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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MD SHAHNOOR AMIN,
ROBERT DAVID HANCASKY,
ERIK DONDZILA, and
TED HALADYNA

Appeal 2019-006799
Application 15/222,311
Technology Center 3700

Before PHILLIP J. KAUFFMAN, TARA L. HUTCHINGS, and
ALYSSA A. FINAMORE, *Administrative Patent Judges*.

KAUFFMAN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner’s decision to reject claims 1–11 and 21–28. Final Act. 2–15. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM IN PART.

The claims are directed to a method for preheating engine fluid in an electrified vehicle when the vehicle is in fluid maintenance mode.

Spec. ¶¶ 1–3. The vehicle exits fluid maintenance mode after meeting or exceeding a threshold temperature for a set time. Spec. ¶ 4. The controller determines if the vehicle should operate in fluid maintenance mode or fluid nonmaintenance mode, and causes the electrified vehicle to do so.

Spec. ¶¶ 50–51. Claims 1 and 24 are independent. Claim 1 is reproduced below.

1. A fluid heating method, comprising:
operating an engine of a vehicle to heat an engine fluid during a drive cycle if the vehicle is in a fluid maintenance mode, and not operating the engine of the vehicle to heat the engine fluid during a drive cycle if the vehicle is in a fluid nonmaintenance mode; and
heating the engine fluid prior to the drive cycle if the vehicle is in the fluid maintenance mode and the vehicle is electrically coupled to a grid power source.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real parties in interest as Ford Global Technologies, LLC. Appeal Br. 1. Ultimately, Ford Global Technologies, LLC is owned by Ford Motor Company. *Id.*

REJECTIONS

I. Claims 21 and 24–28 are rejected under 35 U.S.C. § 112(b) as indefinite for failure to particularly point out and distinctly claim the subject matter Appellant regards as the invention.² Final Act. 3–4.

II. Claim 8 is rejected under 35 U.S.C. § 112(a) for failure to comply with the written description requirement. Final Act. 3.

III. Claims 1, 3, 6, 9, 21, 24, and 28 are rejected under 35 U.S.C. § 103 as unpatentable over Hawkins and Ulrey.³ Final Act. 4–7.

IV. Claims 1, 2, 5, 7, 9, 22, and 24–27 are rejected under 35 U.S.C. § 103 as unpatentable over Stein, Edlund, and Ulrey.⁴ Final Act. 7–10.

V. Claim 4 is rejected under 35 U.S.C. § 103 as being unpatentable over Hawkins, Ulrey, and Edlund. Final Act. 10.

VI. Claim 8 is rejected under 35 U.S.C. § 103 as unpatentable over Hawkins, Ulrey, and Thomas.⁵ Final Act. 11.

VII. Claim 10 is rejected under 35 U.S.C. § 103 as unpatentable over Hawkins, Ulrey, and Luther.⁶ Final Act. 11–12.

² The Examiner also rejected independent claims 1–11, 22, and 23 under 35 U.S.C. § 112(b) in the Final Office Action. Final Act. 3–4. The Examiner withdrew the rejection of independent claim 1 in the Answer, and thereby withdrew the rejection of claims 2–11, 22, and 23, which were rejected due to their dependency from claim 1. Ans. 4.

³ Hawkins (US 2013/0152892 A1, published June 20, 2013); Ulrey (US 2011/0172890 A1, published July 14, 2011).

⁴ Stein (US 4,245,593, issued Jan. 20, 1981); Edlund (US 3,870,855, issued Mar. 11, 1975).

⁵ Thomas (US 2011/0155714 A1, published June 30, 2011).

⁶ Luther (US 2004/0211386 A1, published Oct. 28, 2004).

VIII. Claim 11 is rejected under 35 U.S.C. § 103 as unpatentable over Hawkins, Ulrey, Quix, and Pinggen.⁷ Final Act. 12.

IX. Claims 23 and 27 are rejected under 35 U.S.C. § 103 as unpatentable over Stein, Ulrey, and Ringlund.⁸ Final Act. 13.

ANALYSIS

Indefiniteness

The Examiner determined that the phrase “the non-fluid maintenance mode,” as recited in claim 21, and the phrase “the fluid nonmaintenance mode,” as recited in claim 24, are indefinite for lacking antecedent basis. Final Act. 4. Appellant contends that the Examiner should have entered proposed amendments addressing the rejections, and proposes to resubmit the amendments if prosecution is re-opened. Appeal Br. 5. Because Appellant has not contested the rejection on the merits,⁹ we sustain the rejection of claims 21 and 24 under 35 U.S.C. § 112(b) as indefinite for failure to particularly point out and distinctly claim the subject matter Appellant regards as the invention. *See Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential); 37 C.F.R. § 41.37(c)(1)(iv) (We review the appealed rejections for error identified by Appellant, and arguments not made are waived.).

⁷ Quix (US 2012/0234286 A1, published Sept. 20, 2012); Pinggen (US 2012/0285413 A1, published Nov. 15, 2012).

⁸ Ringlund (US 1,269,310, issued June 11, 1918).

⁹ Appellant’s argument that the Examiner should have entered the proposed amendments is a petitionable, not appealable, matter. *In re Mindick*, 371 F.2d 892, 894 (CCPA 1967).

Written Description

The Examiner determined that the phrase “entering the fluid maintenance mode in response to the vehicle operating during a drive cycle without the engine operating,” as recited in claim 8, is not described in the Specification. Final Act. 3. Appellant, once again, contends that the Examiner should have entered proposed amendments addressing the rejection; and proposes to resubmit the amendments if prosecution is re-opened. Appeal Br. 3. Because Appellant has not contested the rejection on the merits, we sustain the rejection of claim 8 under 35 U.S.C. § 112(a) for failure to comply with the written description requirement.

Obviousness

Claims 1, 3, 6, 9, 21, 24, and 28 over Hawkins and Ulrey

The dispositive issue in this rejection relates to the relationship between engine operation and the fluid maintenance and nonmaintenance modes. Specifically, independent claim 1 recites a method including the step of “operating an engine of a vehicle to heat an engine fluid during a drive cycle if the vehicle is in a fluid maintenance mode, and not operating the engine of the vehicle to heat the engine fluid during a drive cycle if the vehicle is in a fluid nonmaintenance mode.” Similarly, independent claim 24 recites a method including the step, performed “during the drive cycle,” of “selectively operating an engine to heat the engine fluid depending on whether the vehicle is in the fluid maintenance mode or the fluid nonmaintenance mode.”

The Examiner interprets that “not operating the engine of the vehicle to heat the engine fluid” as recited in claim 1 simply requires not heating the

fluid to reach a target temperature, and does not require that the engine is turned off entirely. Ans. 5. According to the Examiner, this is true because claim 1 does not require a causal relationship between engine operation and the fluid maintenance mode. *See* Ans. 6 (stating that engine operation and fluid maintenance or nonmaintenance mode do “not necessarily require a causal relationship”). The Examiner provides a similar explanation for claim 24. Ans. 7.

Appellant argues, and we agree, that claims 1 and 24 require a causal relationship between the fluid maintenance/nonmaintenance modes and engine operation. *See* Reply Br. 3 (arguing that “the operation of the engine to heat the engine fluid depends on the mode”). Claim 1 recites that the engine is operated to heat an engine fluid “if” the vehicle is in fluid maintenance mode and not operated to heat the engine fluid “if” in fluid nonmaintenance mode. Similarly, claim 24 calls for heating the engine fluid “when” in fluid maintenance mode and calls for operating an engine to heat engine fluid “depending on” whether the vehicles is in fluid maintenance or nonmaintenance mode. This language suggests that the claimed fluid maintenance/nonmaintenance modes control whether or not the engine is operated with the aim of heating an engine fluid. Specifically, a fluid maintenance mode causes the engine to operate to heat an engine fluid, and a fluid nonmaintenance mode causes the engine to not operate for that purpose. *See* Reply Br. 3 (emphasizing at least the claim term ‘if’ provide[s] [the] causal link [that] the Examiner alleges is missing.”).

The Specification is consistent with this interpretation. *See In re American Acad. Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (claim interpretation must be consistent with the Specification). According to the

Specification: “In the fluid maintenance mode, the internal combustion engine is forced to operate until an engine fluid reached a threshold temperature. The fluid maintenance mode can force the internal combustion engine to operate even though drive torque from the internal combustion engine is not required.” Spec. ¶ 3. The Specification also describes that engine 20 could be operating “because” electrified vehicle 60 is in a fluid maintenance mode. Spec. ¶ 46. The Specification further describes that controller 76 “causes” the vehicle to operate in fluid maintenance mode or fluid nonmaintenance mode, and that when in fluid maintenance mode engine 20 is operated to heat the engine fluid. Spec. ¶ 50.

Therefore, independent claims 1 and 24 require a causal relationship between fluid maintenance/nonmaintenance modes and engine operation. Specifically, the claims require that the fluid maintenance mode causes the engine to operate to heat the engine fluid, and that the fluid nonmaintenance mode causes the engine not to operate to heat the engine fluid. With this claim interpretation in mind, we turn to the prior art.

In determining that the subject matter of independent claims 1 and 24 would have been obvious from the combined teachings of Hawkins and Ulrey, the Examiner finds paragraphs 13 and 34 of Ulrey teach the limitations at issue.¹⁰ Final Act. 5–6. Specifically, the Examiner finds that Ulrey discloses operating an engine to heat engine fluid during a drive cycle if the vehicle is in fluid maintenance mode (citing Ulrey ¶ 13), and not operating the engine to heat the engine fluid during the drive cycle if the vehicle is in a fluid nonmaintenance mode (citing Ulrey ¶ 34). *Id.*

¹⁰ Claims 3, 6, 9, and 21 depend from claim 1. Claim 28 depends from claim 24.

Ulrey describes a propulsion system for a motor vehicle including an internal combustion engine. Ulrey ¶ 14, Fig. 1. Ulrey discloses that when the engine is operating, the engine controller can route transmission fluid through the engine cylinder walls so that waste engine heat is transferred to the fluid. Ulrey, ¶ 13, Figs. 2–6. When the engine is off (e.g., at idle speed), a transmission fluid pump can operate when desired to route transmission fluid to the engine cylinder walls so that the heat supply to the passenger cabin can be maintained. Ulrey ¶ 34; *see also* ¶¶ 13, 32–33 (disclosing that Ulrey’s system can additionally or alternatively include a heater core (e.g., heat exchanger 304) so that transmission fluid can heat the passenger compartment).

The Examiner does not identify any disclosure in Ulrey indicating that engine operation is determined by the need to heat or not to heat the fluid (fluid maintenance or nonmaintenance mode). Specifically, a person of ordinary skill would understand that Ulrey’s system can utilize engine heat while the engine is operating (Ulrey ¶ 13, Figs. 2–6), but there is no indication that the engine was operating for the purpose of heating the fluid (fluid maintenance mode). Similarly, nothing in Ulrey indicates that when the engine is not operating it is due to the lack of a need to heat the fluid (fluid nonmaintenance mode) (Ulrey ¶ 34, Figs. 2–6). Although Ulrey teaches not operating the engine, the lack of operating was not done in response to a need not to heat the fluid.

Consequently, the Examiner has not shown that the combination of Hawkins and Ulrey would have resulted in “operating an engine of a vehicle to heat an engine fluid during a drive cycle if the vehicle is in a fluid maintenance mode, and not operating the engine of the vehicle to heat the

engine fluid during a drive cycle if the vehicle is in a fluid nonmaintenance mode,” as recited in independent claim 1, and similarly recited in independent claim 24. *See* Appeal Br. 6; Reply Br. 3. We do not sustain the rejection of claims 1, 3, 6, 9, 21, 24, and 28 under 35 U.S.C. § 103 as unpatentable over Hawkins and Ulrey.

Claims 1, 2, 5, 7, 9, 22, and 24–27 over Stein, Edlund, and Ulrey

The Examiner concludes that the subject matter of claims 1 and 24¹¹ would have been obvious from the combined teachings of Stein, Edlund, and Ulrey. Final Act. 7–10. Here, as in the prior rejection, the Examiner relies on Ulrey as disclosing the limitations at issue. *See* Final Act. 7.

Consequently, we agree with Appellant that this rejection suffers from the same shortcoming as the prior rejection. *See* Appeal Br. 7.

The Remaining Grounds of Rejection

The Examiner rejects claim 4 under 35 U.S.C. § 103 as being unpatentable over Hawkins, Ulrey, and Edlund; claim 8 under 35 U.S.C. § 103 as unpatentable over Hawkins, Ulrey, and Thomas; claim 10 under 35 U.S.C. § 103 as unpatentable over Hawkins, Ulrey, and Luther; claim 11 under 35 U.S.C. § 103 as unpatentable over Hawkins, Ulrey, Quix, and Pingen; and claims 23 and 27 under 35 U.S.C. § 103 as unpatentable over Stein, Ulrey, and Ringlund. Final Act. 10–13. In each of these rejections, the Examiner relies on Ulrey as disclosing the limitations at issue. The Examiner does not explain in sufficient detail how any of the additional

¹¹ Claims 2, 5, 7, 9, and 22 depend from claim 1. Claims 25–27 depend from claim 24.

prior art references might remedy the deficiencies of Ulrey. Consequently, we agree with Appellant that these rejections are deficient as well. *See* Appeal Br. 8–9. Therefore, we do not sustain these rejections.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference/Basis	Affirmed	Reversed
21, 24	112(b)	Indefiniteness	21, 24	
8	112(a)	Written Description	8	
1, 3, 6, 9, 21, 24, 28	103	Hawkins, Ulrey		1, 3, 6, 9, 21, 24, 28
1, 2, 5, 7, 9, 22, 24–27	103	Stein, Edlund, Ulrey		1, 2, 5, 7, 9, 22, 24–27
4	103	Hawkins, Ulrey, Edlund		4
8	103	Hawkins, Ulrey, Thomas		8
10	103	Hawkins, Ulrey, Luther		10
11	103	Hawkins, Ulrey, Quix, Pingen		11
23, 27	103	Stein, Ulrey, and Ringlund		23, 27
Overall Outcome			8, 21, 24	1–7, 9–11, 22, 23, 25–28

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TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED IN PART