operating the two-stage system controller to *transmit a conditioning signal corresponding to only two cooling capacities or only two heating capacities to the unit controller* based in part on a system demand;

b. operating the unit controller to receive the conditioning signal, and receive outdoor air temperature data from the unit temperature sensor;

c. operating the unit controller to determine whether the outdoor air temperature data is greater than or equal to a cooling temperature limit or less than or equal to a heating temperature limit; and

d. *operating the unit controller to transmit a speed signal to the compressor based in part on the conditioning signal and the outdoor air temperature data.*

Claims App. (emphases added).

### EVIDENCE OF RECORD

Name	Reference	Date
Isshiki	US 5,568,732	Oct. 29, 1996
Breeden	US 2003/0056946 A1	Mar. 27, 2003
Ootori	US 2005/0155369 A1	July 21, 2005
Lee '252	US 2006/0032252 A1	Feb. 16, 2006
Kim	US 2013/0186111 A1	July 25, 2013
Dean-Hendricks	US 2013/0226352 A1	Aug. 29, 2013
Lee '584	JP 2003/254584(A)	Sept. 10, 2003

### EXAMINER’S REJECTIONS

Appellant appeals from the Examiner’s Final Office Action, dated November 5, 2018, which includes the following rejections:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>
1–3, 9, 11–13, 16, 17	103(a)	Isshiki, Kim, Lee ’252, Lee ’584
4, 8, 14, 18	103(a)	Isshiki, Kim, Lee ’252, Lee ’584, Ootori
5–7, 15	103(a)	Isshiki, Kim, Lee ’252, Lee ’584, Breeden
10	103(a)	Isshiki, Kim, Lee ’252, Lee ’584, Dean-Hendricks

### ANALYSIS

#### *A. Independent Claims 1 and 9*

Appellant argues independent claims 1 and 9 together. *See* Appeal Br. 4–7. In rejecting these claims, the Examiner concedes that, although the combination of Isshiki and Kim discloses a two-stage system controller, the asserted combination fails to disclose: (1) that the system controller operates “to transmit a conditioning signal corresponding to only two cooling capacities or only two heating capacities to the unit controller based in part on a system demand,” and (2) that the unit controller operates “to determine whether the outdoor air temperature data is greater than or equal to a cooling temperature limit or less than or equal to a heating temperature limit,” as required by claims 1 and 9. Exr. Ans. 3–5; *see also* Final Act. 3–4, 12.

For these two claim limitations, the Examiner looks to the two-stage system controllers taught by Lee ’252 and Lee ’584.<sup>2</sup> According to the Examiner, Lee ’252 teaches a system controller that transmits first and

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<sup>2</sup> The Examiner refers to Lee ’584 as simply “Lee.” *See. e.g.*, Exr. Ans. 4, 15–16; Final Act. 4.

second *cooling* conditioning signals, while Lee '584 teaches a related controller that transmits first and second *heating* conditioning signals. Exr. Ans. 4 (citing Lee '252 ¶ 34); *see also id.* at 13–14 (same). Thus, the Examiner concludes that a skilled artisan would have been led to modify the signal transmitted by the two-stage system controller of Isshiki so that it includes first and second cooling/heating conditioning signals, as taught by Lee '252 and Lee '584, “in order to provide a system that improves energy efficiency.” *Id.*

We disagree with the Examiner. As Appellant points out, the asserted combination “would change the principle of operation of one or more of the references.” Appeal Br. 6–7. Although the Examiner determines that the principle operation of the modified Isshiki system “would not be compromised because Isshiki teaches all of the structural components of the system,” including a system controller 20 that transmits a conditioning signal 32, and the Lee references are merely “used to teach a modification of the signal transmitted by [Isshiki’s] system controller” (Ans. 15–16), the Examiner fails to explain why a skilled artisan would have undertaken such a modification, particularly given that Isshiki’s controller transmits an “inverter frequency” signal to drive a single “variable-capacity compressor,” whereas the controller in the Lee references operates in a two-signal mode to drive either a “larger capacity compressor” or a “smaller capacity compressor.” *Compare* Isshiki, 2:17–28, 4:47–65, *with* Lee '252 ¶¶ 34–35. In essence, the Examiner would have us believe that a skilled artisan would replace a system controller configured to operate a variable-speed compressor with a system controller configured to operate two fixed-speed compressors.

We are not persuaded that a skilled artisan would have substituted Isshiki's controller with Lee's controller without also switching out the single-versus-dual compressor operation specific to the controllers. Employing a conditioning signal normally used to control separate compressors at fixed speeds to drive a variable speed compressor, which needs inverter frequency data to vary the speed of the compressor, would not only change the principle of operation of Isshiki's system but likely would render it inoperable for its intended purpose. *See* Appeal Br. 6–7. Because the conditioning signal in Isshiki and Lee is unique to the operation of their respective compressors, we are not persuaded by the Examiner's conclusory and unsupported argument that a skilled artisan would consider that the “types or number of compressors used in Lee [584] or Lee 252 are *irrelevant to modifying conditioning signals* because the conditioning signals are specific to the controller.” *See* Exr. Ans. 16 (emphasis added). While we agree with the Examiner that Lee's controller is capable of transmitting a first and second conditioning signal, the Examiner overlooks the compatibility of the signal with the operation of the particular type of compressor to which that signal is directed, which in this case is Isshiki's variable-speed compressor, not Lee's fixed-speed compressors. Nowhere does the Examiner address that critical issue. Thus, we do not sustain the Examiner's rejection of claims 1 and 9.

*B. The Dependent Claims*

The Examiner's rejections of dependent claims 2–8 and 10–18 suffer the same error as that of the rejection of independent claims 1 and 9. Thus, we do not sustain the Examiner's rejections of the dependent claims.

CONCLUSION

The Examiner's rejections of claims 1-18 are REVERSED.

DECISION SUMMARY

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis</b>	<b>Aff'd</b>	<b>Rev'd</b>
1-3, 9, 11-13, 16, 17	103(a)	Isshiki, Kim, Lee '252, Lee '584		1-3, 9, 11-13, 16, 17
4, 8, 14, 18	103(a)	Isshiki, Kim, Lee '252, Lee '584, Ootori		4, 8, 14, 18
5-7, 15	103(a)	Isshiki, Kim, Lee '252, Lee '584, Breeden		5-7, 15
10	103(a)	Isshiki, Kim, Lee '252, Lee '584, Dean-Hendricks		10
<b>Overall Outcome</b>				1-18

REVERSED