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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARKKU SAKARI LEHTINEN¹

Appeal 2015-003474
Application 12/448,870
Technology Center 2600

Before ALLEN R. MACDONALD, JASON V. MORGAN, and
MICHAEL J. ENGLE, *Administrative Patent Judges*.

ENGLE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from a final rejection of claims 1–18.² We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART and enter a NEW GROUND OF REJECTION UNDER 37 C.F.R. § 41.50(b).

¹ Appellant states the real party in interest is Inverpolis Oy. App. Br. 1.

² With the Reply Brief, Appellant filed an amendment cancelling claims 5, 7, 9, 12, 14, and 16, and rewriting claims 2, 6, 8, 10, 11, 13, 15, and 17 in independent form. Amendment 12 (Oct. 1, 2014). However, the Examiner has not yet admitted that amendment. Thus, we address all pending claims.

Technology

The application relates to codes for signal transmission. Abstract. In particular, the invention uses finite sequences to approximate certain infinite sequences. Spec. 13–14. Claim 1 is representative and reproduced below:

1. An electronic device configured to output a finite sequence of elements, which finite sequence of elements constitutes a code that with a predefined numerical accuracy is equal to an infinite sequence of elements that has the characteristic that the modulus of the Fourier transform of said infinite sequence of elements is equal to 1.

Rejections

Claims 1–4 stand rejected under 35 U.S.C. § 112, first paragraph, for lack of enablement. Non-Final Act. 3 (Oct. 31, 2013).

Claims 1–18 stand rejected under 35 U.S.C. § 112, second paragraph, for being indefinite. *Id.* at 4.

Claims 1–4, 9–11, and 16–18 stand rejected under 35 U.S.C. § 101 for not being directed to patent eligible subject matter.³ *Id.* at 5–6.

ISSUES

1. Did the Examiner err in concluding claims 1–4, 9–11, and 16–18 were directed to an unpatentable abstract idea under 35 U.S.C. § 101?

³ The Examiner on multiple occasions mentions “Claims 1–18” as having § 101 issues. *E.g.*, Non-Final Act. p.5, ll.8–9 & 13. Yet the Examiner explicitly states “Claims 1–4, 9–11, and 16–18 are rejected under 35 U.S.C. 101” and “Claims 1-4, 9-11 and 16-18 preempt.” Non-Final Act. 5; Ans. 6. Accordingly, we treat only the narrower list as being rejected and on appeal.

2. Did the Examiner err in concluding claims 1–4 lacked enablement of their full claim scope?

3. Did the Examiner err in finding the phrase “which finite sequence of elements constitutes a code that with a predefined numerical accuracy is equal to an infinite sequence of elements that has the characteristic that the modulus of the Fourier transform of said infinite sequence of elements is equal to 1” renders claims 1–18 indefinite?

ANALYSIS

§ 101: Claims 1–4, 9–11, and 16–18

The Examiner concludes claims 1–4, 9–11, and 16–18 are “directed to an abstract idea” and “preempt the mathematical concept of a finite sequence of elements that meets the recited condition.” Non-Final Act. 5. Appellant responds that “[c]laim 1 recites an electronic device” so “the invention defined by claim 1 is tangibly applied to an electronic device so that it is no longer abstract.” Ans. 11.

We agree with the Examiner that “[t]he nominal recitation of an electronic device does not undo the preemption.” Ans. 6. As the Supreme Court has said, “simply implementing a mathematical principle on a physical machine, namely a computer, [i]s not a patentable application of that principle.” *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1301 (2012). That is particularly true when, as here, “the computer implementation [i]s purely conventional” because “the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a

patent-eligible invention.” *Alice Corp. Pty. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2358 (2014). Thus, we are not persuaded of error for claim 1.

Claims 9 and 18 are unpatentable for the same reason. These claims recite a “method for producing a code” and “computer program product for producing a code,” which like claim 1’s “electronic device” do no more than apply the algorithm to a generic computer. *See* App. Br. 13–15. But the Supreme Court has said that the “transformation into a patent-eligible application requires more than simply stating the abstract idea while adding the words ‘apply it.’” *Alice*, 134 S. Ct. at 2357 (quotation omitted).

Claims 3, 4, and 16 limit the electronic device to a “communication device” or a “remote sensing device,” yet the Supreme Court has instructed that “limiting the use of an abstract idea to a particular technological environment” cannot transform a patent-ineligible abstract idea into a patent-eligible invention. *Alice*, 134 S. Ct. at 2358 (quotation omitted).

Finally, Appellant contends claims 2, 10, 11, and 17 recite an “application of a mathematical formula” or “a particular practical application which is self-evident.” App. Br. 11, 13, 15. Again, we are not persuaded. The Supreme Court has “endorsed a bright-line prohibition against patenting laws of nature, mathematical formulas and the like” regardless of “whether or not the principles they embody are sufficiently narrow.” *Mayo*, 132 S. Ct. at 1303; *see also Gottschalk v. Benson*, 409 U.S. 63, 72 (1972) (“the patent would wholly pre-empt the mathematical formula and in practical effect would be a patent on the algorithm itself”). Thus, “if 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) (quoting *In re Richman*, 563 F.2d 1026, 1030 (CCPA 1977)). The issue in *Parker v. Flook* was that “putting the formula to the side, there was no ‘inventive concept’ in the claimed application of the formula.” *Mayo*, 132 S. Ct. at 1299. Appellant has not persuaded us that the same is not true here: “the formula itself [i]s an abstract idea, and the computer implementation [i]s purely conventional.” *Alice*, 134 S. Ct. at 2358 (citation omitted). Even if the algorithm had great value (Reply Br. 2; App. Br. 14), “[g]roundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry.” *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2117 (2013).

Accordingly, we sustain the Examiner’s rejection of claims 1–4, 9–11, and 16–18 under 35 U.S.C. § 101.

§ 101: New Ground on Claims 5–8 and 12–15

This appeal is from a rejection mailed prior to the Supreme Court’s decision in *Alice Corp. v. CLS Bank International*. In a new ground of rejection in light of *Alice* and using our authority under 37 C.F.R. § 41.50(b), we further reject claims 5–8 and 12–15 under 35 U.S.C. § 101.

Under *Alice*, the first step is to determine whether the claims are directed to a patent-ineligible concept such as an abstract idea. 134 S. Ct. at 2355. Like the Examiner did for the other claims, we conclude claims 5–8 and 12–15 are directed to an abstract idea, namely using a finite sequence to approximate certain infinite sequences. Thus, the first step of *Alice* is met.

Given an abstract idea, the second step asks what else is in the claims “to determine whether the additional elements transform the nature of the

claim into a patent-eligible application.” *Id.* at 2355 (quotation omitted). The Supreme Court characterizes this as “a search for an ‘inventive concept’ . . . to ensure that the patent in practice amounts to significantly more than a patent upon the ineligible concept itself.” *Id.* (quotation omitted).

Here, independent claim 5 recites a “communication device” with a “transmitter” and “receiver” that uses the finite sequence “to implement coded communications.” Yet a transmitter, receiver, and communication device are all “purely conventional” components and “the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” *Alice*, 134 S. Ct. at 2358. Similarly, limiting the claim to the specific purpose of coded communications also does not render the claim patentable because the Supreme Court has held that a method of calculating is nonstatutory “even if the solution is for a specific purpose.” *Parker v. Flook*, 437 U.S. at 595 (quoting *Richman*, 563 F.2d at 1030). Thus, we conclude claim 5 is unpatentable under *Alice*.

Independent claim 7 is directed to a “remote sensing device” with a “transmitter” that is “adapted to transmit a coded transmission signal.” As with claim 5, these are conventional components that do not transform the nature of the claim into a patent-eligible material. Independent claims 12 and 14, which recite “transmitting an encoded message” and “receiving and decoding an encoded message,” are unpatentable for the same reasons.

Dependent claims 6, 8, 13, and 15 recite substantially similar limitations involving specific mathematical formulae and depend from the four independent claims discussed above. As discussed above, the Supreme Court has “endorsed a bright-line prohibition against patenting laws of

nature, mathematical formulas and the like” regardless of “whether or not the principles they embody are sufficiently narrow.” *Mayo*, 132 S. Ct. at 1303. Thus, just as in *Parker v. Flook*, the problem with the dependent claims here is that “putting the formula to the side, there [i]s no ‘inventive concept’ in the claimed application of the formula.” *Id.* at 1299.

Accordingly, we reject claims 5–8 and 12–15 under 35 U.S.C. § 101.

Enablement: Claims 1–4

“To be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without ‘undue experimentation.’” *ALZA Corp. v. Andrx Pharm., LLC*, 603 F.3d 935, 940 (Fed. Cir. 2010) (quotation omitted). The Examiner rejects claims 1–4 for lack of enablement because “[i]n order for the spec to enable the full scope of the claim it would need to disclose enough so that one skilled in the art could derive every possible finite sequence of elements that meets the condition without undue experimentation.” Ans. 3. Appellant contends that “[m]aking and using the entire scope of the claimed invention is different from deriving every possible finite sequence of elements” and that claim 1 is enabled by “Figs. 4, 5 and 6” and “page 14, line 36 through page 17, line 36,” although “[t]he description of Fig. 4 alone is sufficient to enable one skilled in the art to make and use the invention.” App. Br. 5–6.

Appellant’s argument, however, does not sufficiently address the Examiner’s rejection. Figure 4 and the text describing it identifies at a very high level generic components in a computer system, such as “a processor,” “memory,” and “optionally a user interface.” Spec. p.14, l.36 – p.15, l.34.

Merely saying that memory stores “programs for calculating perfect codes from starting point codes” or “previously calculated” codes (*id.*) does nothing to explain how those programs work or the level of experimentation required for a person of ordinary skill in the art to have calculated other perfect codes or finite sequences to approximate them.

Figures 5 and 6 and the text describing them similarly do not add anything beyond generic components such as a “transceiver” and “antenna” for a communications device or radar system (*id.* at p.15, 1.36 – p.17, 1.36), none of which addresses the Examiner’s concern about the full scope of the finite sequence limitation. Thus, even assuming the Specification did enable a *specific* embodiment with the *specific* codes disclosed in the Specification, Appellant has not sufficiently shown error in the Examiner’s conclusion that the Specification did not enable the *full scope* of claim 1.

We also agree with the Examiner that dependent claims 2–4 “are not enabled because they depend from claim 1 which is not enabled” (Ans. 3) and that Appellant has not sufficiently shown the full claim scope is enabled for these dependent claims. *See* App. Br. 6–7. Claims 3 and 4 do not further limit the finite sequence, and Appellant again has not sufficiently addressed the level of experimentation needed for a person of ordinary skill in the art to use the full scope of the mathematical formula set forth in claim 2.

Accordingly, we sustain the Examiner’s rejection of claims 1–4 under 35 U.S.C. § 112, first paragraph for lack of enablement.⁴

⁴ Based upon the limited record before us and the factors set forth in *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988), it is likely that claims 5–18 also lack enablement for similar reasons. However, claims 5–18 have already

Indefiniteness: Claims 1–18

All of the independent claims (1, 5, 7, 12, 14, 16, and 18) recite “which finite sequence of elements constitutes a code that with a predefined numerical accuracy is equal to an infinite sequence of elements that has the characteristic that the modulus of the Fourier transform of said infinite sequence of elements is equal to 1.” Appellant describes setting the “predefined numerical accuracy” as a relatively low number (“for example, 0.001, or perhaps 0.000000001”) such that “there is no larger mistake than what the predefined numerical accuracy dictated.” App. Br. 8–9. Put another way, “[t]he finite sequence is equal to the corresponding infinite [sequence] up to the numerical accuracy that was predefined.” *Id.*

The Examiner concludes the claims are indefinite because “[w]hen the predefined numerical accuracy is chosen large enough, it covers practically any device that produces any kind of finite-length sequence.” Ans. 4.

However, the Examiner confuses breadth with indefiniteness. The Examiner is correct that by setting the predefined numerical accuracy to infinity, any finite sequence is within infinity of any infinite sequence. Such vast breadth may well be relevant to enablement or anticipation, but “breadth is not indefiniteness.” *SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331, 1341 (Fed. Cir. 2005) (quotation omitted). “Merely claiming broadly does not render a claim insolubly ambiguous, nor does it prevent the public from understanding the scope of the patent.” *Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 1352 (Fed. Cir. 2009).

been rejected under § 101, so we leave it to the Examiner to do a factor-by-factor analysis for enablement if Appellant resolves the § 101 issues.

Here, there is no ambiguity because a person of ordinary skill would understand, just as the Examiner did, that the claims as written are broad and do not place a numerical limit on the “predefined numerical accuracy.” The Specification further confirms this breadth: “The numerical accuracy that is considered does not need to be a power of ten or a power of two, but any convenient numerical accuracy can be used.” Spec. p.19, ll.25–26.

Thus, we reverse the rejection of claims 1–18 for indefiniteness.

DECISION

For the reasons above, we affirm the Examiner’s rejection of claims 1–4, 9–11, and 16–18 under 35 U.S.C. § 101 and the rejection of claims 1–4 under 35 U.S.C. § 112, first paragraph.

We reverse the Examiner’s rejection of claims 1–18 under 35 U.S.C. § 112, second paragraph.

In a new ground of rejection, we reject claims 5–8 and 12–15 under 35 U.S.C. § 101.⁵

TIME TO RESPOND

Regarding the affirmed rejections, 37 C.F.R. § 41.52(a)(1) provides “Appellant may file a single request for rehearing within two months of the date of the original decision of the Board.”

In addition to affirming the Examiner’s rejections of one or more claims, this decision contains new grounds of rejection pursuant to 37 C.F.R.

⁵ The Examiner also is encouraged to address the Amendment dated October 1, 2014, including Appellant’s cancellation of claims 5, 7, 9, 12, 14, and 16.

§ 41.50(b). 37 C.F.R. § 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 C.F.R. § 41.50(b) also provides that Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new grounds of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. . . .

Should Appellant elect to prosecute further before the Examiner pursuant to 37 C.F.R. § 41.50(b)(1), in order to preserve the right to seek review under 35 U.S.C. § 141 or 145 with respect to the affirmed rejection, the effective date of the affirmance is deferred until conclusion of the prosecution before the Examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If Appellant elects prosecution before the Examiner and this does not result in allowance of the application, abandonment, or a second appeal, this case should be returned to the Patent Trial and Appeal Board for final action on the affirmed rejection, including any timely request for rehearing thereof.

AFFIRMED-IN-PART
37 C.F.R. § 41.50(b)