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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SHUQING ZENG

Appeal 2013-000773
Application 12/412,688
Technology Center 3600

Before BIBHU R. MOHANTY, PHILIP J. HOFFMANN, and BRADLEY B. BAYAT, *Administrative Patent Judges*.

BAYAT, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant[1] appeals under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

STATEMENT OF THE DECISION

We REVERSE.

CLAIMED INVENTION

"This invention relates generally to a system and method for coding GPS measurements and, more particularly, to a system and method for

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[1] Appellant identifies GM Global Technology Operations LLC as the real party in interest. Appeal Br. 3.

coding GPS measurements for precise relative positioning in a vehicle communications system." Spec. ¶ 1. Claims 1, 10, and 14 are independent and recite substantially similar subject matter. Exemplary claim 1 is reproduced below.

> 1. A system for coding GPS measurements in a vehicle communications system, said system comprising:
>
> a GPS receiver receiving GPS signals and providing GPS measurement information;
>
> a processing unit for processing the GPS measurement information including;
>
> a stand-alone position and velocity estimator receiving the GPS measurement information at a first time and a prediction of a latent state vector from a previous time, where the latent state vector includes position and velocity information, said position and velocity estimator generating an estimated latent state vector;
>
> an observation prediction model responsive to the estimated latent state vector from the position and velocity estimator and calculating an observation prediction from the estimated latent state vector;
>
> a first differencer responsive to the observation prediction from the observation prediction model and the GPS measurement information at the first time period and providing a first difference signal;
>
> a first encoder responsive to the first difference signal and providing a first coded output;
>
> a state prediction model responsive to the estimated latent state vector from the position and velocity estimator and outputting a predicted latent state vector;
>
> a second differencer responsive to the estimated latent state vector from the position and velocity estimator and the predicted latent state vector from the state prediction model and generating a second difference signal; and
>
> a second encoder responsive to the second difference signal and generating a second coded output.

Appeal Br., Claims Appendix.

REJECTIONS

Claims 14–20 stand rejected under 35 U.S.C. § 101.

Claims 1–8, 14–16, and 18–20 stand rejected as being unpatentable as obvious under 35 U.S.C. § 103(a) over Babu (US 5,451,964, iss. Sept. 19, 1995) and Yang (US 6,057,800, iss. May 2, 2000).

Claims 9–13 and 17 stand rejected as being unpatentable as obvious under 35 U.S.C. § 103(a) over Babu, Yang, and Apostolopoulos (US 6,667,698 B2, iss. Dec. 23, 2003).

ANALYSIS

Nonstatutory Subject Matter Rejection

Claims 14–20

The Examiner rejects claims 14–20 because "claim 14 is held to claim an abstract idea, and is therefore rejected as ineligible subject matter under 35 U.S.C. [§] 101." Final Action 2 (emphasis omitted). According to the Examiner, "there is insufficient recitation of a machine as involvement of a machine with the steps is merely nominally, insignificantly or tangentially related to the performance of the steps [because] [t]he GPS referenced in the claim is not being used to perform the method." *Id.* at 3.

We reverse the rejection of record because the Examiner has failed to present a prima facie case that the claims are nonstatutory under § 101. The machine-or-transformation test is useful for determining whether a claimed process is statutory under § 101. However, here, the Examiner simply lists factors weighing against patent ineligibility under § 101, without providing an adequate explanation and analysis of how those factors apply to the claims.

Therefore, because a prima facie case of nonstatutory subject matter has not been established, we reverse the rejection of claims 14–20 under 35 U.S.C. § 101.

Obviousness Rejections

Independent claim 1 requires, *inter alia*,

> a first differencer responsive to the observation prediction from the observation prediction model and the GPS measurement information at the first time period and providing a first difference signal; [and]
>
> a second differencer responsive to the estimated latent state vector from the position and velocity estimator and the predicted latent state vector from the state prediction model and generating a second difference signal.

In support of teaching these limitations, the Examiner cites to Babu at Figures 3A and 3B without further explanation. *See* Final Action 6–7.

Appellant disputes the Examiner's findings, arguing:

> The Examiner states that the first differencer and the second difference can be found in [F]igures 3A and 3B. Appellant has reviewed [F]igures 3A and 3B for a differencer and has found a double difference phase measurement block 54. The Babu double difference phase measurement block 54 provides a difference in phase between the reference data carrier phase and the mobile station carrier phase, and clearly is not a combination of both a first differencer that provides a difference signal between an observation prediction model that provides estimated position and velocity and GPS measurements of position and velocity, and a second differencer that provides a difference signal between an estimated latent state vector that includes both position and velocity information and a predicted latent state vector that includes predicted position and velocity information.

Appeal Br. 15.

In response to Appellant's argument, the Examiner asserts:

> Appellant criticizes the relied upon art because it allegedly doesn't disclose how it provides/generates difference signals. Likewise, appellant didn't disclose an algorithm for calculating a 'difference signal' and appellant's written description appears to be devoid of this term. The examiner construed the difference signal(s) to be algebraic differences between signals and found that the computers of the relied upon art could calculate such differences.

Answer 4.

We are persuaded by Appellant's argument because the Examiner has not explained or shown how these contested limitations are disclosed by Figures 3A and 3B of Babu. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (citing *In re Lee*, 277 F.3d 1338, 1343–46 (Fed. Cir. 2002); *In re Rouffet*, 149 F.3d 1350, 1355–59 (Fed. Cir. 1998)). "To facilitate review, this analysis should be made explicit." *KSR Int'l v. Teleflex Inc.*, 550 U.S. 398, 418 (2007) (citing *Kahn*, 441 F.3d at 988). Here, we have reviewed Figures 3A and 3B and cannot find the claimed differencers as recited in claim 1. We find that the rejection of record is deficient in general for failure to specifically cite and explain how each claim limitation corresponds to the prior art. Thus, we agree with Appellant that a prima facie case of obviousness has not been established. Accordingly, we do not sustain the rejection of independent claim 1 under 35 U.S.C. §103(a). Because the Examiner relied on the same findings in rejecting independent claims 10 and 14, we also do not sustain the rejection of these claims. For the same reasons, we also do not sustain the rejection of dependent claims 2–9, 11–13,

and 15–20. *Cf. In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992) ("dependent claims are nonobvious if the independent claims from which they depend are nonobvious") (citations omitted).

DECISION

The Examiner's rejections of claims 1–20 are reversed.

REVERSED

Klh