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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* THOMAS BREITBACH and JENS PAWLAK

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Appeal 2018-001023
Application 13/417,762
Technology Center 3700

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Before CYNTHIA L. MURPHY, BRUCE T. WIEDER, and KENNETH G. SCHOPFER, *Administrative Patent Judges*.

SCHOPFER, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 1 and 4–22. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM IN PART and enter a NEW GROUND OF REJECTION pursuant to our authority under 37 C.F.R. § 41.50(b).

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[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Robert Bosch GmbH. Appeal Br. 2.

## BACKGROUND

According to Appellant, "[t]he invention relates to a method of operating a system (e.g., an exhaust system of an internal combustion engine) using a plurality of modulated signals." Spec. ¶ 1.

## CLAIMS

Claims 1 and 20 are the independent claims are on appeal. Claim 1 is illustrative of the appealed claims and recites:

> 1. A method (10) for operating a system (12) of an internal combustion engine in which a through-flow cross section of a valve is modified by an actuator element (16), and in which at least one variable (26) which is dependent on the through-flow cross section of the actuator element (16) is determined, characterized in that the through-flow cross section of the valve is modulated with a first periodic signal (22), and a sensor generates a measurement signal (30) which characterizes the at least one variable (26), the measurement signal (30) and at least one second periodic signal (47) are provided to a multiplier which multiplies the measurement signal (30) and the at least one second periodic signal (47) and outputs a product which is evaluated by an evaluation unit.

Appeal Br. 11.

## REJECTIONS

1. The Examiner rejects claims 1 and 4–22 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.
2. The Examiner rejects claims 1 and 4–22 under 35 U.S.C. § 112, second paragraph, as indefinite.
3. The Examiner rejects claims 1 and 4–22 under 35 U.S.C. § 101 as claiming ineligible subject matter.

4. The Examiner rejects claims 1, 4–8, and 17–22 under 35 U.S.C. § 102(b) as anticipated by Bleile.[2]
5. The Examiner rejects claims 9, 13, 17, 18, and 21 under 35 U.S.C. § 103(a) as unpatentable over Bleile in view of Evert.[3]
6. The Examiner rejects claims 10 and 11 under 35 U.S.C. § 103(a) as unpatentable over Bleile in view of Seidel[4] and Appellant's Admitted Prior Art ("AAPA").[5]
7. The Examiner rejects claim 12 under 35 U.S.C. § 103(a) as unpatentable over Bleile in view of Seidel, Breitbach,[6] and AAPA.
8. The Examiner rejects claim 14 under 35 U.S.C. § 103(a) as unpatentable over Bleile in view of Evert, Seidel, and AAPA.[7]
9. The Examiner rejects claim 15 under 35 U.S.C. § 103(a) as unpatentable over Bleile in view of Evert and Snopko.[8]
10. The Examiner rejects claim 16 under 35 U.S.C. § 103(a) as unpatentable over Bleile in view of Evert and Schwarzenthal.[9]

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[2] Bleile et al., US 2010/0324857 A1, pub. Dec. 23, 2010.
[3] Evert et al., US 2009/0205903 A1, pub. Aug. 20, 2009.
[4] Seidel et al., US 2010/0332180 A1, pub. Dec. 30, 2010.
[5] We note that the Examiner's listing of AAPA with respect to this rejection may be an inadvertent error because the body of the rejection does not appear to discuss any AAPA.
[6] Breitbach et al., US 2012/0232770 A1, pub. Sept. 13, 2012.
[7] We note that the Examiner's listing of AAPA with respect to this rejection may be an inadvertent error because the body of the rejection does not appear to discuss any AAPA.
[8] Snopko et al., US 2007/0169752 A1, pub. July 26, 2007.
[9] Schwarzenthal et al., US 2006/0293832 A1, pub. Dec. 28, 2006.

DISCUSSION

*Written Description*

*Claim 1*

The Examiner finds that claim 1 fails to comply with the written description requirement to the extent it recites "a through-flow cross section of a [] valve." Non-Final Act. 4. The Examiner finds that "[t]he original specification including the written description and drawings is devoid of a description or explanation as to what a through-flow cross section of a valve is." *Id.* Appellant argues that this term "is easily understood" according to its plain meaning. Appeal Br. 5. Appellant asserts that "[i]t is the cross section of a valve through which a liquid can flow." *Id.* Appellant also notes that "[t]he invention is directed toward opening/closing the valve to adjust the cross section of the valve through which the liquid can flow to control the amount of liquid that can flow." *Id.*

"Adequate written description means that the applicant, in the specification, must 'convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the [claimed] invention.'" *Agilent Techs., Inc. v. Affymetrix, Inc.*, 567 F.3d 1366, 1379 (Fed. Cir. 2009) (alteration in original). We agree with Appellant that this test is satisfied with respect to the claim language at issue here. The Specification discloses that the invention is related to control of an actuator for "an exhaust gas recirculation valve, a charge pressure actuator of a turbocharger, . . . or a throttle valve for controlling an air mass flow." Spec. ¶ 10. The Specification discloses that the "through-flow cross section of a bypass around a turbocharger can be changed by means of a charge pressure control valve." *Id.* The Specification also discloses that the result of

controlling the valve actuator is "modulation of the through-flow cross section or of the quantity of exhaust gas flowing through the actuator element." *Id.* at ¶ 40. One would understand from this disclosure that "through-flow cross section" is merely the cross-section through which fluid can flow in a device. Further, by disclosing a method in which the through-flow cross section of a valve actuator is controlled, we determine that the Specification conveys that the inventors were in possession of the claimed invention to the extent the claim recites "a through flow cross-section of a valve." Accordingly, we do not sustain this rejection of claim 1. We also do not sustain the rejection of claims 4–22 to the extent they are rejected based on their dependency from claim 1.

*Claims 10 and 11*

The Examiner finds that the Specification does not provide adequate written description support for the "phase locked loop" recited in claims 10 and 11. Non-Final Act. 6. The Examiner finds that the description of a phase locked loop in the Specification "does not describe the required hardware or software required to implement, make, or use, a phase locked loop controller," and the phase locked loop is "not described in . . . such a way as to reasonably convey to one of ordinary skill in the art" that the inventors were in possession of the claimed invention. *Id.*

To the extent the Examiner is finding that the Specification does not provide sufficient disclosure regarding what is a "phase locked loop," we disagree. The Specification discloses that a phase locked loop is provided wherein "[t]he closed-loop control device 32 continuously compares the phase of the measurement signal 30 with the phase of the reference signal 36 and adjusts the frequency of the generator 34 in accordance with the

frequency and phase of the measurement signal 30." Spec. ¶ 44. We find that this conveys, with reasonable clarity, that the inventors were in possession of a phase locked loop at the time of filing. To the extent the Examiner finds that this disclosure does not sufficiently describe how one would make or use a phase locked loop controller, that appears to address the requirements of enablement. *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993).

We also disagree with the Examiner to the extent the Examiner is rejecting claim 10 based on the specific requirement that the second periodic signal is derived from the measurement signal by a phase locked loop. The Specification specifically discloses that "the second . . . period signal . . . can also be derived from the measurement signal 30 by using a phase locked loop 49." Spec. ¶ 63. As noted above, the Specification previously describes such a phase locked loop. *Id.* at 44. Given this disclosure, we determine that the Specification reasonably conveys the invention of claim 10 pursuant to the written description requirement.

However, we reach a different conclusion regarding claim 11, which requires "that the second periodic signal (47) is derived from the first periodic signal (22) and the measurement signal (30) by a phase locked loop (49)." Appeal Br. 12. Although the Specification discloses that the second periodic signal may be "derived from the first period signal," the Specification does not describe deriving the second periodic signal from the first periodic signal and the measurement signal. *See* Spec. ¶ 15. To the extent the Specification discloses deriving the second period signal from the first periodic signal, the Specification states only that "[a] second input of the multiplier 40 is actuated by the second periodic signal 47, which is

derived here from the first periodic signal 22 by means of a block 55. The block 55 can be a simple linear amplifier or a voltage divider or the like." *Id.* at ¶ 50. We see no specific disclosure that block 55 may represent a phased locked loop or any specific disclosure that the second periodic signal may be derived from the first periodic signal and the measurement signal by a phased locked loop. Accordingly, we agree with the Examiner that the Specification does not convey, with reasonable clarity, that the inventors were in possession of the invention in claim 11.

Based on the foregoing, we do not sustain the written description rejection specifically pertaining to claim 10, but we do sustain the written description rejection specifically pertaining to claim 11.

*Claims 13 and 14*

The Examiner finds that claims 13 and 14 recite a "third periodic signal" and the Specification discloses a "phase rotation element 38" for forming the third period signal, but the Examiner finds that the Specification does not provide "specific hardware or software or means or method as to make or use the 'phase rotation element 38' in conjunction with the instant invention." Non-Final Act. 6, 7 (citing Spec. ¶¶ 41, 50). However, we agree with Appellant that the cited portions of the Specification provide sufficient support with respect to the written description requirement. Specifically, the Specification discloses that the third period signal "is formed from the second periodic signal 47 after passing through the phase rotation element 38." Spec ¶ 50. The Examiner does not explain adequately why the specific structure of the phase rotation element must be disclosed in order to convey that the inventor was in possession of the claimed invention of claims 13 and 14, which do not specifically require a phase rotation element. To the extent

the Examiner is requiring the Specification to provide sufficient details to make or use the invention claimed, this appears to address the requirements of enablement. *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993). Accordingly, we do not sustain the specific written description rejection of dependent claims 13 and 14.

*Claims 20–22*

The Examiner rejects claims 20–22 to the extent claim 20 requires a control device with a memory "without further structure." Non-Final Act. 7. We will not sustain this rejection. The Specification discloses that an advantage of the invention is the reduction in "computing and the memory requirement in an open-loop and/or closed loop control device which carries out the method." Spec. ¶ 15. The Specification also specifically discloses that "the method can be carried out by means of an open-loop and/or closed-loop control device of the motor vehicle, wherein the latter comprises a memory on which the computer program is stored." *Id.* at 30. These portions of the Specification provide express support for the claimed invention, and the Examiner does not explain adequately why further structure needs to be described in order to convey that the inventors were in possession of the invention claimed.

*Rejections 2–10*

For the reasons set forth below in the New Ground of Rejection, we conclude that claim 1 is indefinite. We determine that the remaining rejections of the claims must fall because any determinations by us regarding

these rejections would necessarily be based on speculative assumptions as to the scope of claim 1.[10] *In re Steele*, 305 F.2d 859, 862 (CCPA 1962).

We, therefore, do not sustain the rejections under 35 U.S.C. §§ 112, second paragraph, 101, 102, and 103. It should be understood, however, that our decision in this regard is based solely on the indefiniteness of the claimed subject matter, and does not reflect on the adequacy of the Examiner's findings or conclusions presented in the Non-Final Action or the Answer.

*Claim 1-§ 112, second paragraph--NEW GROUND OF REJECTION*

A claim must "particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention." 35 U.S.C. § 112, ¶ 2. Specifically, the second paragraph of § 112 contains two requirements: "first, [the claim] must set forth what 'the applicant regards as his invention,' and second, it must do so with sufficient particularity and distinctness, i.e., the claim must be sufficiently 'definite.'" In determining whether the claim is sufficiently definite, we must analyze whether "one skilled in the art would understand the bounds of the claim when read in light of the specification." *Allen Eng'g Corp. v. Bartell Indus., Inc.*, 299 F.3d 1336, 1348 (Fed. Cir. 2002). Further, "we employ a lower threshold of ambiguity when reviewing a pending claim for indefiniteness than those

[10] For example, with respect to the rejection under 35 U.S.C. § 112, second paragraph and in light of the discussion below, we would need to make an assumption regarding whether the limitation "a through-flow cross section of a valve is modified by an actuator element" is merely a structural limitation of the recited "engine" or a positively recited step of operating a system in order to properly assess whether the scope of the claim is clear regarding this element.

used by post-issuance reviewing courts." *Ex parte Miyazaki*, 89 USPQ2d 1207, 1211 (BPAI 2008) (precedential). Specifically, "if a claim is amenable to two or more plausible claim constructions, the USPTO is justified in requiring the applicant to more precisely define the metes and bounds of the claimed invention by holding the claim unpatentable under 35 U.S.C. § 112, second paragraph, as indefinite." *Id*.; *see also In re Packard*, 751 F.3d at 1311.

Here, claim 1 recites "[a] method (10) for operating a system (12) of an internal combustion engine." Appeal Br. 11. We determine that the remaining elements of the claim are amenable to two or more plausible constructions such that one of ordinary skill in the art cannot reasonably ascertain the metes and bounds of the claim's scope. Specifically, one might consider each element after the recited "internal combustion engine" to be a description of the structure of the engine. Alternatively, one might review the claim and consider all of the elements after the recited "internal combustion engine" to be method steps for operating the system. Thus, one might consider the method steps to include modifying the through-flow cross section of a valve by an actuator element; determining at least one variable; modulating the through-flow cross section of the valve; generating a measurement signal; providing the measurement signal and the second periodic signal to a multiplier; outputting a product; and evaluating the product. Additionally, one might consider that the engine structure includes "a through-flow cross section of a valve [that] is modified by an actuator element (16), and in which at least one variable (26) which is dependent on the through-flow cross section of the actuator element (16) is determined"; and that the remaining elements of the claim are the method steps for

"operating a system." In short, the claim is worded in such a way that one of ordinary skill in the art would not be able to determine what are the positively recited steps of the method "for operating a system."

Accordingly, we determine that claim 1 is rejected under 35 U.S.C. § 112, second paragraph, as indefinite. We also rejection claims 4–22 for the same reasons and because these claims either depend from claim 1 or incorporate the entirety of claim 1 therein.

## CONCLUSION

We AFFIRM the Examiner's rejection of claim 11 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. We REVERSE the Examiner's rejection of claims 1, 4–10, and 12–22 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. We REVERSE the Examiner's rejection of claims 1 and 4–22 under 35 U.S.C. § 112, second paragraph. We REVERSE the Examiner's rejection of claims 1 and 4–22 under 35 U.S.C. §§ 102(b) and 103(a).

Pursuant to our authority under 37 C.F.R. § 41.50(b), we enter a NEW GROUND OF REJECTION against independent claims 1, and 4–22 under 35 U.S.C § 112, second paragraph, as indefinite.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). Section 41.50(b) provides that, "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review." Section 41.50(b) further provides that Appellant, WITHIN TWO MONTHS FROM THE DATE OF THIS DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the Examiner, in which event the proceeding will be remanded to the Examiner.

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same record.

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)(l)(iv).

In summary:

| Claims Rejected | 35 U.S.C. § | Reference(s)/Basis | Affirmed | Reversed | New Ground |
|---|---|---|---|---|---|
| 1, 4–22 | 112, first paragraph | Written description | 11 | 1, 4–10, 12–22 | |
| 1, 4–22 | 112, second paragraph | Indefiniteness | | 1, 4–22 | 1, 4–22 |
| 1,4–22 | 101 | Eligibility | | 1, 4–22 | |
| 1, 4–8, 17–22 | 102(b) | Bleile | | 1, 4–8, 17–22 | |
| 9, 13, 17, 18, 21 | 103(a) | Bleile, Evert | | 9, 13, 17, 18, 21 | |
| 10, 11 | 103(a) | Bleile, Seidel, Admitted prior art | | 10, 11 | |
| 12 | 103(a) | Bleile, Seidel, Breitbach, Admitted prior art | | 12 | |
| 14 | 103(a) | Bleile, Evert, Seidel, Admitted prior art | | 14 | |
| 15 | 103(a) | Bleile, Evert, Snopko | | 15 | |

| Claims Rejected | 35 U.S.C. § | Reference(s)/Basis | Affirmed | Reversed | New Ground |
|---|---|---|---|---|---|
| 16 | 103(a) | Bleile, Evert, Schwarzenthal | | 16 | |
| **Overall Outcome** | | | 11 | 1, 4–10, 12–22 | 1, 4–22 |

AFFIRMED IN PART; 37 C.F.R. § 41.50(b)