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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BILLY BRUMLEY and ROBERTO AVANZI

Appeal 2018-006765
Application 14/616,110
Technology Center 2400

Before JENNIFER S. BISK, LARRY J. HUME, and
JULIET MITCHELL DIRBA, *Administrative Patent Judges*.

DIRBA, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Appellants² seek our review under 35 U.S.C. § 134(a) of the Examiner’s rejection of claims 1–30. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

¹ Our decision relies upon Appellants’ Appeal Brief (“App. Br.,” filed Nov. 13, 2017); Appellants’ Reply Brief (“Reply Br.,” filed Jun. 15, 2018); Examiner’s Answer (“Ans.,” mailed Apr. 16, 2018); Final Office Action (“Final Act.,” mailed Apr. 19, 2017); and the original Specification (“Spec.,” filed Feb. 6, 2015) (claiming benefit of a provisional patent application, Ser. No. 62/062,306, filed Oct. 10, 2014).

² Appellants identify QUALCOMM Incorporated as the real party in interest. App. Br. 2.

BACKGROUND

Appellants' disclosed embodiments and claimed invention relate to generating a signal from another signal for use in cryptography. Spec. ¶¶ 2, 3. Claim 1, reproduced below, is representative of the subject matter on appeal:

1. A method for generating a ciphered signal via a processing circuit, comprising:
receiving a first signal in the processing circuit;
determining a state value via the processing circuit based on the first signal;
determining a rotation distance via the processing circuit based on the state value;
rotating a first value via the processing circuit based on the rotation distance;
combining the rotated first value and the state value via the processing circuit;
generating a second signal via the processing circuit based on the combination of the rotated first value and the state value.

App. Br. 14 (Claims App'x).

THE REJECTION

Claims 1–30 stand rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 2–7.

ANALYSIS

We review the appealed rejections for error based upon the issues identified by Appellants, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential).

Appellants argue independent claims 1, 21, 27, and 29 together as a group. *See* App. Br. 7–12. Therefore, consistent with the provisions of 37 C.F.R. § 41.37(c)(1)(iv), we limit our discussion to independent claim 1. Appellants present no arguments specific to the eligibility of any of dependent claims 2-20, 22-26, 28, and 30, and therefore these dependent claims stand or fall with their respective independent claim.³

35 U.S.C. § 101 Rejection of Claim 1

Section 101 provides that anyone who “invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof” may obtain a patent. 35 U.S.C. § 101. However, the Supreme Court has interpreted § 101 to include implicit exceptions: laws of nature, natural phenomena, and abstract ideas are not patentable. *E.g., Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

Determining whether an invention claims ineligible subject matter requires the application of a two-step test first introduced in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66, 77 (2012) and further explained in *Alice*, 573 U.S. at 217–18. The first step requires a determination of whether the claims at issue are “directed to” a patent-ineligible concept, such as an abstract idea. *See Alice*, 573 U.S. at 217–18. If the claim is directed to an abstract idea, we turn to the second step of the *Alice/Mayo* framework, which examines the elements of the claim individually, and as an ordered combination, to determine whether the

³ When an appellant does not advance separate, substantive arguments for particular claims, or other issues, such arguments are waived. 37 C.F.R. § 41.37(c)(1)(iv).

claim “contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Id.* at 217, 221. Claims that “merely require [a] generic computer implementation[] fail to transform [an] abstract idea into a patent-eligible invention.” *Id.* at 221.

Recently, the PTO published revised guidance on the application of § 101. USPTO’s January 7, 2019 Memorandum, *2019 Revised Patent Subject Matter Eligibility Guidance* (“Memorandum”). Under that guidance, we first look to whether the claim recites:

- (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human interactions such as a fundamental economic practice, or mental processes); and
- (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h)).

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look to whether the claim:

- (3) adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); or
- (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

See Memorandum.

In rejecting the claims under §101, the Examiner determined that the claims are directed to an abstract idea, namely a mathematical algorithm. Final Act. 2–3, 6. The Examiner explained that the claimed mathematical algorithm “rotate[s] and combine[s] a first and state value,” analogizing this case to *Gottschalk v. Benson*, 409 U.S. 63 (1972) and *Parker v. Flook*, 437 U.S. 584 (1978). Final Act. 3. Appellants argue that claim 1 is not directed

to an abstract idea, but rather is “directed to techniques for generating a ciphered signal via a processing circuit,” by determining, rotating, and combining values, as specified by the claim.⁴ App. Br. 11.

We agree with the Examiner that claim 1 recites an abstract idea. Similar to the Supreme Court cases cited by the Examiner, Appellants’ claim recites a method of determining, rotating, combining and generating values, which is an ineligible mathematical algorithm. *See Benson*, 409 U.S. at 73–74 (holding that claim directed to shifting, masking, and adding values was ineligible); *Flook*, 437 U.S. at 596–97 (holding that claim directed to determining and adjusting values was ineligible); *Digitech Image Tech., LLC v. Electronics 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.”).⁵

⁴ Appellants also appear to contend that the claims are patent eligible simply because they relate to cryptography. *See* App. Br. 9 (contending that the claims are patent eligible because the invention is directed to cryptography); Reply Br. 2 (same). However, the eligibility analysis must focus on the limitations of the claims at issue. *See Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (“The § 101 inquiry must focus on the language of the Asserted Claims themselves.”).

⁵ Appellants attempt to distinguish *Digitech*; however, Appellants address the device profile claims, not the more-relevant method claims. Reply Br. 3–4; *compare Digitech*, 758 F.3d at 1349–50 (analyzing device profile claims) *with id.* at 1350–51 (analyzing method claims). Moreover, we see nothing in claim 1, a method claim, to distinguish it from the method claims at issue in *Digitech*. Similar to *Digitech*’s method claims, claim 1 “describes a process of organizing information through mathematical correlations.” *Digitech*, 738 F.3d at 1350.

Appellants contend the generation of a “ciphered signal” demands a different result than the cases compared above. *See* App. Br. 8, 10. But we do not agree that claim 1 requires a “ciphered signal” under the broadest reasonable interpretation of this claim.⁶ *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993) (“In the patentability context, claims are to be given their broadest reasonable interpretations,” and “limitations are not to be read into the claims from the specification.”). Although the preamble recites a “ciphered signal,” this term does not appear in the body of the claim and does not limit the scope of the claim. *See Digitech Image Tech.*, 758 F.3d at 1351 (“[A] preamble does not limit claim scope if it ‘merely states the purpose or intended use of an invention.’”) (citations omitted). In addition, Appellants argue the Specification defines the claimed “second signal” to be a “ciphered signal.” App. Br. 8 (citing Spec ¶ 15). However, any special meaning assigned to a term by the specification must be clear to a person of ordinary skill in the art reading the specification. *See Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1381 (Fed. Cir. 2008) (“A patentee may act as its own lexicographer and assign to a term a unique definition that is different from its ordinary and customary meaning; however, a patentee must clearly express that intent in the written description.”). The cited portion of the Specification⁷ does not define this claim term, and Appellants do not identify (nor could we find) any language in claim 1 or the Specification that would limit the “second signal” in the

⁶ Because the claim does not require a “ciphered signal,” we do not decide whether the presence of this limitation would change the eligibility analysis.

⁷ Appellants cite paragraph 15 of the Specification, but quote from paragraph 13 of the specification. App. Br. 8; Spec. ¶¶ 13, 15. We have considered both paragraphs.

manner proposed by Appellants. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (*en banc*) (“[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”). Thus, we are not persuaded that the broadest reasonable construction of “second signal” is limited to a “ciphered signal.”

Accordingly, we agree with the Examiner that the claims recite a judicial exception—a mathematical concept—and we next evaluate whether the claim integrates the abstract idea into a practical application. *See Memorandum*. For the reasons below, we find that claim 1 does not integrate the mathematical concept into a practical application.⁸ *See id.* (“A claim that integrates a judicial exception into a practical application will apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception.”)

The Examiner found that claim 1 does not recite an improvement to a technical field or to the functioning of a computer itself. Final Act. 3. The Examiner noted that the claim requires a “processing circuit,” but found this element to be “a generic computer component performing conventional computer operations.” *Id.* The Examiner found that the claim inputs a first “signal” and generates a generic “second signal.” *Id.* Finally, the Examiner noted the claim is not limited to a particular field of use or context. *Id.*

⁸ Although the Specification describes specific embodiments of the invention, our analysis focuses on the invention described in claim 1, which is not so limited.

Appellants argue that the claim is patent eligible because it is directed to a “special-purpose electronic device” that transforms a first signal into a second signal. App. Br. 10 (citing *Benson*, 409 U.S. at 70). Specifically, Appellants contend the second signal has “an inherent, real-world, tangible, and functional feature, namely, that others cannot read and/or access the signal without proper authorization.” App. Br. 10; *see* Reply Br. 4–7 (distinguishing cases cited in the Examiner’s Answer based on the effects or results of the cited claims). The Examiner responds that the claim does not include a “special-purpose” device, but rather includes a generic circuit performing generic and well-known computing functions. Ans. 4–5.

We are not persuaded by Appellants’ arguments that the claim integrates the abstract idea into a practical application. Although Appellants assert that the claim is directed to a “special-purpose electronic device,” they fail to further explain that assertion and, in particular, do not dispute the Examiner’s finding that a “processing circuit” that determines, rotates, combines and generates values is generic and conventional. App. Br. 8–10; *see* Reply Br. 2–8 (failing to address finding).⁹ We see no error in the Examiner’s conclusion that the processing circuit and its functions, taken individually, are conventional. *See Alice*, 573 U.S. at 225 (“Taking the claim elements separately, the function performed by the computer at each step of the process is purely conventional.”) (citation omitted). The Specification supports this conclusion. *See, e.g.*, Spec. ¶¶ 66–67 (conceding the code “can be implemented in software using standard instructions such

⁹ We note Appellants present no persuasive argument or *evidence* that claim 1, as presently recited, integrates the judicial exception into a practical application by, for example, solving a particular problem with conventional approaches or improving efficiency of conventional cipher techniques.

as rotation, XOR, and bit shifts” on “a 64-bit Intel[®] central processing unit (CPU)”, ¶¶ 72, 84–85, 91.

Further, unlike *Enfish* and similar cases, claim 1 does not improve the functioning of the computer itself. See *Enfish, LLC v. Microsoft Corp.*, 882 F.3d 1327, 1336 (Fed. Cir. 2016) (finding eligible claims that were “directed to a specific improvement to the way computers operate”). Appellants argue that claim 1 is patent eligible because it transforms data, relying on *Gottschalk v. Benson* (App. Br. 10), but Appellants’ reliance on that case is misplaced. In *Benson*, the Supreme Court found that the transformation of a *physical article* is a clue to patentability. *Benson*, 409 U.S. at 70. But the Court found a “method of converting signals,” a *transformation of data*, to be ineligible. *Id.* at 71–73. Claim 1 generates a second signal from a first signal using a mathematical algorithm, but does not make any practical use of the second signal. See *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057, 1067–68 (Fed. Cir. 2011) (finding one claim to be ineligible where it merely compared data, but similar claims to be eligible because they applied that data). The claim also does not have the specificity required to transform the claim into a patent eligible application. See *SAP America, Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018) (The claims in *McRO* “also avoided being ‘abstract’ in another sense reflected repeatedly in [Federal Circuit] cases (based on a contrast not with ‘physical’ but with ‘concrete’): they had the specificity required to transform a claim from one claiming only a result to one claiming a way of achieving it.”) (citing *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016)).

Appellants also rely on the alleged novelty of the invention as a whole. App. Br. 10, 11; Reply Br. 4–7 (distinguishing cases cited in the

Examiner’s Answer). However, the alleged novelty of Appellants’ method as a whole “is of no relevance in determining” patent eligibility. *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1315 (Fed. Cir. 2016) (emphasis omitted) (quoting *Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981)). Finally, Appellants assert claim 1 is patent eligible because it includes: “(1) improvements to technology or technical field; (2) meaningful limitations beyond generally linking the user of an abstract idea to a particular technological environment; and (3) a ‘new and useful application’ in the physical realm.” App. Br. 12. However, in support of these positions, Appellants merely restate the language of claim 1. *Id.* These conclusory assertions do not persuade us of error. *See In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997). Accordingly, we determine that the claim does not integrate the abstract idea into a practical application.

Finally, we evaluate whether the claim adds a specific limitation that is not “well-understood, routine, conventional” or simply appends conventional activities that are specified at a high level of generality. *See Memorandum*. We note the patent eligibility inquiry may contain underlying issues of fact. *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1325 (Fed. Cir. 2016). In particular, “[t]he question of whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact.” *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018).

The Examiner found that using the claimed “processing circuit” to perform the claimed functions was well-understood, routine, and conventional. Final Act. 3. And, as noted above, we see no error in this finding. *See Alice*, 573 U.S. at 221–24 (using a generic computer fails to

transform an abstract idea into a patent-eligible invention). Appellants do not identify (and we are not aware of) any other specific claim limitation that is allegedly not well-understood, routine and conventional.

Accordingly, based upon the findings above, on this record, we are not persuaded of error in the Examiner's conclusion that claim 1 is directed to patent-ineligible subject matter.¹⁰ As noted above, Appellants argue independent claims 1, 21, 27, and 29 together as a group and present no arguments specific to the eligibility of any of dependent claims 2–20, 22–26, 28, and 30. App. Br. 7–12. Therefore, we sustain the Examiner's rejection of claim 1–30 under 35 U.S.C. § 101.

DECISION

We affirm the Examiner's decision rejecting claims 1–30.

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). *See* 37 C.F.R. § 41.50(f).

AFFIRMED

¹⁰ Appellants' remaining arguments do not persuade us of Examiner error. In particular, Appellants contend the Examiner failed to present a *prima facie* case, but misquote the Final Action and thereby fail to adequately explain their argument. *Compare* App. Br. 7–8 (citing Final Act. 4–5) with Final Act. 4–5. Appellants also argue the Examiner failed to consider the claim as a whole. App. Br. 8–10. We are not persuaded of any procedural error by the Examiner, and we have considered Appellants' substantive arguments above.