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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANDERS ERIKSSON and PETER TEMPLIN

Appeal 2017-001529
Application 12/739,155¹
Technology Center 3600

Before MICHAEL C. ASTORINO, BENJAMIN D. M. WOOD, and
PHILIP J. HOFFMANN, *Administrative Patent Judges*.

ASTORINO, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), the Appellants appeal from the Examiner's decision rejecting claims 1–14. We have jurisdiction over the appeal under 35 U.S.C. § 6(b). An oral hearing was held on Oct. 23, 2018.

We REVERSE.

¹ According to the Appellants, “[t]he real party in interest is the assignee Volvo Lastvagnar AB.” Appeal Br. 1.

STATEMENT OF THE CASE

Claimed Subject Matter

Claims 1 and 12–14 are the independent claims on appeal. Claim 1, reproduced below, is illustrative of the subject matter on appeal.

1. A method for a more efficient use of a combustion engine in a vehicle during driving of the vehicle, the vehicle comprising an automatic step geared transmission for automatic gear ratio adaptation of a gear ratio between an engine rotational speed and a rotational speed of driving wheels of the vehicle, comprising:
 - sensing current engine rotational speed and engine rotational speed increase,
 - estimating necessary minimum upshift engine rotational speed for a coming gear upshift;
 - registering that the engine rotational speed has stopped increasing without reaching the minimum upshift engine rotational speed, and where the engine rotational speed stops increasing at a first engine rotational speed within a predetermined distance of a maximum engine rotational speed where engine efficiency at the first engine rotational speed is below a first predetermined efficiency, and
 - automatically controlling engine output torque in order to limit the engine rotational speed to a first predetermined engine rotational speed where engine efficiency at the first predetermined engine rotational speed is above a second predetermined efficiency that is above the engine efficiency at the first engine rotational speed.

Rejections

- I. Claims 12–14 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.
- II. Claims 1 and 12–14 are rejected under (pre-AIA) 35 U.S.C. § 102(b) as being anticipated by Lorentz².

² Lorentz (US 6,616,575 B1, iss. Sept. 9, 2003).

III. Claims 1 and 12–14 are rejected under (pre-AIA) 35 U.S.C. § 102(b) as being anticipated by Bellinger³.

IV. Claims 1, 2, and 12–14 are rejected under (pre-AIA) 35 U.S.C. § 103(a) as being unpatentable over Klatt⁴, Hollenbeck⁵, and Ganoung⁶.

V. Claims 3 and 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Klatt, Hollenbeck, Ganoung, and Tokoro^{7, 8}.

VI. Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Klatt, Hollenbeck, Ganoung, and Crawford⁹.

VII. Claims 6 and 7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Klatt, Hollenbeck, Ganoung, and Bauerle^{10, 11}.

VIII. Claims 8–11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Klatt, Hollenbeck, Ganoung, and Brackney¹².

³ Bellinger (US 2003/0216847 A1, pub. Nov. 20, 2003).

⁴ Klatt (US 4,630,508, iss. Dec. 23, 1986).

⁵ Hollenbeck (US 7,497,201 B2, iss. Mar. 3, 2009).

⁶ Ganoung (US 4,905,544, iss. Mar. 6, 1990).

⁷ Tokoro et al. (US 5,136,495, iss. Aug. 4, 1992) (“Tokoro”).

⁸ Although the Examiner sets forth separate statements for the rejection of claims 3 and 4 (Final Act. 13), we consolidate the statements into a single ground of rejection because they are each based upon same the combination of references.

⁹ Crawford et al. (US 6,278,931 B1, iss. Aug. 21, 2001) (“Crawford”).

¹⁰ Bauerle et al. (US 7,263,429 B2, iss. Aug. 28, 2007) (“Bauerle”).

¹¹ Although the Examiner sets forth separate statements for the rejection of claims 6 and 7 (Final Act. 16), we consolidate the statements into a single ground of rejection because they are each based upon same the combination of references.

¹² Brackney et al. (US 2003/0144788 A1, pub. July 31, 2003) (“Brackney”).

ANALYSIS

Non-Statutory Subject Matter

The Examiner determines that independent claims 12–14 are directed to “a mathematical relationship between engine rotational speed, torque and fuel savings.” Final Act. 7; Ans. 6–8. The Appellants disagree. *See* Appeal Br. 8–9; Reply Br. 1–3.

The Supreme Court acknowledged in *Mayo* that “all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.” *Mayo Collaborative Services v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012). Therefore, the Federal Circuit has instructed that claims are to be considered in their entirety to determine “whether their character as a whole is directed to excluded subject matter.” *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1312 (Fed. Cir. 2016) (quoting *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015)); *see Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016) (“The § 101 inquiry must focus on the language of the Asserted Claims themselves.”); *see also Accenture Glob. Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013) (“[T]he important inquiry for a § 101 analysis is to look to the claim.”).

Claims 12–14, as a whole, are each directed to a vehicle. *See* Appeal Br. 31–33. For example, claim 12 recites an apparatus, i.e., a vehicle comprising a computer and an automatic step geared transmission. *See id.* at 31. Claim 12 also requires that the computer is programmed to execute particular steps including sensing speed(s), estimating minimum upshift engine rotational speed, registering that engine rotational speed has stopped increasing without reaching the minimum upshift engine rotational speed,

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and automatically controlling engine output torque. *See id.* Although these programmed steps are directed to the vehicle's computer, the claimed vehicle also includes another structure, i.e., an automatic step geared transmission.

The Examiner determines that the term "vehicle" is directed to the preamble of claims 12–14 and not entitled patentable weight. *See Ans. 8.* However, the Examiner fails to account for the additional structure of the claimed vehicle, i.e., the automatic step geared transmission, which is not part of the preamble of the claims and limits the structure of the claimed vehicle.

Thus, we do not sustain the Examiner's rejection of claims 12–14 under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Anticipation by Lorentz

Independent claims 1 and 12–14 each recite:

- registering that the engine rotational speed has stopped increasing without reaching the minimum upshift engine rotational speed, and where the engine rotational speed stops increasing at a first engine rotational speed within a predetermined distance of a maximum engine rotational speed where engine efficiency at the first engine rotational speed is below a first predetermined efficiency, and

- automatically controlling engine output torque in order to limit the engine rotational speed to a first predetermined engine rotational speed where engine efficiency at the first predetermined engine rotational speed is above a second predetermined efficiency that is above the engine efficiency at the first engine rotational speed.

Appeal Br. 29, 31–33.

The Appellants argue that the Examiner's rejection of claims 1 and 12–14 fails to adequately explain how Lorentz discloses the foregoing recitations of independent claims 1 and 12–14. *Id.* at 10–13.

In the Final Office Action, the Examiner rejects all of the limitations of claims 1 and 12–14 by citing solely to Lorentz's claim 1. Final Act. 8–9. We cannot ascertain how Lorentz's claim 1, by itself, provides adequate support for all of the limitations of the claims. *See* Appeal Br. 11–13. In the Answer, the Examiner provides significantly more explanation concerning the application of Lorentz to the subject matter of claim 1. *See* Ans. 8–13. Here, the Examiner relies primarily on a comparison between Figure 1 of the Appellants' Application with Figure 2 of Lorentz. *See id.* at 10–13. The Examiner also points to Lorentz's Figure 3 for showing “shift points 71-73 for power for different speeds with lower efficiency.” *Id.* at 13.

The Appellants point out that the “[t]he U-shaped items in F[igure] 2 of *Lorentz* are manifestly **not** shift points.” Reply Br. 4. The Appellants also point out that Lorentz's Figure 3 includes shift points (e.g., 76, 78, 82, 86), but argue that Lorentz “does not illustrate or refer to any location on a graph where engine rotational speed has stopped increasing without reaching a minimum upshift engine rotational speed.” *Id.* at 5; *see* Appeal Br. 12. The Appellants' points are persuasive. At least because we cannot determine how the Examiner adequately supports the finding that the registering step of claim 1 reads on Lorentz's disclosure, we determine that the Appellants' argument is persuasive.

Thus, we do not sustain the Examiner's rejection of independent claim 1 as anticipated by Lorentz. For similar reasons, we likewise do not sustain the Examiner's rejection of claims 12–14 as anticipated by Lorentz.

Anticipation by Bellinger

The Appellants argue that the Examiner's rejection of independent claims 1 and 12–14 fails to adequately explain how Bellinger discloses the “registering” and “automatically controlling” recitations of independent claims 1 and 12–14. Appeal Br. 14–16.

In the Final Office Action, the Examiner rejects all of the limitations of claims 1 and 12–14 by citing solely to Bellinger's paragraphs 143–163. Final Act. 9. The Examiner does not explain how the disclosure in these paragraphs corresponds to the steps of the claims. In the Answer, the Examiner provides significantly more explanation concerning the application of Bellinger to the subject matter of claim 1. *See* Ans. 13–17 (citing Bellinger, Figs. 13, 14).

The Appellants argue that similar to the Examiner's reliance on Lorentz's Figure 2 as a comparison to Figure 1 of the application, the Examiner appears to rely on the U-shaped curves of Bellinger's Figure 13 to correspond to the registering step of claim 1. Reply Br. 8–11. However, as discussed above, the Appellants persuasively point out that these U-shaped curves do not show shift points. At least because we cannot determine how the Examiner adequately supports the finding that the registering step of claim 1 reads on Bellinger's disclosure, we determine that the Appellants' argument is persuasive.

Thus, we do not sustain the Examiner's rejection of independent claim 1 as anticipated by Bellinger. For similar reasons, we likewise do not sustain the Examiner's rejection of claims 12–14 as anticipated by Bellinger.

Obviousness based on Klatt, Hollenbeck, and Ganoung

The Appellants argue that the Examiner's rejection of claims 1, 2, and 12–14 fails to adequately explain how the combined teachings of Klatt, Hollenbeck, and Ganoung disclose the “registering” and “automatically controlling” recitations of independent claims 1 and 12–14. Appeal Br. 21–23; Reply Br. 12–16.

The Examiner's rejection relies on Ganoung to teach the “registering” step of claim 1 and “controlling the engine torque to limit to a first predetermined rotational speed above a second efficiency above the efficiency at the first engine rotational speed.” Final Act. 11–12 (emphasis omitted). The Examiner appears to rely on Ganoung's Figure 2, which shows dynamo meter data describing the performance of Ganoung's engine, to show a relationship between torque and engine speed which relates to the claimed “registering” recitation of claims 1 and 12–14. *See* Ans. 20; Ganoung, col. 2, ll. 48–49.

In the Reply Brief, the Appellants point out Ganoung's Figure 2 “is merely a graph [of] engine performance (power versus speed) where line 30 represents the highest practical level of power output for the engine but has no relationship to when or whether engine output speed stops increasing without reaching a minimum upshift engine rotational speed.” Reply Br. 16; *see* Appeal Br. 19–21. And, Ganoung's disclosure, including Figure 2, does not “ha[ve] anything to do with illustrating or describing a situation where ‘engine output speed stops increasing without reaching the minimum upshift engine rotational speed . . .’ as recited in the claims.” Reply Br. 16. The Appellants' points are persuasive. At least because we cannot determine how the Examiner adequately supports the finding that the registering step of

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claim 1 reads on Ganoung's disclosure, we determine that the Appellants' argument is persuasive.

Thus, we do not sustain the Examiner's rejection of claims 1 and 2 as unpatentable over Klatt, Hollenbeck, and Ganoung. For similar reasons, we likewise do not sustain the Examiner's rejection of claims 12–14 as unpatentable over Klatt, Hollenbeck, and Ganoung.

Obviousness based on Klatt, Hollenbeck, Ganoung in combination with Tokoro, Crawford, Bauerle, or Brackney

The remaining rejections based on Klatt, Hollenbeck, and Ganoung in combination with Tokoro, Crawford, Bauerle, or Brackney rely on the same inadequately supported finding discussed above. And, each of the remaining rejections is not cured by additional findings and/or reasoning associated therewith. As such, we do not sustain the Examiner's rejections of claims 3–11 under 35 U.S.C. § 103(a) as being unpatentable over Klatt, Hollenbeck, and Ganoung in combination with Tokoro, Crawford, Bauerle, or Brackney.

DECISION

We REVERSE the Examiner's decision rejecting claims 1–14.

REVERSED