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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHRISTOPHER MICHAEL RACZYNSKI,
LARRY WILLIAM SWANSON, LISA ANNE WICHMANN,
MATTHEW COLIN MICHAEL, and UTTAM NARASIMHAN

Appeal 2019-002667
Application 14/734,691
Technology Center 2100

Before ELENi MANTIS-MERCADER, ERIC S. FRAHM, and
MATTHEW J. McNEILL, *Administrative Patent Judges*.

FRAHM, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Introduction

Appellant¹ appeals under 35 U.S.C. § 134(a) from a Non-Final rejection of claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. “The word ‘applicant’ when used in this title refers to the inventor or all of the joint inventors, or to the person applying for a patent as provided in §§ 1.43, 1.45, or 1.46.” 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as the inventor, General Electric Company (Appeal Br. 1).

Appellant's Disclosed and Claimed Invention

Appellant's disclosed invention "relates generally to combined cycle power plants, and more particularly, to systems and methods for power plant data reconciliation" (Spec. ¶ 1). As disclosed by Appellant, "[a] combined cycle power plant may include a combustion turbine, a steam generator, and a steam turbine. The steam turbine of a combined cycle power plant is powered by the steam generated by the hot exhaust of the combustion turbine in the steam generator" (Spec. ¶ 2). Appellant recognized that:

Degradation of power plant components can be analyzed by personnel utilizing a tuned model of the power plant. However, power plant data used for input to conventional tuned models may be incomplete, inaccurate, and relatively difficult to interpret. In certain instances, conventional tuned models are not maintained, and as the physical plant degrades over time, tuning values used as inputs for the models will be inaccurate. Without relatively accurate model inputs and proper model maintenance, tuned models will be unreliable, and power plant and component performance and degradation will not be accurately predicted.

Spec. ¶ 3 (emphasis added). As a result, Appellant's disclosed and claimed invention solves these problems by providing an "automated data reconciliation of the power plant . . . to replace conventional manual data collection and operating procedures" (Spec. ¶ 14; *see generally* claims 1, 8, 15). Doing so provides improvements in "predicting, identifying, and reducing isolated and/or recurring instances of component degradation, failures, and/or malfunctions in a power plant" (Spec. ¶ 15), as well as "early detection of malfunctions, abnormal conditions, and power plant process deviations, which can minimize instances of failures, tripping, and shutdown of the power plant and/or associated components" (Spec. ¶ 15).

Exemplary Claim

Claims 1, 8, and 15 are independent. Claims 1–7 recite a method, and claims 8–20 recite a system, “for implementing data reconciliation using a power plant model” (*see e.g.*, claim 1, preamble), with the end result being the determination and transmission of “at least one control action for a power plant component using the power plant model” (*see e.g.*, claim 1, limitation E). Exemplary claim 1 under appeal, with bracketed lettering and formatting added, and emphases added to key portions of the claim at issue, reads as follows:

1. A method for implementing data reconciliation using a power plant model, comprising:

[A] receiving, by *at least one processor*, power plant operational data, wherein the operational data comprises one or more parameters affecting power plant operations, information that represents dependencies between one or more power plant operating conditions and a physical behavior of the power plant response, and information associated with component degradation in the power plant;

[B] determining, by at least one processor, measurements for calibrating and tuning based at least in part on the operational data, wherein the operational data comprises a predefined number of stable data points;

[C] selecting, by at least one processor, thermally stable data and baseload data from the operational data to coincide with output data associated with one or more power plant operating conditions, wherein the operating conditions align output data from a power plant model with physical behavior of the power plant;

[D] modifying, by at least one processor, one or more parameters of the power plant model, wherein at least one difference is minimized between the output data associated with the power plant model and a measured value in the power plant operational data; and

[E] determining, by at least one processor, at least one control action for *a power plant component* using the power plant model, [F] wherein the at least one control action comprises a communication generated by the controller and transmitted by the controller² to *a user device*.

Claims Appendix, p. 2 (emphases, formatting, and bracketed lettering added).

The Examiner's Rejections

(1) The Examiner rejected claims 1, 8, and 15 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter (an abstract idea), without significantly more. Final Act. 2–4; Ans. 3–11.

(2) Claims 1, 2, 8, 9, and 15 are rejected under 35 U.S.C. § 102(a)(1) as being anticipated by Greenlee (US 2012/0095574 A1; published April 19, 2012). Final Act. 5–8.

(3) Claims 3, 10, and 16 are rejected under 35 U.S.C. § 103 as being unpatentable over Greenlee in view of Mathan et al. (US 2007/0239814 A1; published Oct. 11, 2007) (hereinafter, “Mathan”). Final Act. 8–9.

(4) Claims 4, 11, and 17 are rejected under 35 U.S.C. § 103 as being unpatentable over Greenlee in view of Danai et al. (US 2011/0167025 A1; published July 7, 2011) (hereinafter, “Danai”). Final Act. 9–11.

² We note that because there is no controller previously recited in the preamble of claim 1, nor in any of limitations A–E, the term “the controller” here in limitation F of claim 1 lacks antecedent basis. Claim 8 suffers a similar problem. Because there is no indefiniteness rejection under 35 U.S.C. § 112(b) for lack of antecedent basis before us on appeal, we will not address this any further. However, in the event of further prosecution of this application, Appellant and the Examiner may wish to resolve this issue.

(5) Claims 5–7, 12–14, and 18–20 are rejected under 35 U.S.C. § 103 as being unpatentable over Greenlee in view of Wilkes et al. (US 2013/0054031 A1; published Feb. 28, 2013) (hereinafter, “Wilkes”). Final Act. 11–13.

Because Appellant does not present any separate arguments as to the (i) anticipation rejection of claims 1, 2, 8, 9, and 15; and (ii) obviousness rejections of claims 3–7, 10–14, and 16–20,³ Appellant has not shown that the Examiner erred in rejecting claims 1–20, and we sustain the anticipation and obviousness rejections *pro forma*. *Ex parte Frye*, 94 USPQ2d 1072, 1076 (BPAI 2010) (“Precedential”) (“[T]he Board will generally not reach the merits of any issues not contested by an appellant.”); 37 C.F.R. § 41.37 (c)(1)(iv)(2017) (“Each ground of rejection must be treated under a separate heading.”). Other than including these prior art rejections of claims 1–20 (*see supra* Rejections 2–5) in our conclusion, we will not discuss them further.

Appellant’s Contentions

With regard to the patent eligibility rejection of claims 1, 8, and 15, Appellant primarily makes arguments regarding claim 1 (*see* Appeal Br. 5–14; Reply Br. 2–5), and relies on those arguments for the patent eligibility of the remaining claims (*see* Appeal Br. 6, 15; Reply Br. 2). Although Appellant frames the issue for the patent eligibility rejection as concerning the rejection of claims 1–20 (*see* Appeal Br. 5; Reply Br. 2), we note that the Examiner only rejected claims 1, 8, and 15 on this ground (*see* Final Act. 2;

³ *See e.g.*, Appeal Br. 5 and Reply Br. 2 (stating that the only ground of rejection to be reviewed on appeal is the patent eligibility rejection under 35 U.S.C. § 101).

see also Ans. 3–11 (only discussing the merits of claims 1, 8, and 15)).

Therefore, only the rejection of claims 1, 8, and 15 is before use on appeal.

With regard to claim 1, Appellant generally contends claim 1 is not directed to an abstract idea (*see* Appeal Br. 6–12), but to a technical solution to a technical problem that produces specific improvements to computer technology (*see* Appeal Br. 12–14). More specifically, Appellant contends the claims “solve a problem specific to reconciling data between a power plant model and an operating power plant for which there is no manual analog, and result in improved predictions of power plant component degradation and failures,” thereby “the present claims allow for increased efficiency and accuracy” (*see* Appeal Br. 12). Appellant further asserts that:

the present claims provide an unconventional technological solution (using a neural-net surrogate model that indicates physical degradation of plant components by reconciling the operational data, determining data match multipliers (DMMs), and determining performance factors) to a technological problem (reconciling data between a power plant model and an operating power plant).

Appeal Br. 13. Finally, Appellant argues that even if the claims are directed to a mental process, and thus an abstract idea, the abstract idea is integrated into a practical application because it is limited to power plant modeling (*see* Reply Br. 2–5).

Therefore, based on Appellant’s patent eligibility arguments, and because claims 1, 8, and 15 contain commensurate limitations, we select claim 1 as representative of claims 1, 8, and 15 rejected under 35 U.S.C. § 101 for patent-ineligibility.

Principal Issue on Appeal

Based on Appellant’s arguments in the Appeal Brief (Appeal Br. 5–16) and the Reply Brief (Reply Br. 2–5), the following issue is presented on appeal:

Did the Examiner err in rejecting representative claim 1, as well as claims 8 and 15 grouped therewith, under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter (i.e., a judicial exception such as an abstract idea), without significantly more)?

ANALYSIS

First Issue: Patent Eligibility Under 35 U.S.C. § 101

Section 101 of the Patent Act provides “[w]hoever 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 therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *E.g.*, *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is “directed to.” *See Alice*, 573 U.S. at 219 (“On their face, the claims before us are drawn to the concept of intermediated settlement, *i.e.*, the use of a third party to mitigate settlement

risk.”); *see also* *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“Claims 1 and 4 in petitioners’ application explain the basic concept of hedging, or protecting against risk.”).

Concepts determined to be abstract ideas, and, thus, patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); “tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. (15 How.) 252, 267–68 (1854))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that “[a] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 176; *see also id.* at 191 (“We view respondents’ claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula.”). Having said that, the Supreme Court also indicated that a claim “seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, . . . and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment.” *Id.* (citing *Benson* and *Flook*); *see, e.g., id.* at 187 (“It is now commonplace that an *application* of a law of nature or mathematical formula

to a known structure or process may well be deserving of patent protection.”).

If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* and *Mayo* framework, where “we must examine 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*, 573 U.S. at 221 (internal quotation marks omitted). “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Id.* (alterations in original) (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

The PTO published revised guidance on the application of § 101. USPTO, *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Guidance”).⁴ Under the 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 activity such as a fundamental economic practice, or mental processes) (“Step 2A, Prong 1”); and
- (2) additional elements that integrate the judicial exception into a practical application (*see* MANUAL OF PATENT EXAMINING

⁴ In response to received public comments, the Office issued further guidance on October 17, 2019, updating and clarifying the Guidance. USPTO, *October 2019 Update: Subject Matter Eligibility* (the “October 2019 Update”) (available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf).

PROCEDURE (“MPEP”) §§ 2106.05(a)–(c), (e)–(h)) (9th Ed., Rev. 08.2017, 2018) (“Step 2A, Prong 2”).⁵

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 (“Step 2B”).

See Guidance, 84 Fed. Reg. at 54–56.

Even if the claim recites an abstract idea, the Federal Circuit explains the “directed to” inquiry is not simply asking whether the claims involve a patent-ineligible concept:

The “directed to” inquiry . . . cannot simply ask whether the claims *involve* a patent-ineligible concept, because essentially every routinely patent-eligible claim involving physical products and actions *involves* a law of nature and/or natural phenomenon—after all, they take place in the physical world. *See Mayo*, 132 S.Ct. at 1293 (“For all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.”) Rather, the “directed to” inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether “their character as a whole is directed to excluded subject matter.”

⁵ This evaluation is performed by (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception, and (b) evaluating those additional elements individually and in combination to determine whether the claim as a whole integrates the exception into a practical application. *See* Guidance - Section III(A)(2), 84 Fed. Reg. 54–55.

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1335 (Fed. Cir. 2016); *see also Diehr*, 450 U.S. at 188 (“In determining the eligibility of respondents’ claimed process for patent protection under § 101, their claims must be considered as a whole.”); *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016) (the question is whether the claims as a whole “focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery”).

We have reviewed the Examiner’s subject matter eligibility rejection (Final Act. 2–4) in light of Appellant’s contentions that the Examiner has erred (Appeal Br. 5–16; Reply Br. 2–5), and the Examiner’s response to Appellant’s arguments in the Appeal Brief (Ans. 3–11). We are not persuaded by Appellant’s contention of Examiner error in rejecting representative claim 1, or claims 8 and 15 grouped therewith, under 35 U.S.C. § 101.

Step 1

Under Step 1 of the patent-eligibility inquiry under § 101, we determine whether a claim is directed to one of the four statutory categories of invention, i.e., a process, machine, manufacture, or composition of matter.

In the instant case on appeal, representative claim 1 recites “[a] method for implementing data reconciliation using a power plant model” performed by “at least one processor” which includes, *inter alia*, the steps which results in the determination and transmission of “at least one control action for a power plant component” to a user (claim 1, limitation E). Therefore, claim 1, as a method claim, recites at least one of the enumerated categories (e.g., a process including a series of steps) of eligible subject

matter in 35 U.S.C. § 101. Accordingly, we agree with the Examiner (*see* Ans. 5) that claim 1 passes Step 1.

Accordingly, as to claim 1, as well as claims 8 and 15 grouped therewith, we continue our analysis under Step 2A, Prong 1 of the Guidance to determine whether claim 1 recites a judicial exception (a law of nature, natural phenomenon, or subject matter within the enumerated groupings of abstract ideas above).

Step 2A, Prong 1

The Guidance states that the abstract idea exception includes mental processes, which include “concepts performed in the human mind (including an observation, evaluation, judgment, opinion).” Guidance, 84 Fed. Reg. at 52. Such concepts must be capable of being practically performed in the human mind, although the use of a physical aid, such as a pen and paper, or a computer does not negate the mental nature of such a concept. October 2019 Update: Subject Matter Eligibility Guidance (hereinafter, 2019 Update) 8–9 (October 2019), *available at* https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf.

We agree with the Examiner’s determination (*see* Final Act. 2–4; Ans. 3–5) that claim 1 recites limitations falling within the mental process category of abstract ideas, including the steps of “receiving data, selecting data, modifying parameters of a power plant model, and determining at least one control action using the model” (Final 2; Ans. 5). These steps recite the types of observation, evaluation, and judgment that are characteristic of mental processes that may be practically performed in the human mind, or with the aid of pen and paper. *See Synopsys*, 839 F.3d at 1146 (“While the

Supreme Court has altered the § 101 analysis since *CyberSource* in cases like *Mayo* and *Alice*, we continue to “treat[] analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category.”) (quoting *Elec. Power Group, LLC v. Alstrom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016)); *see also CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375 (Fed. Cir. 2011) (“That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*.”); *Benson*, 409 U.S. at 67.

Thus, consistent with the Guidance and case law, we conclude representative claim 1 recites mental processes (i.e., a concept performed in the human mind, such as, an observation, evaluation, judgment, and opinion), which are abstract ideas. *See* Guidance, 84 Fed. Reg. at 52; Guidance Update, 7–9; *Digitech Image Techs., LLC v. Elecs. For Imaging, Inc.*, 758 F.3d 1344, 1351 (2014) (concluding claims reciting receiving two data sets, and combining those data sets into a single data set is “an ineligible abstract process of gathering and combining data”); *CyberSource* 654 F.3d at 1372–73 (concluding claims reciting obtaining a data transaction set affiliated with a particular Internet address, generating a map based on those transaction, and using the map to determine whether a transaction is valid were abstract because they were directed to steps a person could perform mentally); *Elec. Power Group*, 830 F.3d at 1353–54 (concluding claims directed to “collecting information, analyzing it, and displaying certain results of the collection and analysis” were abstract); *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018) (concluding claims

were directed to the abstract idea of “selecting certain information, analyzing it using mathematical techniques, and reporting or displaying the results of the analysis”); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1361–62 (Fed. Cir. 2015) (determining claims reciting obtaining statistics, analyzing those statistics to determine another piece of information—i.e., a price at which to sell a product—was directed to the abstract idea of offer-based price optimization).

Although claim 1 recites a “processor” (see claim 1, limitation A), a “controller,” and “a user device” (see claim 1, limitation F), the focus of claim 1 is on performing the steps of a mental processes (see *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972), i.e., using a power plant model to reconcile data (claim 1, preamble). As such, the claimed invention recites a mental process, which is an abstract idea. See, e.g., *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146 (Fed. Cir. 2016) (“analyzing information by steps people [can] go through in their minds, or by mathematical algorithms, without more [are] mental processes within the abstract-idea category.”); *Clarilogic v. Formfree Holdings*, 681 F. App’x. 950, 954–55 (Fed. Cir. 2017) (gathering, analyzing, and outputting financial data/assessment is an abstract idea that is patent ineligible).

Our reviewing court has also concluded that abstract ideas include the concepts of collecting data, recognizing certain data within the collected data set, and storing the data in memory. *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014); see also *Smart Sys. Innovations, LLC v. Chicago Transit Auth.*, 873 F.3d 1364, 1372 (Fed. Cir. 2017) (concluding “claims directed to the collection, storage, and recognition of data are directed to an abstract idea”).

Moreover, our reviewing court has concluded that acts of parsing, comparing, storing, and editing data are abstract ideas. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1366 (Fed. Cir. 2018). In addition, the collection of information and analysis of information (e.g., recognizing certain data within the dataset) are also abstract ideas. *Elec. Power Grp.*, 830 F.3d at 1353. Similarly, “collecting, displaying, and manipulating data” is an abstract idea. *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017); *see also SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018) (“merely presenting the results of abstract processes of collecting and analyzing information . . . is abstract as an ancillary part of such collection and analysis”) (quotations omitted). In this light, reconciling data with the use of processor, is similar to the concepts of collecting, parsing, comparing, storing, and analyzing data recognized by our reviewing court to be abstract ideas.

Because we conclude claim 1 *recites* an abstract idea, we proceed to Step 2A, Prong 2 of the Guidance to determine whether claim 1 is “directed to” the judicial exception, by determining whether additional elements of the claim integrate the abstract idea into a practical application. Such additional elements *may* reflect an improvement to a technology or technical field. *See* Guidance, 84 Fed. Reg. at 55.

Step 2A, Prong 2 – Practical Application

Having determined that claim 1 recites an abstract idea, we next determine, under Step 2A, Prong 2 of the Guidance, whether claim 1 is *directed to* that abstract idea, or whether the claims have additional elements that integrate the abstract idea into a practical application of that abstract idea. Guidance, 84 Fed. Reg. at 54.

Here, claim 1 recites the additional elements of “at least one processor” (claim 1, limitation A), and a “controller” and “a user device” (claim 1, limitation F). Appellant contends that claim 1 is not directed to an abstract idea, but to a technical solution to a technical problem such as improving power plant modeling (*see* Reply Br. 4). We do not agree.

As noted in our discussion of Step 2A, Prong 1 above, the method for implementing data reconciliation using a power plant model set forth in claim 1 is only used as a *tool* for performing certain activities of the recited process (to collect and analyze necessary information). Appellant’s claim 1 recites determining a “control action for a power plant component using the power plant model” (claim 1, limitation E), and using the controller to transmit the results (claim 1, limitation F), but fails to require any physical result, such as actually changing a control parameter for a component.⁶ The method for reconciling power plant modeling data recited in claim 1 only serves to gather data needed for analysis (*see* claim 1, limitation A), analyze and process the data (*see* claim 1, limitations B–E), and output the results (*see* claim 1, limitation F).

The mere recitation of receiving, determining, selecting, and modifying data in claim 1 (*see* claim 1, limitations A–E) does not embody an improvement in computer capabilities as in *Enfish*. *See* 822 F.3d at 1336 (“[T]he plain focus of the claims is on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity.”).

⁶ Should there be further prosecution of this application on appeal, Appellant and the Examiner may wish to consider amending the independent claims to reflect a physical result occurs and is an outcome resulting from the data reconciliation.

In the instant case, the additional limitations recited beyond the judicial exception itself fail to integrate the exception into a practical application. More particularly, representative claim 1 does not recite: (i) an improvement to the functionality of a computer or other technology or technical field (*see* MPEP § 2106.05(a)); (ii) a “particular machine” to apply or use the judicial exception (*see* MPEP § 2106.05(b)); (iii) a particular transformation of an article to a different thing or state (*see* MPEP § 2106.05(c)); or (iv) any other meaningful limitation (*see* MPEP § 2106.05(e)). *See also* Guidance, 84 Fed. Reg. at 55.

Rather, the additional element of a processor in limitation A of claim 1 simply recites insignificant extra-solution activity, i.e., receiving power plant operational data, which is merely conventional data gathering (*see* MPEP § 2106.05(g); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015); *Elec. Power*, 830 F.3d at 1354); and/or insignificant extra-solution activity that does not meaningfully limit the claim (*see* MPEP § 2106.05(g)).

Specifically, limitation A adds only insignificant extra-solution activity because it merely receives an initial set of power plant operational data to enable executing the mental steps making up the abstract idea. Guidance, 84 Fed. Reg. at 55; *see Bilski v. Kappos*, 561 U.S. 593, 612 (2010) (holding the use of well-known techniques to establish inputs to the abstract idea as extra-solution activity that fails to make the underlying concept patent eligible); *CyberSource*, 654 F.3d at 1372 (finding that, even to the extent certain “physical steps are required to obtain information from the database . . . such data-gathering steps cannot alone confer patentability”); *Elec. Power*, 830 F.3d at 1355 (explaining that “selecting

information, by content or source, for collection, analysis, and display does nothing significant to differentiate a process from ordinary mental processes”). In other words, this data-gathering step merely obtains information needed to perform the recited abstract idea. Further, the output of the results, transmitting the determined control action from a controller to a user device as set forth in limitation F, is also insignificant extra-solution activity that does not meaningfully limit the claim (*see* MPEP § 2106.05(g)).

Therefore, we consider the steps set forth in limitations A and F to be steps in addition to the abstract idea that, considered in light of the claim as a whole, fail to integrate the abstract idea into a practical application.

To the extent that the claimed method may perform data reconciliation faster than other computerized scheduling methods, that would not provide an improvement to the computer itself. *See, e.g., Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015) (explaining that in order for a machine to add significantly more, it must “play a significant part in permitting the claimed method to be performed, rather than function solely as an obvious mechanism for permitting a solution to be achieved more **quickly**”) (emphasis added); *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1095 (2016) (“While the claimed system and method certainly purport to accelerate the process of analyzing audit log data, the speed increase comes from the capabilities of a general-purpose computer, rather than the patented method itself”); *Bancorp Servs., L.L.C. v. Sun Life Assurance Co. of Can. (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012) (“[T]he fact that the required calculations could be performed more efficiently via a computer does not materially alter the patent eligibility of the claimed subject matter”).

Merely adding a programmed computer to perform generic computer functions does not automatically overcome an eligibility rejection. *Alice*, 573 U.S. at 223–24. Furthermore, the use of a general purpose computer to apply an otherwise ineligible algorithm does not qualify as a particular machine. *See Ultramercial*, 772 F.3d at 716–17; *In re TLI Commc’ns LLC v. AV Automotive, LLC*, 823 F.3d 607, 613 (Fed. Cir. 2016) (mere recitation of concrete or tangible components is not an inventive concept); *Eon Corp. IP Holdings LLC v. AT&T Mobility LLC*, 785 F.3d 616, 623 (Fed. Cir. 2015) (noting that *Alappat*’s rationale that an otherwise ineligible algorithm or software could be made patent-eligible by merely adding a generic computer to the claim was superseded by the Supreme Court’s *Bilski* and *Alice* decisions). In the instant case, using a computer to more quickly facilitate or reconcile power plant modeling data is nothing more than the abstract idea itself (i.e., a mental process).

And while Appellant acknowledges that the claimed solution is useful to automate data reconciliation of power plants (*see* Spec. ¶ 14), and provide early detection of problems so as to avoid failures and/or malfunctions (*see* Spec. ¶ 15), these types of improvements to the abstract idea result from the routine application of computers as tools, not from any technical innovation. *See Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1367 (Fed. Cir. 2015) (“claiming the improved speed or efficiency inherent with applying the abstract idea on a computer [does not] provide a sufficient inventive concept”); *Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Can. (U.S.)*, 687 F.3d 1266, 1278 (Fed. Cir. 2012) (“[T]he fact that the required calculations could be performed more efficiently via a computer does not materially alter the patent eligibility of the claimed subject matter.”).

“[R]elying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.” *OIP Technologies, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (citing *Alice Corp.*, 134 S. Ct. at 2359). We do not consider representative claim 1 to recite any element(s), or ordered combination of elements, which transforms the abstract idea to patent eligible subject matter.

For the reasons discussed above, we conclude Appellant’s claim 1 (and claims 8 and 15 grouped therewith) invokes generic computer components (“at least one processor,” a “controller,” and “a user device) merely as a tool in which the computer instructions apply the judicial exception and, thus, the abstract idea is not integrated into a practical application. Because Appellant has not persuaded us the Examiner’s determination that claim 1 recites an abstract idea under Step 2A is in error, and claim 1 recites a judicial exception (i.e., the abstract idea of a mental process) that is not integrated into a practical application, in accordance with the Guidance, we conclude claim 1 and claims 8 and 15 grouped therewith, are directed to an abstract idea under Step 2A, and the eligibility analysis with regard to claims 1, 8, and 15 proceeds to Step 2B.

Step 2B – Inventive Concept

Having determined claim 1 and claims 8 and 15 grouped therewith are directed to an abstract idea that is not integrated into a practical application, we now evaluate whether the additional elements, whether examined alone or as an ordered combination, add a specific limitation that is not well-understood, routine, or conventional activity in the field, or simply append well-understood, routine, conventional activities previously known to the

industry, specified at a high level of generality, to the abstract idea. *See generally* Guidance.

The Examiner made the following determination:

The claims do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional elements when considered both individually and as an ordered combination do not amount to significantly more than the abstract idea. The claims recite the additional limitations of processor, controller, user device, and equipment. The processor, controller, user device, and equipment are recited at a high level of generality and are recited as performing generic computer functions routinely used in computer applications. Generic computer components recited as performing generic computer functions that are well-understood, routine and conventional activities amount to no more than implementing the abstract idea with a computerized system.

The processor, controller, user device, and equipment add only insignificant extrasolution activity (such as mere data gathering).

Thus, taken alone, the additional elements do not amount to significantly more than the above identified judicial exception (the abstract idea). Looking at the limitations as an ordered combination adds nothing that is not already present when looking at the elements taken individually. There is no indication that the combination of elements improves the functioning of a computer or improves any other technology. Their collective functions merely provide conventional computer implementation.

Final Act. 4. We agree. Here, claim 1 recites the additional elements of “at least one processor” (claim 1, limitation A), a “controller,” and “a user device” (claim 1, limitation F). The “processor” recited in limitation A serves merely to gather power plant operational data. And, the “controller” recited in limitation F is neither defined nor described in the claim, other

than being used to transmit the outcome of the process (data, such as a determination about a control action for a power plant component), which is a post-solution activity. Finally, the “user device” simply receives the transmitted data in limitation F, which is also a post-solution activity.

Considering claim 1 as a whole, the additional elements do not apply or use the abstract idea in a meaningful way such that the claim as a whole is more than a drafting effort designed to monopolize the exception.

Appellant generally contends claim 1 recites significantly more than the abstract idea (*see* Appeal Br. 6–12), and represents a technical solution to a technical problem that produces specific improvements to computer technology (*see* Appeal Br. 12–14). More specifically, Appellant contends the claims “solve a problem specific to reconciling data between a power plant model and an operating power plant for which *there is no manual analog*, and result in improved predictions of power plant component degradation and failures,” thereby “the present claims allow for increased efficiency and accuracy” (*see* Appeal Br. 12) (emphasis added).

These arguments are not persuasive of Examiner error, at least because Appellant’s conclusory statements to this effect do not provide an explanation as why the Examiner erred on this ground of rejection, as required by 37 C.F.R. § 41.37(c)(1)(iv). *See In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011); *see also In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997) (mere lawyer’s arguments and conclusory statements, which are unsupported by factual evidence, are entitled to little probative value); *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984); *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974) (attorney argument is not evidence); *In re Schulze*,

346 F.2d 600, 602 (CCPA 1965) (arguments of counsel cannot take the place of evidence in the record).

In addition, Appellant's assertion that there is no manual analog is not persuasive, as Appellant discloses in the Specification that "[i]n one embodiment, automated data reconciliation of the power plant can be implemented to replace conventional manual data collection and operating procedures" (Spec. ¶ 14).

Appellant's contention that:

the present claims provide an unconventional technological solution (using a neural-net surrogate model that indicates physical degradation of plant components by reconciling the operational data, determining data match multipliers (DMMs), and determining performance factors) to a technological problem (reconciling data between a power plant model and an operating power plant)

(Appeal Br. 13), is also unpersuasive. The solution simply helps the user get an answer faster than manually modeling procedures, and does not actually improve the operation of the processor, controller, or user device in any proven way.

Further, specific portions of the Specification support the Examiner's determination. For example, the Specification shows (*see* Figs. 1, 4) and describes (Spec. ¶¶ 15–19, 36, 37, 39–42) only the use of well-understood, routine, conventional computer systems.

Appellant's disclosure does not describe the controller, processor, sensors, or user device as being anything beyond well-known, routine, and conventional devices. In fact, Appellant's Specification states that the "computer program instructions may be loaded onto a general purpose computer" (Spec. ¶ 39), and that components used to achieve the invention

“may be practiced with other computer system configurations, including hand-held devices, multiprocessor systems, microprocessor based or programmable consumer electronics, min-computers, mainframe computers, and the like” (Spec. ¶ 41). *See Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384 (Fed. Cir. 1986) (explaining that “a patent need not teach, and preferably omits, what is well known in the art”); *see also* USPTO, Memorandum on Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (*Berkheimer v. HP, Inc.*) at 3 (Apr. 19, 2018), available at <https://www.uspto.gov/sites/default/files/documents/memo-berkheimer-20180419.PDF> (explaining that a specification that describes additional elements “in a manner that indicates that the additional elements are sufficiently well-known that the specification does not need to describe the particulars of such additional elements to satisfy 35 U.S.C. § 112(a)” can show that the elements are well understood, routine, and conventional); *Intellectual Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1331 (Fed. Cir. 2017) (“The claimed mobile interface is so lacking in implementation details that it amounts to merely a generic component (software, hardware, or firmware) that permits the performance of the abstract idea, i.e., to retrieve the user-specific resources.”).

Appellant has not explained persuasively why the Examiner’s characterization of the functions of the processor, controller, and user device, based on the description of those components in the Specification, is in error.

Furthermore, generically claimed elements of processor and controllers/computers have been found to be no more than well-understood,

routine, and conventional activity in the context of gathering and assembling data. *See, e.g., Berkheimer v. HP Inc.*, 890 F.3d 1369, 1370 (Fed. Cir. 2018) (“The conventional limitations of claim 1, combined with limitations of analyzing and comparing data and *reconciling differences between the data* . . . amount to no more than performing the abstract idea of parsing and comparing data with conventional computer components) (emphasis added); *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 716 (updating an activity log by computer is well-understood, routine, conventional activity). As explained by the Supreme Court, the presence of a generic computer performing generic computer functions, such as calculation and transmission of data, is not enough to transform an abstract idea into a patent-eligible invention. *Alice Corp. v. CLS Bank*, 573 U.S. 208, 225–226 (2014).

Here, the processor acts as a computational tool to receive and store data, generate intermediate data, and compare and analyze data to determine an action to be taken. Indeed, Appellant even recognizes that the method recited in claim 1 provides an “automated data reconciliation of the power plant . . . to replace conventional manual data collection and operating procedures” (Spec. ¶ 14).

Under our governing case law, this is not enough to show that a processor, controller, and/or user device causes claim 1 to be significantly more than the identified abstract idea. Accordingly, we are not persuaded by Appellant’s arguments (*see* Appeal Br. 12–14) that claim 1 provide significantly more than the abstract idea.

Summary

(1) As explained above, under the USPTO’s Revised Patent Eligibility Guidance, based on the record before us, and informed by our governing case law concerning 35 U.S.C. § 101, Appellant has not shown the Examiner erred in rejecting representative claim 1, as well as claims 8 and 15 grouped therewith, as being directed to patent-ineligible subject matter without significantly more, and we sustain the rejection of claims 1, 8, and 15 under 35 U.S.C. § 101.

(2) In addition, Appellant has not shown the Examiner erred in rejecting (a) claims 1, 2, 8, 9, and 15 under 35 U.S.C. § 102(a)(1) as being anticipated by Greenlee; and (b) claims 3–7, 10–14, and 16–20 as being unpatentable under 35 U.S.C. § 103 over the base combination of Greenlee taken with various other secondary references. In view of the foregoing, we sustain the (i) anticipation rejection of claims 1, 2, 8, 9, and 15; and (b) obviousness rejections of claims 3–7, 10–14, and 16–20.

CONCLUSION

In summary, for all of the reasons above, we hold as follows:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 8, 15	101	Eligibility	1, 8, 15	
1, 2, 8, 9, 15	102(a)(1)	Greenlee	1, 2, 8, 9, 15	
3, 10, 16	103	Greenlee, Mathan	3, 10, 16	
4, 11, 17	103	Greenlee, Danai	4, 11, 17	
5–7, 12–14, 18–20	103	Greenlee, Wilkes	5–7, 12–14, 18–20	

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Overall Outcome			1-20	
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TIME PERIOD FOR RESPONSE

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), 41.52(b) (2013).

AFFIRMED