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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ORBITAL AUSTRALIA PTY LTD
Patent Owner and Appellant

Appeal 2019-006092
Reexamination Control 90/014,145
Patent US 5,606,951[1]
Technology Center 3900

BEFORE DANIEL S. SONG, MEREDITH C. PETRAVICK, and JEREMY M. PLENZLER, *Administrative Patent Judges.*

SONG, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(b) and 306, Orbital Australia (Appellant)[2] appeals from the final rejection of claims 1–10, 12, 14, 15, 23, and 24. An oral hearing with the representative of the Appellant was held before the Patent Trial and Appeal Board on October 31, 2019, a transcript

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[1] Issued March 4, 1997 to Southern et al. ("the '951 Patent"), and has expired. Appeal Brief ("Appeal Br.") 1, 2.

[2] Appellant identifies the real parties in interest as Orbital Australia Pty Ltd and licensee Orbital Fluid Technologies, Inc. Appeal Br. 1.

of which will be entered into the electronic record in due course. In addition to the Appeal Brief, the Appellant also relies on a Reply Brief ("Reply Br.") and a declaration of Dr. Christopher White in support of its appeal. Because this declaration is extensively quoted and referred to in the arguments presented in the briefs, we do not explicitly cite to the declaration but instead, cite to the portions of the briefs where the declaration is relied upon.

We are also informed that the '951 Patent is involved in a pending judicial proceeding.[3] Appeal Br. 1. We are further informed that the '951 Patent was involved in two *inter partes* reviews that were denied institution,[4] and an *ex parte* reexamination,[5] which confirmed the claims subject to reexamination in that proceeding. Appeal Br. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

CLAIMED SUBJECT MATTER

The claims are directed to a system and method for controlling the air supply to an engine. Title; Abstract; Spec., col. 1, ll. 3–5. More specifically, the '951 Patent is directed to operation of a drive-by-wire ("DBW") system, which drives an engine throttle valve electronically, rather than based on a mechanical connection between the accelerator pedal an the engine throttle valve. Spec., col. 1. ll. 6–66. According to the '951 Patent, movement of the engine throttle valve in previous DBW systems is based on

[3] *Orbital Australia Pty Ltd et al v. Daimler AG et al.*, Case No. 2:15-cv-12398 (E.D. Michigan).
[4] IPR2015-01249 and IPR2015-01250.
[5] Reexamination Control No. 90/013,829.

a demanded air flow, which is determined from an operator demand signal resulting from displacement of the accelerator pedal. Spec. col. 1, ll. 6–32. In these previous systems, the engine throttle valve is controlled to provide the demanded air flow through the use of a feedback control (i.e. closed-loop) system that compares the actual air flow rate and the required or demanded air flow rate, and then adjusts the throttle position accordingly. Spec. col. 1, ll. 32–39. The '951 Patent explains that these previous systems "suffer from a time lag in response because the throttle movement is dependent upon control signals which are the result of successive comparisons between the demanded air flow and the actual air flow of the engine as measured in the induction system." Spec., col. 1, ll. 46–51.

The purported improvement to DBW operation provided by the '951 Patent is a reduced time lag for throttle movement through the use of an initial feed-forward setting for throttle position, which results from the feed–forward loop typically being much faster acting than the feedback loop. Spec., col. 2, ll. 18–21, 24–26. The feed-forward loop provides an initial coarse setting for throttle position, and fine tuning of the throttle is achieved by a feedback loop. Spec., col. 2, ll. 18–24; col. 5, ll. 19–45. In particular, upon receiving a signal from the user indicative of the demanded air flow, the disclosed system and method accesses a stored look-up map, retrieves an initial coarse setting for the throttle valve position from the look-up map, and uses this initial coarse setting in a feed-forward loop to quickly move the throttle to the indicated initial position. Spec., col. 2, ll. 16–21; col. 3, ll. 15–35; col. 5, ll. 11–34. The disclosed system and method then adjusts the throttle position from this initial position using a feedback control loop

based on measured actual air flow to adjust the throttle to thereby more accurately provide the actual demanded air flow. Spec., col. 2, ll. 21–24; col. 5, ll. 34–41.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A method of controlling the air supply to an internal combustion engine having a means to throttle the air flow to the engine comprising:
>
> determining the air demand in response to a driver initiated signal;
>
> determining an initial position of said throttle means in response to the driver initiated signal;
>
> determining the actual rate of air supply to the engine and comparing said actual rate of air supply with said determined air demand;
>
> moving the throttle means to said initial position; and
>
> adjusting the position of the throttle means to bring the actual rate of air supply within acceptable operating limits of said determined air demand.

Appeal Br. 28 (Claims App'x).

Independent claim 9 is directed to an engine control system comprising a second control means that "determines an initial setting," while independent claim 23 is directed to a method of diagnosing faults including a second control means that "determines an initial setting." Appeal Br. 30, 31 (Claims App'x).

REJECTIONS

The Examiner rejects various claims as follows:

1. Claims 1–3, 5–10, 14, and 15 under 35 U.S.C. § 102(b) as anticipated by Kamiyama (EP 0 112 150 B1, pub. June 7, 1989). Final Act. 6.

2. Claims 1–10, 12, 14, 15, 23, and 24 under 35 U.S.C. § 102(b) as anticipated by Barreau (WO 92/14045, pub. Aug. 20, 1992). Final Act. 10.

3. Claims 3 and 6–8 under 35 U.S.C. § 103(a) as obvious over Barreau in view of Buslepp (US 5,080,064, iss. Jan. 14, 1992). Final Act. 13.

4. Claims 23 and 24 under 35 U.S.C. § 103(a) as obvious over Barreau in view of Buslepp and Inoue (US 5,299,550, iss. Apr. 5, 1994). Final Act. 14.

CLAIM INTERPRETATION

In denying institution of *Inter Partes* Reviews of the subject '951 Patent, the Board agreed with the Patent Owner's proffered interpretation of claim 1 based on the '951 Patent's expired status, the claim language, the written description, and the prosecution history, and concluded that:

> the "initial position" recited in the claims must result from a feed-forward determination, and [] one skilled in the art would understand a feed-forward determination to be an open loop system where "'the output has no effect on the control action' and in which 'the output is neither measured nor fed back for comparison with the input.'"

Decision Denying *Inter Partes* Review IPR2015-01249, pg. 8; *see also* Decision Denying *Inter Partes* Review IPR2015-01250, pg. 8.

The Board further adopted the Appellant's construction of "initial setting" recited in independent claims 9 and 23 to mean the same as "initial position." *Id*. at 7–8.

In the present reexamination proceeding, the Examiner states:

> The examiner has adopted the interpretation of the subject matter of claims 1, 9 and 23 with respect to the terminology "initial position" and "initial setting" that is in accordance with the prosecution history relevant to the instant proceeding, as summarized in the Request for Reexamination at page 10. . . . Concerning the feed-forward determination, claim 1 (for example) requires determining air demand, determining an initial throttle position for that air demand, and moving the throttle to that initial position.

Ans. 11–12, citing Final Act. 3–4.

The cited portion of the Request for Reexamination references the interpretation of the Board set forth above in its earlier Decisions Denying Institution, and agrees with this interpretation. Request for *Ex Parte* Reexamination, pg. 10. The Appellant agrees with the claim interpretation from the earlier Board decisions, and relies on the same in the present appeal. App. Br. 8–11. Thus, claim interpretation is not in dispute in the present appeal, and we adopt the interpretation of the Board set forth above.

OPINION

We initially note that only those arguments actually made by Appellant have been considered in this decision, and any arguments not made are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv); *see also In*

re Jung, 637 F.3d 1356, 1365 (Fed. Cir. 2011); *Ex Parte Frye*, 94 USPQ2d 1072, 1075–76 (BPAI 2010, precedential).

Rejection 1: Anticipation by Kamiyama

As noted, the Examiner rejects claims 1–3, 5–10, 14, and 15 as anticipated by Kamiyama. Final Act. 6. The Examiner finds that Kamiyama discloses determining the throttle position or setting θ_2 based on the desired/demanded air flow using a three-dimensional map, driving the throttle valve to this initial throttle position or setting θ_2, and subsequently using airflow measurements as feedback to improve accuracy. Final Act. 7–8.

Claims 1 and 9

The Appellant argues independent claims 1 and 9 together, asserting that "[u]nder the PTAB-endorsed constructions of claim 1's 'initial position' a[nd] claim 9's 'initial setting' as an 'initial feed-forward 'coarse' setting,' anticipation rejections based on Kamiyama cannot be sustained because Kamiyama fails to provide an unambiguous disclosure in as complete detail as the claimed inventions." Appeal Br. 12. Specifically, the Appellant argues that Kamiyama

> does not utilize any terminology that dictates that the throttle valve opening degree (θ_2) represents a "feed forward" determination that indicates "an open loop system where 'the output has no effect on the control action' and in which 'the output is neither measured nor fed back for comparison with the input.'"

Appeal Br. 13.

According to the Appellant, the Examiner "fails to point to any disclosure in Kamiyama as to how the throttle valve is actually controlled to a target setting," and "there is no disclosure in Kamiyama describing the particulars of the control action for moving the throttle position from θ_1 to a target setting (θ_2)." Appeal Br. 13.

The Appellant's arguments are unpersuasive. Although the disclosure of Kamiyama does not use the specific term "feed forward," this does not mean such a feed-forward determination and an open-loop control are not disclosed. In fact, Kamiyama describes its method for controlling air flow quantity in an enumerated, step-by-step manner, which corresponds to the method of claim 1. Kamiyama, col. 4, ll. 4–18. In particular, Kamiyama discloses that in step "(i)," a stored map is referenced based on the desired air flow and initial pressure difference, and "the corresponding value of the throttle valve opening degree (θ_2) is read out." Kamiyama, col. 4, ll. 4–14. In step "(ii)," "the throttle valve is driven into the position corresponding to the value (θ_2) read out at step (i)." Kamiyama, col. 4, ll. 15–16. Such enumerated disclosure in Kamiyama is not ambiguous and discloses the limitations at issue as interpreted above. Accordingly, the Examiner is correct that the throttle position value (θ_2) of Kamiyama read from the look-up map is the recited "initial position" as interpreted above, and is a feed-forward determination to which the throttle is driven to.

The Appellant also argues that "the indication that Kamiyama's throttle is 'driven' from θ_1 'into the position corresponding to the value (θ_2)' (Kamiyama at 4:15-16) does not inherently indicate an open-loop control action." Appeal Br. 13. According to the Appellant, the rejection "ignores

the express requirement that the claimed method performs the step of 'moving the throttle means to said initial position.'" Appeal Br. 14 (formatting omitted).

These arguments are also unpersuasive. Although the term "driven" in isolation many not inherently indicate open-loop control, "driven" in the context of the enumerated steps disclosed in Kamiyama discussed above discloses the same open-loop, feed-forward control that is described in the '951 Patent. In that regard, Kamiyama discloses that "the throttle valve is driven into the position corresponding to the value (θ_2)" (corresponding to the recited "initial position") in its enumerated step "(ii)", which is sufficient to disclose that is in fact, what happens. In fact, the '951 Patent itself utilizes the term "driven" to describe the act of moving the throttle to the initial coarse setting. *Compare* Kamiyama, col. 2, ll. 15–16 *with* Spec., col. 2, ll. 18–21 ("the throttle means is driven to this coarse setting."); col. 1, ll. 51–52 (stating that in prior art, "the throttle valve is moved or driven to a certain position."). Furthermore, as the Examiner notes (Ans. 13), stepper motor 14 of Kamiyama would be used for such driving action.

Therefore, we agree with the Examiner's findings that in Kamiyama, "the initial position (θ_2) is read out from the computer map data, and the moving of the throttle valve to that initial position (θ_2) results in a modified air pressure value (ΔP_3) which is subsequently compared to the demanded air flow (QA_F) to determine if further adjustment is necessary." Ans. 12, citing Kamiyama, col. 4, ll. 15–22.

Accordingly, we affirm the Examiner's anticipation rejection of independent claims 1 and 9.

Claims 2 and 10

Claim 2 depends from claim 1 and recites "wherein the position of the throttle means is compared with a set point position value and a throttle position actuator is actuated when an actual throttle means position value differs from said set point position value by a greater than acceptable margin to bring said actual position and said set point value into a closer alignment." Appeal Br. 29 (Claims App'x). Claim 10 depends from claim 9 and recites "a control loop wherein an actual setting of said first control means is compared with a set point setting and the first control means is adjusted when said actual setting differs from said set point setting by a greater than acceptable margin to bring said actual setting and said set point setting into closer alignment." Appeal Br. 30 (Claims App'x).

The Examiner rejects claim 2 as anticipated, finding that Kamiyama "discloses a comparison as part of the adjusting step, and discloses an actuator 14. Furthermore, the initial signal generated by the accelerator pedal is a set point position value." Final Act. 10. Although claim 10 stands rejected as anticipated by Kamiyama, the Examiner does not set forth a specific basis for this rejection.

The Appellant initially relies on dependency for patentability of claims 2 and 10. Appeal Br. 16. However, reliance on claims 1 and 9 is unpersuasive because we find no error in the Examiner's rejection of these claims. Appeal Br. 16. The Appellant also argues, *inter alia*, that "claim 2 requires a comparison of the 'throttle valve position' with a 'set point position value' - not a comparison of actual air flow with desired air flow

(i.e., the subject matter of claim 1, in part) as seemingly alleged by the Office Action." Appeal Br. 17. The Appellant relies on the same arguments with respect to claim 10, and argues that Kamiyama only compares the actual air flow quantity to the desired/demanded airflow. Appeal Br. 18–19.

We agree with the Appellant. The language of claims 2 and 10 are clear that the parameter being compared to the set point position value is the position of the throttle means/first control means. The Specification discloses "a throttle valve position feed-back loop" in which the actual measured position of the throttle is provided as feedback to further move the throttle such that the actual position and set point position are within an acceptable margin. *See* Spec., col. 2, ll. 31–38; *see also* Spec., col. 6, ll. 32–37 ("The desired setting SØ of the throttle valve 12 is compared against the actual position thereof by way of a throttle valve position feed-back loop. The difference or the error FØ between these two values is input to the ECU 17 which adjusts the throttle valve position accordingly.").

The Examiner responds that "it would appear reasonable that the 'set point' claim language is broadly referring to the comparison that involves the air flow. In Kamiyama, the air flow parameters (QA_F), (QA_2) are results of physical valve positions, where the (QA_F) parameter relates to an initial 'set point'." Ans. 14. Although the throttle valve position and the referenced set point may be correlated to air flow, that does not address the language of the claims, which requires comparison of the set point position value to the position of the throttle means/first control means, and moving the same to be positioned within an acceptable margin of the set point position. "Anticipation requires the presence in a single prior art reference

disclosure of each and every element of the claimed invention, arranged as in the claim." *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Co.*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

Therefore, in view of the above considerations, we reverse the Examiner's rejection of claims 2 and 10 as being anticipated by Kamiyama.

Claims 6–8

Claim 6 depends from claim 1 and recites "wherein said initial position of said throttle means is compensated for changes in engine operating conditions and parameters enabling said initial position of the throttle means to more closely approximate the position corresponding to said determined air demand of the engine over time." Appeal Br. 29 (Claims App'x). Claims 7 and 8 depend from claim 6. The Examiner rejects these claims finding that "Kamiyama discloses engine operation sensors 5 (Fig. 1), and this subject matter is considered to satisfy the 'compensated for changes' recitation." Final Act. 10.

Initially, the Appellant relies on dependency on claim 1 for patentability of claims 6–8, but such reliance is misplaced because we find that claim 1 is anticipated by Kamiyama for the reasons discussed above. Appeal Br. 16. The Appellant also argues that the rejection is deficient because it does not take into consideration that claim 6 recites that the "initial position of said throttle means is compensated … ***over time***." Appeal Br. 19, quoting claim 6. According to the Appellant,

> the Examiner's analysis suggests that claim 6 merely requires that determination of the initial position takes into account the *current* operating conditions of the engine (e.g., as indicated by

> *Kamiyama*'s sensors (5)), claim 6 provides that the initial position is compensated (e.g., adjusted, updated, re-defined) ***over time*** such that the values provided for the initial position better approximate the values for a particular engine under particular operating conditions.

Appeal Br. 19–20.

The Appellant further explains that "the 'initial position' determined for a combination of particular engine operating conditions is not necessarily fixed, but may be adjusted 'during the life of the engine' to improve the accuracy of the throttle position's initial movement." Appeal Br. 20. The Appellant argues that in contrast, "the relied-upon passages [of Kamiyama] only suggest that the value of the initial position takes into account current operating conditions of the engine." Appeal Br. 20.

We do not find the Appellant's arguments persuasive. Claim 6 does not define the term "over time," much less recite compensation "during the life of the engine" as argued, even though such phrase is used in the '951 Patent. Spec. pg. 7, ll. 53–58 ("the control method and system of the present invention is robust to changes in engine operating conditions which occur during the life of the engine and which may result from leaks of air into the air intake system which could detrimentally affect control of air flow unless compensated for by the ECU 17."). Indeed, as the Examiner explains, claim 6 does not "recite language that would exclude current engine operating conditions." Ans. 15. We agree with the Examiner that

> in Kamiyama the repetition of the steps involving the modified/actual air flow quantity (QA_2) would necessarily require a period of time in which to be performed. . . . During this period of time, the sensors 5 would be detecting the changing operating status of the engine. Thus, Kamiyama discloses a compensation over time, in engine operating

> conditions and parameters, that is applied to the initial position (θ_2) of the throttle valve and that results in the desired/demanded air flow (QA_F) being obtained.

Ans. 15–16.

The Examiner is also correct that the Appellant's arguments based on the embodiment disclosed in the Specification "relates to either modifying the look-up map information or providing a correction factor for the look-up map information," but "[n]either claim 6 nor claim 1 recites a look-up map." Ans. 15.

Moreover, claim 8, which depends from claim 6, recites "wherein said engine operating conditions and parameters include engine speed, engine load, air intake temperature and air intake manifold pressure, atmospheric temperature and atmospheric pressure." Appeal Br. 30 (Claims App'x). Such engine operating conditions and parameters are directed to current operating conditions of the engine, not to conditions and parameters related to the life of the engine. Accordingly, even if claim 6 encompassed engine operating conditions and parameters that relate to the life of the engine, claim 8 establishes that claim 6 also encompass current engine operating conditions and parameters. *Cf. AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234, 1242 (Fed.Cir.2003) ("Under the doctrine of claim differentiation, dependent claims are presumed to be of narrower scope than the independent claims from which they depend.").

Therefore, in view of the above we affirm the Examiner's rejection of claims 6–8.

Claims 3, 5, 14, and 15

The Appellant does not present separate arguments for remaining claims 3, 5, 14, and 15, and instead, relies on their dependency on claim 1 or claim 9 for patentability. Appeal Br. 20–21. Therefore, these claims fall with claims 1 and 9.

Rejection 2: Anticipation by Barreau

The Examiner rejects claims 1–10, 12, 14, 15, 23, and 24 as anticipated by Barreau. Final Act. 10. The Examiner finds that in Barreau, "driver-actuation of an accelerator pedal sensor 1 establishes a setpoint value for the positioning of an air throttle 4." Final Act. 10. The Examiner also finds that in Barreau, the setpoint value is sent to a control unit 3, "which determines, relative to the current position of the throttle 4 as indicated by a feedback sensor 6, the displacement of the throttle 4 to achieve the requested setpoint." Final Act. 10–11. Referring to Figure 3, the Examiner further finds that

> the "SETPOINT" (10 bit) signal represents a value that is fed-forward from a fuel injection/throttle controller 9 to the microprocessor 7. In response to the throttle setpoint signal, the microprocessor 7 controls the actuator 5 to move the throttle 4 to the "initial" position requested by the driver (Fig. 4: POSITION ERROR NO).

Final Act. 11.

The Examiner explains that in Barreau,

> the SETPOINT signal represents an "open-loop control" because that signal is an output which, once received by the microprocessor, has no effect on the control action of moving the throttle valve. The SETPOINT signal further represents an

> "open-loop control" because that signal is an output which is neither measured nor fed back for comparison with the input.

Ans. 17.

Claims 1, 9, and 23

The Appellant argues independent claims 1, 9, and 23 together, and sets forth two main bases in asserting the impropriety of the anticipation rejection. First, the Appellant argues that "*Barreau* fails to provide [] an ***initial*** feed-forward '***coarse***' setting" because it is "only after the initial closed-loop control of throttle position coarsely adjusts the throttle position to within 8-bit resolution of the setpoint value is open-loop control used to achieve the **setpoint value of the position of the throttle** with finer resolution." Appeal Br. 24. Second, the Appellant argues that Barreau also fails to disclose measuring or determining air flow as required by the independent claims, and that "[t]here is no indication in Barreau that the signal from the inlet pressure sensor (14) is utilized, alone or in combination with other sensors, to derive or determine the actual air flow." Appeal Br. 26.

We agree with the Appellant. As the Examiner finds, Barreau does disclose a setpoint signal provided to the microprocessor 7 by the controller 9. Barreau, pg. 7, ll. 19–25; pg. 7, l. 37–pg. 8, l. 2. However, this setpoint is initially used in a closed-loop phase of the control method. Barreau, pg. 7, ll. 30–33. Subsequent to the closed-loop phase, Barreau discloses an open-loop phase for attaining a higher resolution such that smaller angular movements of the stepper motor 5 can be attained to accurately position the throttle 4. Barreau, pg. 7, ll. 33–34. However, Barreau is clear that the

close-loop phase precedes the open-loop phase. Barreau, pg. 12, ll. 23–27 ("open-loop control, this control phase being preceded by a phase of closed-loop control."). In that regard, we agree with the Appellant that "[i]n *Barreau*, [] the order is reversed." Appeal Br. 25, citing; *see also* Reply Br. 4.

As we understand the rejection, the Examiner appears to be relying on the fact that in Barreau, a 10-bit setpoint is initially provided, and the disclosed initial closed-loop phase uses a setpoint that is modified/reduced to 8-bit, while the 10-bit setpoint is later used during the open-loop phase. *See* Barreau, pg. 10, l. 25–pg. 12, l. 2; Fig. 4. However, the cited portions of Barreau makes clear that the 8-bit signal is just a modified version of the 10-bit setpoint that is initially provided, and that the 8-bit setpoint is used in the closed-loop phase to initially move the throttle to the indicated position based on comparison to the throttle position sensor 6. The 10-bit setpoint provides a way for smaller movements during the subsequent open-loop phase of Barreau, the throttle having been moved to the initial position via a closed-loop. *See* Appeal Br. 24 ("*Barreau*'s throttle valve is controlled from its original position to the requested setpoint by first taking into account the error signal during the initial, closed-loop control phase of the movement."); *see also* Reply Br. 4.

The Examiner also explains that "[i]n Barreau, the throttle position sensor feed-back loop is a 'closed-loop control', but this feed-back loop equates to the 'feed-back throttle position control loop' disclosed in [the '951 Patent]." Ans. 17; *see also* Final Act. 12 ("As indicated in Fig. 4 (MEASURE CURRENT POSITION OF THROTTLE), the feedback or

closed-loop signal generated by the sensor 6 is simply an indication of the angular position of the throttle prior to the driver-requested setpoint being effected."). Indeed, the recited closed-loop for the throttle position recited in claims 2 and 10 does find some analogue in the closed-loop control phase of Barreau discussed above. *See also* Spec. col. 6, ll. 32–39. However, that does not detract from the fact that in the context of Barreau, this closed-loop control is initially used to control the position of the throttle.

Moreover, as the Appellant argues, the Examiner appears to "conflate[] . . . the distinctions between the closed-loop throttle position feed-back control with the open-loop airflow feed-forward control." Appeal Br. 25. Specifically, the Examiner's acknowledgement of the correlation of the closed-loop of Barreau and the throttle position closed-loop of the '951 Patent highlights the fact that Barreau fails to disclose measuring or determining air flow as pointed out by the Appellant. Appeal Br. 26.

In rejecting these claims, the Examiner finds that "the air pressure sensor 14 (Fig. 3) provides feedback which is processed in the microprocessor 7 to adjust the angular position of the throttle relative to the setpoint or initial position, but is responsive to the actual rate of air supply to the engine (pg. 15, ll. 9-33)." Final Act. 12. However, the cited portion of Barreau discloses use of the air pressure sensor for stabilizing engine idle speed, and as the Appellant argues, "[t]here is no indication in Barreau that the signal from the inlet pressure sensor (14) is utilized, alone or in combination with other sensors, to derive or determine the actual air flow." Appeal Br. 26.

The Examiner responds that "[a]t best, the language of claim 9 recites 'measurement means for determining the actual rate of air flow'. This terminology does not distinguish Barreau, at least because the air pressure sensor 14 provides measurement information that directly relates to the actual rate of air supply/flow to the engine." Ans. 19. However, "[t]o anticipate a claim reciting a means-plus-function limitation, the anticipatory reference must disclose the recited function identically." *Transclean Corp. v. Bridgewood Servs., Inc.*, 290 F.3d 1364, 1372 (Fed. Cir. 2002). The Examiner's rejection does not set forth the requisite analysis of the means-plus-function language of claim 9. In addition, even if the Examiner is correct that air pressure information "directly relates to the actual rate of air supply/flow to the engine" (Ans. 19), such relationship does not establish that measurement of pressure is identical to measurement of rate of air flow, and it is not apparent how a pressure sensor can reasonably be said to perform the recited function of determining rate of air flow as required for anticipation.

The Examiner also responds that "[t]he claim 1 terminology: 'determining the actual rate of air supply', would appear even broader in scope than the 'measurement means' of claim 9." Ans. 19. While that may be true, the Examiner fails to identify how Barreau explicitly or inherently discloses such determination of the actual rate of air supply as required for anticipation. *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Co.*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

Independent claim 23 recites "said actual rate of air flow is measured by said measurement means and compared with said determined air

requirement." Appeal Br. 31 (Claims App'x). In rejecting claim 23, the Examiner finds that "the air pressure sensor 14 [of Barreau] is a 'measurement means', and the second closed-loop compares the adjusted (or 'updated' as claimed) angular position of the throttle with the throttle setpoint (or 'determined air requirement' as claimed)." Final Act. 12–13. Thus, the Examiner's reliance on the air pressure sensor of Barreau as measurement means, as well as equating the angular position of the throttle with the "determined air requirement," are problematic in this anticipation rejection for reasons similar to those discussed above relative to claims 1 and 9.

Therefore, in view of the above considerations, we reverse this anticipation rejection of independent claims 1, 9, and 23, as well as dependent claims 2–8, 10, 12, 14, 15, and 24.

Rejections 3 and 4: Obviousness Based on Barreau

The Examiner rejects claims 3 and 6–8 as obvious over Barreau in view of Buslepp (Rejection 3), and claims 23 and 24 as obvious over Barreau in view of Buslepp and Inoue (Rejection 4). Final Act. 13–14. The Appellant correctly points out that the Examiner's reliance on Buslepp, and also Inoue, does not remedy the deficiencies with respect to Barreau. Appeal Br. 27. Therefore, these obviousness rejections are also reversed.

CONCLUSIONS

The Examiner's rejections are Affirmed-In-Part.

More specifically,

Rejection 1 is affirmed as to claims 1, 3, 5, 6–8, 9, 14, and 15, but is reversed as to claims 2 and 10.

Rejections 2–4 are reversed.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–3, 5–10, 14, 15	102(b)	Kamiyama	1, 3, 5–9, 14, 15	2, 10
1–10, 12, 14, 15, 23, 24	102(b)	Barreau		1–10, 12, 14, 15, 23, 24
3, 6–8	103(a)	Barreau, Buslepp		3, 6–8
23, 24	103(a)	Barreau, Buslepp, Inoue		23, 24
Overall Outcome			1, 3, 5–9, 14, 15	2, 4, 10, 12, 23, 24

REQUESTS FOR EXTENSIONS OF TIME

Requests for extensions of time in this ex parte reexamination proceeding are governed by 37 C.F.R. § 1.550(c). *See* 37 C.F.R. § 41.50(f).

AFFIRMED-IN-PART

KRH

For APPELLANT:

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