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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* TODD ANSBACHER,  
ALAN FRANCIS JUDGE, JEFFREY RAYMOND MOHR,  
FREDERICK SHELL, MICHAEL J. IRBY, KAREN PRICE,  
GABRIEL JIM, and CHRISTOPHER SEMANSON

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Appeal 2019-002217  
Application 14/811,388  
Technology Center 2800

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Before GEORGE C. BEST, JEFFREY W. ABRAHAM, and  
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

BEST, *Administrative Patent Judge*.

I. DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1–4, 6, 8–14, 16, and 17 of Application 14/811,388. Final Act. (April 9, 2018). We have jurisdiction under 35 U.S.C. § 6.

For the reasons set forth below, 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. Appellant identifies Ford Global Technologies, LLC, as the real party in interest. Appeal Br. 2.

## II. BACKGROUND

Most modern vehicles include an alternator, which is a device to convert to mechanical energy to electrical energy in the form of a current. Spec. ¶ 2. Alternators can be self-regulating in that the alternator output automatically varies depending upon the amount of power the vehicle requires. *Id.* When a large load is turned off, however, the inertia of the mechanical components of the alternator will cause the alternator to continue to produce the voltage needed to run the load that has been turned off for a period of time. *Id.* This can result in a voltage spike that can exceed the voltage maximum of modules connected to the alternator. *Id.* ¶ 13. The affected modules can shut down to protect themselves and then reset when the alternator's voltage output drops below the modules' voltage maximum. *Id.*

The '388 Application describes a control system that detects, mitigates, and maintains operation of a vehicle's electrical system following removal of a large load. *Id.* Claim 1 is representative of the '388 Application's claims and is reproduced below from the Claims Appendix of the Appeal Brief.

1. A vehicle power system comprising:  
an alternator; and  
a controller configured to, responsive to a magnitude of amp hour electric charge provided by the alternator for a predetermined time period exceeding a first threshold and *a slope of power output by the alternator exceeding a second threshold during the time period*, reduce a voltage setpoint of the alternator by a predetermined amount, and regulate an output voltage of the alternator based on the setpoint.

Appeal Br. Claims App. 1 (emphasis added).

### III. REJECTION

Claims 1–4, 6, 8–14, 16, and 17 are rejected under 35 U.S.C. § 103 as unpatentable over the combination of Ueda,<sup>2</sup> Mimberg,<sup>3</sup> and Nishibayashi.<sup>4</sup> Final Act. 2.

### IV. DISCUSSION

There are three independent claims on appeal: claims 1, 8, and 12. Appeal Br. 2. We address these claims individually below. Dependent claims 2–6, 9–11, 13, 14, 16, and 17 will stand or fall with their parent independent claims.

#### A. Claims 1–6

In rejecting claim 1, the Examiner found that Ueda describes a controller configured to respond to “a slope of power output by the alternator exceeding a second threshold.” Final Act. 3 (citing Ueda 6:45–47; 9:33–39). Because this finding is erroneous, we reverse the rejection of claims 1–6.

As Appellant argues, Ueda does not describe detection of a slope of the alternator’s power output as a function of time. Appeal Br. 3–4. We agree with Appellant that Ueda’s reference to the alternator’s “power generation rate” refers to the current output by the alternator as determined by the duty cycle of the alternator. *See* Ueda 9:14–39. In other words, Ueda’s reference to a power generation rate of 60% means that the power output by the alternator is 60% of its theoretical maximum. Ueda does not

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<sup>2</sup> US 5,712,786, issued January 27, 1998.

<sup>3</sup> US 7,441,137 B1, issued October 21, 2008.

<sup>4</sup> US 2015/0084416 A1, published March 26, 2015.

describe measuring the slope of the power output by the generator or determining when the slope of that power output exceeds a threshold.

B. Claims 8–11

Independent claim 8 reads:

8. A method of regulating alternator output voltage comprising:

receiving data regarding an amount of amp hour electric charge provided by an alternator to a load and a magnitude of power output by the alternator;

in response to the amount exceeding a first threshold and the magnitude exceeding a second threshold, reducing an output voltage setpoint of the alternator by a predetermined amount;  
and

regulating the output voltage of the alternator based on the setpoint.

Appeal Br. Claims Appendix 1.

Appellant argues that claim 8 is patentable for the reasons claim 1 is patentable. Appeal Br. 5. Because claim 8 does not require monitoring the slope of the power output as a function of time, we cannot reverse the rejection of claim 8 on the basis of the reasoning we use to reverse the rejection of claim 1 above.

Appellant also argues that the rejection of claim 1 should be reversed because the Examiner erred by finding that a person having ordinary skill in the art would have been motivated to combine Ueda, Mimberg, and Nishibayashi. *Id.* at 4–5. In rejecting claim 1, the Examiner found that a person having ordinary skill in the art would have combined Nishibayashi with Ueda “to determine the charge/discharge performance of the alternator.” Final Act. 3.

Appellant argues that this finding is erroneous. Appeal Br. 4–5. In particular, Appellant argues that there is no reason to combine Ueda and Nishibayashi because Ueda’s system can already determine the charge/discharge performance of the alternator. *Id.* at 4. According to Appellant, Ueda’s system can make this determination because it detects the alternator’s current output. *Id.* (citing Ueda 6:1–10). Appellant argues that where a secondary reference purports to add a capability already present in the primary reference there is no motivation to combine the references. *Id.* (citing *Ex parte Tessier*, Appeal 2012-006616, 2014 WL 4925550 at \*6 (PTAB September 30, 2014)).

The Examiner argues that measuring current is different from measuring charge and that because Ueda’s system does not measure charge in amp hours, it cannot determine the alternator’s charge/discharge performance. Answer 4–5.

Appellant does not address the Examiner’s argument in its Reply Brief.

Thus, the question before us is whether Ueda determines the charge/discharge performance of the alternator. Although mere detection of the alternator’s output current is insufficient to determine the charge/discharge performance, we find that Ueda does, in fact, monitor the alternator’s charge/discharge performance. Ueda monitors the charge state of the battery by comparison of the battery voltage  $V_b$  with a reference voltage  $X_{vb}$ . Ueda 7:55–10:28. If  $V_b < X_{vb}$ , the electrical load current includes a battery current consumption value, which reflects charging of the battery. *Id.* at 8:17–35.

Because Ueda monitors the charge state of the battery, it describes determination of the alternator’s charge/discharge performance. A person

having ordinary skill in the art, therefore, would not have combined Nishibayashi with Ueda for the reasons set forth by the Examiner. In the absence of an alternative explanation for making this combination, we are constrained to reverse the rejection of claims 8–11 of the '388 Application.

C. Claims 12–14, 16, and 17

Independent claim 12 reads:

12. A vehicle power system comprising:  
an alternator; and  
a controller configured to selectively alter by a predetermined amount an output voltage setpoint for the alternator *in response to* a magnitude of amp hour electric charge and *a slope of power output by the alternator crossing respective thresholds* during a predetermined time period.

Appeal Br. Claims Appendix 2 (emphasis added).

As we discussed in connection with claim 1, the Examiner erred by relying on Ueda's discussion of power generation rate as describing the slope of the alternator's power output. *See § IV.A supra.*

We, therefore, reverse the rejection of claims 12–14, 16, and 17.

## V. CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
1–4, 6, 8–14, 16, 17	103	Ueda, Mimberg, Nishibayashi		1–4, 6, 8–14, 16, 17
<b>Overall Outcome</b>				1–4, 6, 8–14, 16, 17

REVERSED