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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHRISTIAN WINGE VIGILD, ANDREAS KUSKE,
and DANIEL ROETTGER

Appeal 2016-000397
Application 13/485,725
Technology Center 3700

Before MICHAEL C. ASTORINO, BRADLEY B. BAYAT, and
AMEE A. SHAH, *Administrative Patent Judges*.

SHAH, *Administrative Patent Judge*.

DECISION ON APPEAL¹

The Appellants² appeal under 35 U.S.C. § 134(a) from the Examiner’s final decision rejecting claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b). The Appellants’ representative appeared for oral hearing in this appeal on October 10, 2017.³ We REVERSE.

¹ Throughout this opinion, we refer to the Appellants’ Appeal Brief (“Appeal Br.,” filed Mar. 2, 2015), Reply Brief (“Reply Br.,” filed Sept. 29, 2015), and Specification (“Spec.,” filed May 31, 2012), and to the Examiner’s Answer (“Ans.,” mailed July 29, 2015) and Final Office Action (“Final Act.,” mailed Aug. 29, 2014).

² According to the Appellants, the real party in interest is Ford Global Technologies, LLC. Appeal Br. 3.

³ Throughout this opinion, we refer to the transcript of the Hearing (“Tr.”).

STATEMENT OF THE CASE

The Appellants' invention "relates to a method for operating an internal combustion engine." Spec. 1, l. 11.

Claims 1, 15, and 18 are the independent claims on appeal. Claim 1 is illustrative of the subject matter on appeal and is reproduced below:

1. A method for operating an internal combustion engine having a cylinder, an intake line for supplying charge air to the cylinder, and a device for controlling charge-air flows conducted via a charge-air cooler and via a bypass line around the charge-air cooler, comprising:

controlling the charge-air flows using the device, the device including a two-stage switchable shut-off element and a continuously adjustable shut-off element, wherein the two-stage switchable shut-off element, which is arranged parallel to the bypass line in the intake line, is switched between only an open position and a closed position, and the bypass line is opened up or shut off to a greater or lesser extent by the continuously adjustable shut-off element which is continuously adjustable between an open position and a closed position.

Appeal Br. 32 (Claims App.).

REJECTIONS ON APPEAL

Claims 1, 3, 5, and 7–20 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Czarnowski (US 7,621,128 B2, iss. Nov. 24, 2009), Joergl (US 2010/0043761 A1, pub. Feb. 25, 2010), and Hagberg (US 2008/0155983 A1, pub. July 3, 2008).

Claim 2 stands rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Czarnowski, Joergl, Hagberg, and Laveran (US 5,649,516, iss. July 22, 1997).

Claims 4 and 6 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Czarnowski, Joergl, Hagberg, and Isaji (US 7,188,604 B2, iss. Mar. 13, 2007).

ANALYSIS

Claims 1–14

We agree with the Appellants' contention that the Examiner's rejection of independent claim 1 is in error because the Examiner has not adequately shown that Joergl, upon which the Examiner relies, discloses that the two-stage switchable shut-off element, i.e., throttle valve, is "switched between only an open position and a closed position," as required by independent claim 1. *See* Appeal Br. 10–12, Reply Br. 2–3.

The Examiner finds, in relevant part, that Czarnowski teaches a method comprising controlling the charge-air flow using the device for controlling air-flows, but does not teach controlling the air flows with a two-stage switchable shut-off element in the device, that is switched between only an open position and a closed position. Final Act. 3. The Examiner relies on Joergl for controlling the air flow using a two-stage switchable shut-off element, i.e., throttle valve 40. *Id.* The Examiner finds that "the throttle valve is dependent on the operator and an accelerator pedal. Therefore, if an operator taps on an accelerator pedal and then completely releases their foot off of the accelerator pedal, then the throttle valve only opens and closes and so can read on the claim limitations of claim 1." Ans. 16. The Examiner also notes that "neither the claim or the specification mention that the two-stage switchable element needs to be fully closed or fully open or as to how much intake air needs to be allowed through with an

open or closed position.” *Id.* at 17. Thus, the Examiner appears to interpret “two-stage” as requiring a position of “any amount of open” (Tr. 6) (i.e., fully or partially) and a closed position.

However, we agree with the Appellants that the term “two-stage” requires that there are only two positions, one specific amount of open position and one closed position. *See* Reply Br. 3, Tr. 6–7. In other words, the claim requires that the two-stage element is either open at a set position (i.e., fully open or a percentage of partially open), or at a closed position. As the Appellants point out, the claim and the Specification distinguish between a two-stage element and a continuously adjustable element. Tr. 6. An adjustable element would have multiple positions of varying amounts of open, and a closed position. A two-stage element, conversely, would have only one open position at a set amount of open and one closed position.

As such, we agree with the Appellants that Joergl does not teach a two-stage element “that is switchable only between two positions” as required by claim 1. Reply Br. 3. Joergl discloses that an exhaust gas recirculation (“EGR”) valve 32 can be adjusted to create EGR flow-through, and that, when valve 32 is fully open but more flow-through is required, intake throttle valve 40 “can be adjusted to create more flow down stream of the valve 32.” Joergl ¶ 17. However, Joergl does not state that throttle valve 40 is a two-stage element that is switched between only one open position and a closed position.

Based on the foregoing, we do not sustain the Examiner’s rejection under 35 U.S.C. § 103 of independent claim 1 and dependent claims 3, 5, and 7–14.

Each of claims 2, 4, and 6 ultimately depends from independent claim 1. The Examiner relies of the same unsupported finding regarding Joergl in the rejections of these claims. Thus, for the same reasons we do not sustain the rejection of claim 1, we also do not sustain the rejections under 35 U.S.C. § 103(a) of dependent claims 2, 4, and 6.

Claims 15–17

We agree with the Appellants’ contention that the Examiner’s rejection of independent claim 15 is in error because the Examiner has not adequately shown that the prior art, alone or in combination, teaches “the claim 15 element of during engine operation, adjusting a first bypass valve and a second bypass valve of a charge-air cooler based on an intake air temperature.” Appeal Br. 20–23; *see also* Reply Br. 5.

The Examiner finds, in relevant part, that Czarnowski teaches a method for an engine with cylinders and a charge air cooler, comprising adjusting a first bypass valve, as taught by Joergl, and second bypass valve, as taught by Hagberg, based on air intake temperature, as taught by Hagberg. *See* Final Act. 10. The Examiner further finds

Czarnowski, Joergl, and Hagberg in combination, have the capability to close the first and second bypass valve (throttle valve and valve in bypass line) since the computer (Hagberg, 10) has complete control of the second bypass valve (Hagberg, 9) and may close due to a temperature change such as ice formation (Hagberg, paragraph 17, lines 34-44) and the first bypass valve or throttle valve (Joergl, 40) is known to be essentially closed when the engine stops since there is no control to operate it such as a user not pressing down on an accelerator pedal. Also, there is a period of time within Czarnowski, Joergl, and Hagberg wherein both the valves are closed and if the engine were shut

off at this period of time, the references all in combination would have the capability to close the first and second bypass valves.

Id. at 11. In response to the Appellants' arguments, the Examiner clarifies that Joergl is relied on "strictly to teach the valve and that the operation of the valve would be used and controlled within Czarnowski." Ans. 18. The Examiner further finds that

a control unit is capable of performing such opening of a continuously adjustable element that would replace 42 of Czarnowski and controlling the opening and closing of a throttle valve that is present within an intake air line of Czarnowski based on different engine operating parameters since the ECU of a conventional engine is programmable.

Id.

Czarnowski discloses an engine with exhaust gas valve 46 comprising, in relevant part, air cooler bypass valve 42 located in the intake conduit. Czarnowski, Fig. 1, col. 2, ll. 26–27, 44–46, 61. Exhaust valve 46 can be controlled by the vehicle's electronic control unit ("ECU"), such as when "a specific temperature is desired." *Id.* at col. 3, ll. 62–67. As discussed above, Joergl teaches a first bypass valve, EGR valve 32. Hagberg discloses a charged air cooler comprising, in relevant part, bypass line 8 comprising valve 9 controlled by electrical control unit 10 on the basis of information from sensors 13, one of which "may be a temperature sensor which detects the temperature of the compressed air after it has been cooled in the charge air cooler, or the temperature of the surrounding air." Hagberg ¶ 16, 17.

However, we do not see, and the Examiner does not adequately explain such that one of ordinary skill in the art would understand, where or how Hagberg and/or Czarnowski teaches controlling both the first and

second bypass valves based on the temperature of the air. Although Hagberg teaches adjusting one bypass valve based on intake air temperature (*see* Tr. 14) and Czarnowski's ECU is capable of adjusting an exhaust valve to reach a desired temperature (*see* Ans. 18), the Examiner does not adequately explain how Hagberg's or Czarnowski's controller, alone or in combination, teaches adjusting both the first and second bypass valves based on intake air temperature. *See* Tr. 14.

Therefore, we do not sustain the Examiner's rejection under 35 U.S.C. § 103 of independent claim 15 and dependent claims 16 and 17.

Claims 18–20

We agree with the Appellants' contention that the Examiner's rejection of independent claim 18 is in error because Joergl, upon which the Examiner relies (Final Act. 12–13), does not disclose “a first charge-air cooler bypass valve adjustable to only two restriction levels,” as required by the claim. Appeal Br. 27, 28.

As discussed above with respect to claim 1, the Examiner does not adequately show that Joergl teaches a valve adjustable to only two levels or that the valve, i.e., that the valve is controlled by the depression of an accelerator pedal to only two levels of restriction.

Therefore, we do not sustain the Examiner's rejection under 35 U.S.C. § 103 of independent claim 18 and dependent claims 19 and 20.

Appeal 2016-000397
Application 13/485,725

DECISION

The Examiner's rejections of claims 1–20 under pre-AIA
35 U.S.C. § 103(a) are REVERSED.

REVERSED