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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JAMES RIDGEWAY GILLIS

Appeal 2017-011836
Application 13/206,188
Technology Center 2800

Before ADRIENE LEPIANE HANLON, TERRY J. OWENS, and
GEORGE C. BEST, *Administrative Patent Judges*.

BEST, Administrative Patent Judge.

DECISION ON APPEAL

The Examiner rejected claims 1–3, 5–18, and 20–22 of Application 13/206,188 under 35 U.S.C. § 101 as directed toward patent-ineligible subject matter and under 35 U.S.C. § 103(a) as obvious. Non-Final Act. (April 10, 2015). Appellant¹ seeks reversal of these rejections pursuant to 35 U.S.C. § 134(a). Because at least one of the appealed claims has been twice-rejected, we have jurisdiction under 35 U.S.C. § 6.

For the reasons set forth below, we *affirm*.

¹ The Boeing Co. is identified as the real party in interest. Appeal Br. 2.

BACKGROUND

The '188 Application describes methods for identifying objects in images. Spec. ¶ 1. In particular, the Specification describes methods and apparatus “for identifying information about parts of spatially unresolved objects using hyperspectral radiant intensity measurements for the objects.”

Id. These methods may allow for identification of the type of object being detected at much greater distances than would otherwise be possible.

Id. ¶¶ 52–74. For example, these methods might allow identification of the type of aircraft detected by the sensor array when the aircraft’s image consists of less than a pixel.

Claim 1 is representative of the '188 Application’s claims and is reproduced below from the Claims Appendix.

1. A method for identifying a unique temperature and an emissivity area for each part among parts of an object, the object being unresolved, the method comprising:

receiving, in a sensor system, a measurement of a radiant intensity of the object, such that the object occupies less than a single pixel of the sensor such that the object is spatially unresolved by the sensor system, the radiant intensity being a power of electromagnetic radiation per unit solid angle from the object;

assuming that each part projects information to the sensor, the information being unique to each part and remaining constant during a time of the measurement;

identifying, from the measurement, a plurality of bands of electromagnetic radiation;

selecting, using a processor and based upon an assumption of a number of parts in the object, a number of bands from the plurality of bands;

identifying, using the processor and based upon the measurement, a radiant intensity for each of the number of bands;

generating a system of equations that includes the radiant intensity for each of the number of bands; and

identifying, via solving the system of the equations, the unique temperature and the emissivity area for each part in the parts of the object.

Appeal Br. 29.

REJECTION

On appeal, the Examiner maintains² the following rejection:

Claims 1–3, 5–18, and 20–22 are rejected under 35 U.S.C. § 101 because the claims are directed to a judicial exception—i.e., a law of nature, a natural phenomenon, or an abstract idea—without significantly more. Non-Final Act. 4.

DISCUSSION

The Patent Act defines patent-eligible subject matter as including “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101. In particular, laws of nature, natural phenomena, and abstract ideas are not patent-eligible. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012).

Since the Supreme Court’s decision in *Alice Corp. v. CLS Bank International*, 134 S. Ct. 2347 (2014), patent-eligible subject matter has been distinguished from patent-ineligible laws of nature, natural phenomena, and abstract ideas using a two-step process. *Id.* at 2355. The first step requires

² The Examiner has withdrawn the rejection of claims 1–3, 5–18, and 20–22 under 35 U.S.C. § 103(a). Answer 3.

us to “determine whether the claims at issue are directed to one of the patent-ineligible concepts.” *Id.* If they are, we must then analyze whether the claim elements, either individually or as an ordered combination, contain an “inventive concept” that “transform[s] the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*, 566 U.S. at 72–73).

Appellant argues that the rejection of claims 1–3, 5–18, and 20–22 as directed to patent-ineligible subject matter should be reversed. Appeal Br. 12–18. For the following reasons, we do not find Appellant’s arguments to be persuasive.

Streamlined Analysis. Appellant first argues that the Examiner erred by not using the streamlined analysis exemplified in example 27 of the *July 2015 Update: Subject Matter Eligibility, Appendix 1, 22*. Appeal Br. 14–15; Reply Br. 15–16. *See also* MPEP §2106.06 (describing the streamlined analysis).

This argument is not persuasive for two reasons: (1) it assumes the outcome of the application of the *Alice* test, and (2) it is based upon the idea that claims that do not completely preempt use of the abstract idea are patent-eligible.

First, properly understood, the “streamlined analysis” is the *July 2015 Update*’s description of an abbreviated statement of reasons why a particular claim is patent-eligible. *See July 2015 Update, Appendix 1, 19–22*.

Appellant’s contention that the Examiner should have used the streamlined analysis assumes that claim 1 is patent-eligible. For reasons we will explain more fully below, we are not persuaded that the Examiner erred by determining otherwise.

Second, the exemplary reasoning provided in Example 27 suggests that the sample claim is patent-eligible because it does not completely

preempt a judicial exception. *See id.* at 22 (“[W]hen the claim is reviewed, it is immediately evident that even if the claim did recite a judicial exception the claim is not attempting to tie up any such exception so that others cannot practice it.”). Appellant’s argument echoes this reasoning:

[N]one of the independent claims make use of any particular equations in a way which would preempt the use of those equations by any party or for any purpose other than as one part of the specifically described systems and process that recite “a novel and useful structure created with the aid of knowledge of the scientific truth,” which is eligible as a “patentable invention.”

Appeal Br. 14–15 (quoting *Diamond v. Diehr*, 450 U.S. 175, 188 (1981)); *see also* Reply Br. 3–4.

To the extent that Appellant is arguing that the alleged lack of preemption is outcome determining, they are mistaken. “While preemption may signal patent[-]ineligible subject matter, **the absence of complete preemption does not demonstrate patent[-]eligibility.**” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) (emphasis added).

In sum, the streamlined analysis merely represents the Office’s guidance to examiners that, when a claim’s subject matter is determined to be patent-eligible, a detailed recitation of the analysis need not be set forth. To the extent that the streamlined analysis relies upon the lack of complete preemption as dispositive to the question of patent-eligibility, it is no longer applicable. What remains of the streamlined analysis set forth in Example 27’s reasoning is the standard two-step *Alice* test. We, therefore, determine whether Appellant has demonstrated reversible error in the Examiner’s application of that test.

Alice Step 1. In rejecting the claims at issue, the Examiner determined that “[t]he claims are directed to an abstract idea, namely the recited mathematical calculations using hyperspectral data to identify information (e.g. temperature and emissivity area) about parts of an object.” Non-Final Act. 4. The Examiner, therefore, considered the issue presented by the first step of the *Alice* analysis.

Appellant argues that this determination is clearly erroneous because “[r]eview of independent claims 1, 13, and 15³ show[s] no mathematical calculations. Hence the claims cannot be directed to mathematical calculations.” Appeal Br. 12–14; *see also* Reply Br. 2–11.

This argument is not persuasive. Claim 1 is directed to a method for identifying a unique temperature and an emissivity area for each part among the parts of an object including the steps of “generating a system of the equations” and “identifying, via solving the system of the equations, the unique temperature and the emissivity area for each part in the parts of the object.” Claims 13 and 15 contain similar language. Appellant does not explain how the system of equations can be solved to yield the unique temperature and emissivity area for each part of the object without performing mathematical calculations. After review of the Specification, we are not persuaded that the Examiner erred in determining that claims 1, 13, and 15 are directed to an abstract idea in the form of mathematical calculations. Appellant’s arguments to the contrary elevate form over substance.

³ We note that Appellant did not argue that the rejection of independent claim 12 should be reversed for this reason.

In Appellant’s Reply Brief, they argue that claim 1 is not necessarily directed to an abstract idea merely because it involves mathematical calculations. Reply Br. 2–3 (citing *Diehr*, 450 U.S. at 187). To the extent that this argument is directed to *Alice* step 1, it is untimely because it is first presented in the Reply Brief. 37 C.F.R. §§ 41.37, 41.41; *see also Ex parte Borden*, 93 USPQ2d 1473, 1477 (BPAI 2010) (informative).

Alice Step 2. Appellant presents two arguments regarding the second step of the *Alice* test: (a) the appealed claims are directed to significantly more than the abstract idea, and (b) the appealed claims are analogous to the patent-eligible claims discussed in *SiRF Technology, Inc. v. International Trade Commission*, 601 F.3d 1319 (Fed. Cir. 2010). *See* Appeal Br. 14–18; Reply Br. 3–18.

In presenting these arguments, Appellant does not differentiate between independent claims 1, 12, 13, and 15, nor do they argue any of the dependent claims separately. We, therefore, select claim 1 as representative of the claims on appeal. 37 C.F.R. § 41.37(c)(1)(iv).

For the following reasons, we are not persuaded by Appellant’s arguments.

First, we are not persuaded that claim 1 is directed to significantly more than the judicial exception.

Appellant argues that claim 1 amounts to significantly more than the judicial exception because, when considered as an ordered whole, claim 1 is directed to a technical improvement over the limitations of current sensors. Appeal Br. 15–16; Reply Br. 12–15.

This argument is not persuasive. As discussed above, claim 1 is directed to mathematical calculations—a species of abstract idea. The portions of claim 1 that do not require mathematical calculations merely

recite, at a high level of generality, conventional processes. Specifically, claim 1 includes the steps of data acquisition (“receiving, in a sensor system, a measurement”) and data processing (“identifying, from the measurement, a plurality of bands;” “selecting . . . a number of bands from the plurality of bands;” and “identifying, using the processor and based upon the measurement, a radiant intensity for each of the number of bands”). The Federal Circuit has held that such steps cannot confer patent-eligibility upon patent-ineligible subject matter. *See, e.g., OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1364 (Fed. Cir. 2015) (explaining that “well-understood, routine, conventional data-gathering activities . . . do not make the claims patent eligible.”); *Digitech Image Techs., LLC v. Elecs. for Imaging Inc.*, 758 F.3d 1341, 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.”). As the Supreme Court has stated, “[i]f a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory.” *Parker v. Flook*, 437 U.S. 584, 595 (1978) (internal quotation marks omitted). The remaining portion of claim 1 states the conditions imposed upon the data processing steps.

In sum, considered individually, these additional claim elements do not result in a claim that is directed to significantly more than the patent-ineligible abstract idea. Moreover, when claim 1 is considered as a whole, the ordered combination of steps does not result in a claim that is directed to significantly more than the patent-ineligible subject matter.

Second, Appellant argues that the Examiner erred in the second step of the *Alice* test because the claims at issue are analogous to those found

patent-eligible in *SiRF Technology*. See Appeal Br. 16–17; Reply Br. 16–18. In particular, Appellant argues that

like the claims in *SiRF*, the claims at issue bring usefulness to a previously unusable image and recite a particular sensor . . . that is integral to each of the claims at issue and receives a measurement of a radiant intensity of the object, as recited in the claims at issue and transforms the received data into a previously unknown information to a process or that performs analysis that—out of a signal that previously was too weak—unresolved—to use.

Appeal Br. 16 (internal quote marks omitted).

The Examiner responds that *SiRF Technology* was decided before the Supreme Court’s decisions in *Mayo* and *Alice*. According to the Examiner, *SiRF Technology* has little persuasive value because it was decided in 2009,

prior to the *Mayo* and *Alice* decisions, so it was not decided under the *Mayo/Alice* framework and there was therefore no explicit consideration in that decision as to whether ‘additional elements’ beyond the abstract idea were sufficient to make the claim as a whole significantly more than the abstract idea.

Answer 13.

The Examiner also states that the appealed claims are more closely analogous to the claims determined to be patent-ineligible in *Flook; In re Grams*, 888 F.2d 835 (Fed. Cir. 1989); *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057 (Fed. Cir. 2011); and *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016). Answer 13.

We agree with the Examiner that the persuasive value of *SiRF Technology* is limited. The claims at issue in *SiRF Technology* were determined to be patent-eligible using the (now superseded) machine-or-transformation test. See *SiRF Tech.*, 601 F.3d at 1331–1332.

Appellant responds that “the Examiner’s Answer assertion is not in accordance with the validity that the USPTO affords *SiRF* by listing this precedential CAFC holding as one of the cases provided in the USPTO ‘*Chart of Subject Matter Eligibility Court Decisions*’ (updated July 31, 2017)[¹] for use with the USPTO ‘*2014 Interim Guidance on Patent Subject Matter Eligibility*.” Reply Br. 16–17. This argument is not persuasive. The mere inclusion of the *SiRF Technology* decision in a list of court decisions is not a statement that the reasoning or conclusions reached in that case would be unchanged if current law were applied to the facts. Indeed, we note that Example 4 provided with the *2014 Interim Guidance on Patent Subject Matter Eligibility* was modeled after the technology at issue in *SiRF Technology*. *2014 Interim Guidance, Appendix 1*, 10–13. Rather than apply the two-step *Alice* test to the actual claims discussed in *SiRF Technology*, however, the Example uses hypothetical claims. *Id.* at 10. This reflects the fact that, to the best of our knowledge, the Office has not taken a position on whether the claims at issue in *SiRF Technology* would be considered patent-eligible using the *Alice* test.

Because we agree with the Examiner that *SiRF Technology* has little persuasive value because it was decided prior to the decisions in *Mayo* and *Alice*, we turn to the Examiner’s suggestion that the claims at issue in this case are more analogous to the claims at issue in *Flook*, *Grams*, *Classen*, and *Electric Power Group*. See Answer 13. The Examiner’s suggestion has little persuasive merit because the Examiner did not support it with any analysis. Furthermore, as Appellant points out, the decisions in *Flook*, *Grams*, and *Classen* were also issued prior to the *Mayo* and *Alice* decisions. See Reply Br. 17. Thus, these cases are also of little persuasive value as examples of the application of the *Alice* test.

Nonetheless, we determine that the appealed claims are analogous to those at issue in *Electric Power Group*. In that case, the Federal Circuit selected claim 12 of U.S. Patent No. 8,401,710 as representative of the claims involved in that appeal. *Elec. Power Grp.*, 830 F.3d at 1351. Claim 12 is directed to “[a] method of detecting events on an interconnected electric power grid in real time over a wide area and automatically analyzing the events on the interconnected electric power grid.” *Id.* (quoting claim 12). The claimed method comprises multiple data reception steps, data manipulation steps, and concludes by “deriving a composite indicator of reliability that is an indicator of power grid vulnerability and is derived from a combination of one or more real-time measurements or computations of measurements from the data streams and the dynamic stability metrics covering the wide area as well as non-power grid data received from the non-grid data source.” *Id.* at 1351–52 (quoting claim 12). The Federal Circuit affirmed the district court’s determination that claim 12 is directed to patent ineligible subject matter, namely an abstract idea. *Id.*

Similarly, claim 1 of the ’188 Application comprises a data reception step, data manipulation steps, and mathematical calculation steps. *See* claim 1. The data manipulation and calculations derive information from the data received by the sensor system. Because the appealed claims are analogous to the claims the Federal Circuit found to be directed to patent ineligible subject matter in *Electric Power Group*, we can be assured that claim 1 is properly rejected as being directed to a concept—data manipulation and mathematical calculations—that the courts have identified as an abstract idea.

CONCLUSION

In view of the foregoing, we affirm the rejection of claim 1 as directed to patent-ineligible subject matter. We, therefore, also affirm the rejection of claims 2, 3, 5–18, and 20–22 on this basis.

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

AFFIRMED