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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte STEPHEN CHRISTOPHER WELCH and
JAMES RONALD BARFIELD, JR.

Appeal 2017-011210
Application 14/139,726
Technology Center 2800

Before JEFFREY B. ROBERTSON, JENNIFER R. GUPTA, and
MERRELL C. CASHION, JR., *Administrative Patent Judges*.

GUPTA, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Appellant² appeals under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1, 2, 6, 8, 9, 11–13, 17, and 19–29, which

¹ In this Decision, we refer to the Specification filed December 23, 2013 (“Spec.”), the Final Office Action dated September 29, 2016 (“Final Act.”), the Appeal Brief filed March 10, 2017 (“Appeal Br.”), the Examiner’s Answer dated June 29, 2017 (“Ans.”), and the Reply Brief filed August 21, 2017 (“Reply Br.”).

² Appellant is the Applicant, HTI IP, LLC, listed in the Application Data Sheet filed January 24, 2014. However, according to the USPTO’s assignment records, as of March 6, 2018, the assignee of the present application is Verizon Connect, Inc. The Appeal Brief identifies Verizon Patent & Licensing Inc. as the real party in interest. Appeal Br. 3.

constitute all the claims pending in this application.³ We have jurisdiction under 35 U.S.C. § 6(b). We *affirm*.

The subject matter on appeal relates to a system (claim 1), a device (claim 9), and a method (claim 12) that use sensors, for example, an accelerometer, to determine a value of the inclination of a surface beneath a vehicle, and then determine a compensated acceleration value using this value to more accurately determine the acceleration of the vehicle by an operator. Spec. ¶ 15. Claim 1, reproduced below from the Claims Appendix of the Appeal Brief, is illustrative of the claims on appeal.

1. A system comprising:
 - an accelerometer associated with a vehicle, to:
 - measure acceleration of the vehicle to obtain measured acceleration values; and
 - an analysis device to:
 - obtain a plurality of GPS values for a route,
 - the GPS values being received from a GPS sensor;

³ There is a discrepancy in the record with respect to the claims rejected and presented for review on appeal. The Examiner indicates that “[t]he only remaining ground of rejection is the rejection of claims 1, 2, 5–13, and 16–24.” Ans. 2. Similarly, in the Appeal Brief, Appellant identifies claims 1, 2, 5–13, and 16–24 as pending for purposes of appeal. We note, however, that in an Amendment After Final filed November 15, 2016 (“Amendment”), Appellant indicates that claims 5, 7, 10, 16, and 18 are cancelled and new claims 25–29 are added, and then identifies claims 1, 2, 6, 8, 9, 11–13, 17, and 19–29 as pending upon entry of the Amendment. Amendment 10. For purposes of appeal, the Amendment was entered by the Examiner. Advisory Action dated December 12, 2016, 1. In addition, although newly added claims 25–29 are not listed in the statement of rejection (Ans. 2), the Examiner addresses the newly added claims in the body of the Answer (Ans. 10–11). Thus, on this record, we determine that claims 1, 2, 6, 8, 9, 11–13, 17, and 19–29 are pending and before us for review on appeal.

determine a plurality of elevation values based on a plurality of digital elevation model (DEM) tiles corresponding to the plurality of GPS values;

determine, based on the plurality of elevation values, a plurality of DEM-based inclination values by calculating an arctangent of a change in elevation values between consecutive DEM tiles of the plurality of DEM tiles divided by a distance between the consecutive DEM tiles;

determine, based on a plurality of recorded sample acceleration values, a plurality of sample surface inclination values;

obtain, based on the plurality of DEM-based inclination values and the plurality of sample surface inclination values, a plurality of filter coefficients;

determine a plurality of surface inclination values,

the plurality of surface inclination values being based on the measured acceleration values received from the accelerometer;

store the plurality of surface inclination values;

determine a particular surface inclination value by applying the plurality of filter coefficients to the stored plurality of surface inclination values;

determine, based on the particular surface inclination value, a first force and a second force;

determine a plurality of compensated acceleration values based on the first force, the second force, and the measured acceleration values; and

output the plurality of compensated acceleration values.

DISCUSSION

The Examiner rejects, and Appellant appeals, the rejection of claims 1, 2, 6, 8, 9, 11–13, 17, and 19–29 under 35 U.S.C. § 101 as directed to patent ineligible subject matter.⁴ Ans. 2, 10; Amendment 10.

We review the appealed rejection for error based upon the issues identified by Appellant and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (*cited with approval* in *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (“[I]t has long been the Board’s practice to require an applicant to identify the alleged error in the examiner’s rejections”). After considering the evidence presented in this Appeal and each of Appellant’s arguments, we are not persuaded that Appellant identifies reversible error. Thus, we affirm the Examiner’s rejection for the reasons expressed in the Final Office Action and the Answer. We add the following.

Appellant argues all the claims pending and on appeal as a group. *See* Appeal Br. 8–16. We confine our discussion to claim 1, which we select as representative. 37 C.F.R. § 41.37(c)(1)(iv).

A two-step framework for determining whether claimed subject matter is judicially-excepted from patent eligibility under § 101 is set forth in *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 78–79 (2012), and further explained in *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014). The first step requires determining whether the claims at issue are directed to a patent-ineligible concept, such as an abstract idea. *See*

⁴ Based on this record, we determine that the Examiner’s rejection applies to claims 1, 2, 6, 8, 9, 11–13, 17, and 19–29, which are all the claims pending and before us on appeal. *See id.*

Alice, 134 S. Ct. at 2355 (citing *Mayo*, 566 U.S. at 76–77). The second step requires examining “the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 134 S. Ct. at 2357 (quoting *Mayo*, 566 U.S. at 72, 79).

In addressing the first step of *Alice*, Appellant argues that the Examiner takes an “overly broad” approach to the “directed to” inquiry, and “such an overgeneralization of the claims is improper to conclude that the claims are directed to an abstract idea.” Appeal Br. 9. Additionally, Appellant argues that the Examiner fails to specifically address all of claim 1’s limitations, such as “an accelerometer associated with a vehicle” or “an analysis device to: obtain a plurality of GPS values for a route, the GPS values being received from a GPS sensor.” *Id.* at 10.

We have considered Appellant’s arguments, but do not find the Examiner’s approach to the “directed to” inquiry to be “overly broad.” Under step 1 of the *Alice* analysis, the Examiner determined that claim 1’s character as a whole is directed to an abstract idea—an algorithm that includes the limitations “starting with ‘determine a plurality of elevation values . . .’ until the end of the claim, except for the limitations ‘store the plurality of surface inclination values’ and ‘output the particular surface inclination values.’” Final Act. 4; Ans. 2–3. As the Examiner explains, the algorithm is the “inventive concept” of claim 1. Ans. 4. Thus, we are not persuaded that the Examiner erred in concluding that under step 1 of the *Alice* analysis, claim 1 is “directed to” an abstract idea. *In re Grams*, 888 F.2d 835, 837 (Fed. Cir. 1989) (“Mathematical algorithms join the list of non-patentable subject matter not within the scope of section 101.”); *see*

also Digitech Image Techs., LLC v. Elecs. for Imaging, Inc., 758 F.3d 1344, 1351 (Fed. Cir. 2014) (“Without additional limitations, a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible.”); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016) (discussing how “collecting information” and “analyzing information by steps people go through in their minds, or by mathematical algorithms, without more” are abstract ideas).

Moreover, contrary to Appellant’s argument, the Examiner properly considered the elements of claim 1 as a whole under the two-step *Alice* analysis when the Examiner considered all of these elements, both individually and in combination, under step 2 of the *Alice* analysis. Final Act. 5; Ans. 4–5. In fact, the Examiner has explicitly addressed the very limitations referenced by Appellant—“an accelerometer associated with a vehicle” and “an analysis device to: obtain a plurality of GPS values for a route, the GPS values being received from a GPS sensor”—determining the accelerator and step of obtaining a plurality of GPS values “are merely well-understood, routine and conventional elements, recited at a high level of generality, which gather the data required as input values for performing the algorithm,” and determining the analysis device, storing the plurality of surface inclination values, and outputting the plurality of compensated acceleration values are “merely well-understood, routine, and conventional elements and/or steps using generic computer processing components in a generic manner to perform calculations, store information in memory, and output to result as an insignificant extra-solution activity.” Ans. 4–5; *see also Alice*, 134 S. Ct. at 2360 (Claims directed to, or reciting, systems are

also ineligible under § 101 if the hardware recited by the claims add nothing significantly more than the underlying abstract idea.).

We are also unpersuaded by Appellant’s argument that the claims are not directed to a patent-ineligible abstract idea (algorithm) because, when taken as a whole, the claims are directed to a concept “necessarily rooted in computer technology” to overcome a problem related to the technology of tracking vehicle movement and acceleration. Appeal Br. 11–12, citing *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014).

Appellant contends that “[t]he solution provided by the claimed system is necessarily rooted in computer technology because computer technology must be used in order to collect data (e.g., [.] acceleration and GPS data), process the measurements, store the values, and output the final values.” Appeal Br. 12. However, as the Examiner aptly points out, unlike the claims in *DDR Holdings*, the present claims use a computer (i.e., “analysis device”) simply as a tool to perform certain mathematical calculations. Ans. 7–8. Performing calculations using a computer does not root the claims in computer technology. *Id.*; see *Alice*, 134 S. Ct. at 2359 (simply programming a computer to perform what would otherwise be an abstract idea is not sufficient to impart patent eligibility).

We now turn to step two of *Alice*, which the Court has described as “a search for an ‘inventive concept’—*i.e.*, an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Alice*, 134 S. Ct. at 2355 (alteration in original) (quoting *Mayo*, 566 U.S. at 72–73).

Appellant argues that the claims provide an improvement to the technology or technical field—providing a more accurate determination of

vehicle acceleration values (e.g., after compensating for surface inclination), which can then be used to analyze and improve driver behavior and vehicle performance. Appeal Br. 14.

We are not persuaded by Appellant’s argument of reversible error in the rejection. Claim 1 does not recite a specific, particular technology which is being improved, but instead, as the Examiner explains, it seeks to monopolize a particular mathematical algorithm for converting measured acceleration values and obtained GPS values into compensated acceleration values. Ans. 7.

Appellant additionally argues that claim 1’s limitation of “determining a plurality of DEM-based inclination values by ‘calculating an arctangent of a change in elevation values between consecutive DEM tiles of the plurality of DEM tiles divided by a distance between the consecutive DEM tiles’” is not well-understood, routine, and conventional in the field. Appeal Br. 14. Appellant also argues that the claims recite unconventional steps that confine the claim to a particular useful application—“to a particular system for collecting accelerometer data and generating compensated acceleration values that requires several specifically-identified technological features.” *Id.* at 14–15.

We have considered Appellant’s arguments, but do not find them persuasive. Claim 1’s specific limitation that Appellant argues as not “well-understood, routine, and conventional in the field” is, as the Examiner finds, part of the abstract idea, and thus cannot amount to significantly more than the abstract idea itself. Ans. 8. In addition, aside from the abstract idea, as identified by the Examiner, Appellant does not identify what “unconventional steps” are recited in the claims. Moreover, claim 1 does

not recite an application or further use after generating the output. Thus, the claims do not recite using the output generated for any improvement or application beyond its calculation.

We are also not persuaded by Appellant’s argument that there is an absence of preemption because the claims do not preempt alternative methods of determining compensated acceleration values. *Id.* at 15. As the Examiner correctly explains, the relevant question is whether the abstract idea itself is being preempted. Ans. 9. The fact that alternatives outside the claims are not preempted does not demonstrate patent eligibility. Our reviewing court has expressly rejected similar contentions regarding preemption, stating that a patentee’s “attempt to limit the breadth of the claims by showing alternative uses . . . outside of the scope of the claims does not change the conclusion that the claims are directed to patent ineligible subject matter.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). The court explained that, “[w]hile preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility Where a patent’s claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework . . . preemption concerns are fully addressed and made moot.” *Id.* As discussed above, on this record we are not persuaded of error in the Examiner’s finding that Appellant’s claim 1 is limited to patented ineligible subject matter under the *Mayo* framework.

Further, contrary to Appellant’s argument, we are not persuaded that the claims of the present application are similar to the claims at issue in *Thales Visionix, Inc. v. U.S.*, 850 F.3d 1343 (Fed. Cir. 2017). Reply Br. 3–6. *Thales’* claims were found to be patent eligible because the claims were

directed to systems and methods that use inertial sensors in a non-conventional manner to reduce errors in measuring the relative position and orientation of a moving object on a moving reference frame. *Thales*, 850 F.3d at 1348–49. Although the claims on appeal include an accelerometer and a GPS sensor, unlike *Thales*, the claims of the present application use the claimed accelerometer and GPS sensor in a conventional and routine manner to measure acceleration values and generate GPS values.

Appellant argues that the Examiner does not provide an explanation as to why dependent claims 21, 22, 24, and 26 are unpatentable. Appeal Br. 15–16. However, the Examiner provides the requisite explanation at page 10 of the Answer. Appellant has not presented sufficient arguments or evidence that any of the limitations in the dependent claims transform the claims into patent-eligible subject matter. *See* Appeal Br. 15–16; Reply Br. 11.

For the reasons expressed in the Final Office Action, the Answer, and above, we sustain the rejection of claims 1, 2, 6, 8, 9, 11–13, 17, and 19–29 under 35 U.S.C. § 101 as directed to patent ineligible subject matter.

DECISION

The rejection of claims 1, 2, 6, 8, 9, 11–13, 17, and 19–29 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED