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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANDREW BRENDERS and JOSEPH ANTHONY DELLINGER

Appeal 2019-001979
Application 14/525,451
Technology Center 2800

Before ROMULO H. DELMENDO, CHRISTOPHER L. OGDEN, and
MERRELL C. CASHION, JR., *Administrative Patent Judges*.

CASHION, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision to reject claims 1–28 under 35 U.S.C. § 101 as directed to patent-ineligible subject matter. We have jurisdiction under 35 U.S.C. § 6(b).

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as BP Corporation North America Inc. Appeal Brief (“Appeal Br.”) filed June 25, 2018, p. 2. We note that the pages of the Appeal Brief are not enumerated. For the purposes of this opinion, we refer to the Appeal Brief beginning with the title page as page 1.

We AFFIRM.

CLAIMED SUBJECT MATTER²

The invention relates to “processing and analysis of seismic data for the location of subsurface hydrocarbons and other fluids and, more particularly, to the generation of seismic velocity models for use in such activities.” Spec. ¶ 2. The Specification explains that identifying deposits of hydrocarbons and other fluids is hampered when they are located underground in certain types of geological formations. *Id.* ¶ 3. In such situations, these deposits are typically identified by indirect means, such as imparting acoustic waves of certain frequencies into the ground that are reflected back to the surface when encountering these geological formations. *Id.* The reflected acoustic waves are then recorded as seismic data representative of the geological formations from which they are obtained. *Id.*

The Specification also discloses that one tool used to analyze seismic data is known as the “velocity model,” which converts seismic data into one or more “seismic domains” that image the geological formation in different ways. *Id.* ¶ 4. The velocity model relies on known wave equations to model the transmission, reflection, and diffraction of seismic waves. *Id.* ¶ 36. The Specification also discloses that the generation of images has proven to be challenging at low frequencies below 6 Hz because the natural background noise of the Earth gets progressively stronger, which leads to a decline in the

² Our Decision additionally refers to the Specification (“Spec.”) filed October 28, 2014, the Final Office Action (“Non-Final Act.”) dated January 23, 2018, and the Reply Brief (“Reply Br.”) dated December 21, 2018.

signal-to-noise of deepwater marine seismic data of over 20 dB per octave for frequencies below 4 Hz. *Id.* ¶ 6. Appellant’s invention seeks to improve the signal to noise at low frequencies used to generate the seismic images. *Id.* ¶ 7.

Claim 1, reproduced below from the Claims Appendix to the Appeal Brief, is illustrative of the claimed subject matter (formatting added)³:

1. A computer-implemented process, comprising:

performing a first roll [full, sic] waveform inversion on an initial subsurface attribute model using low frequency, known source-signature data and low frequency humming seismic data representative of a subterranean geological formation to generate a first updated subsurface attribute model; and

performing a second full waveform inversion on the first updated subsurface attribute model using low-frequency, narrowband sweeping known source-signature data and low-frequency, swept seismic data representative of a subterranean geological formation to generate a second updated subsurface attribute model.

Independent claim 19 is directed to a computing apparatus comprising a processor and software to perform the method of claim 1. Independent claim 24 is directed to a non-transitory program storage medium comprising encoded instructions to perform the method of claim 1.

³ Claim 1, as originally filed, recites that the first step performs a “first full waveform inversion” instead of the presently claimed “first roll waveform inversion.” We take the use of the word “roll” in the currently pending claim 1 is an unintended typographical error. Therefore we treat both steps as performing full waveform inversions. This is consistent with the disclosure in the Specification. *See generally* Spec. Appellant is advised to correct this error via amendment.

OPINION

The Examiner maintains the rejection of claims 1–28 under 35 U.S.C. § 101 as directed to patent-ineligible subject matter. Final Act. 3–6.

We review the appealed rejection for error based upon the issues identified by Appellant and in light of the arguments and evidence produced thereon. 37 C.F.R. § 41.37(c)(1)(iv); *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential), *cited with approval in In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (explaining that even if the Examiner had failed to make a prima facie case, “it has long been the Board’s practice to require an applicant to identify the alleged error in the examiner’s rejections”).

After considering the argued claims relative to case law presented in this Appeal and each of Appellant’s arguments, we are not persuaded that Appellant identifies reversible error. Thus, we affirm the Examiner’s rejection for the reasons expressed in the Final Office Action and the Answer. We add the following primarily for emphasis.

Appellant does not argue any claim separately from the other claims. *See generally* Appeal Br. In view of this, and for the purposes of this opinion, we select independent claims 1, 19, and 24 as representative of the subject matter claimed. In accordance with 37 C.F.R. § 41.37(c)(1)(iv), dependent claims 2–18, 20–23, and 25–28 stand or fall with their respective independent claim.

The Examiner identifies the two “performing” steps in claim 1 as an abstract idea in the form of mental processes and a mathematical concept for generating a subsurface seismic attribute model. Final Act. 3–4. The Examiner further finds that the additional elements/steps of “an initial subsurface attribute model,” “known source-signature data,” “low frequency

humming seismic data,” “a first updated subsurface attribute model,” “narrowband sweeping known source-signature data,” “a second updated subsurface attribute model,” “a processor,” “a communication medium,” “a storage,” “a software component,” and “non-transitory program storage medium, encoded with instructions” do not add significantly more to this abstract idea because these elements/steps are generic/conventional data gathering, data processing, and computer/computing components, disclosed in the Specification (Spec. ¶¶ 35, 36, 44, 45, 51, 53, and 54), that are recited at a high level of generality, and are recited as performing generic computer functions routinely used in computer applications. Final Act. 4. Thus, the Examiner finds that the additional elements/steps, taken alone or as an ordered combination, do not amount to significantly more than the judicial exception (the abstract idea). *Id.* at 5.

Appellant raises a number of arguments with regard to this rejection that we address throughout the opinion. Appeal Br. 5–11; Reply Br. 2–6.

Legal Framework

An invention is patent eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 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, our inquiry focuses on the Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Alice*, 573 U.S. 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 concepts (*Flook*, 437 U.S. at 594–95); 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. 252, 267–68 (1853))); 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 187; 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 (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.* (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 Office has published revised guidance on the application of § 101. USPTO’s January 7, 2019 Memorandum, *2019 Revised Patent Subject Matter Eligibility Guidance* (“Memorandum”), 84 Fed. Reg. 50, as updated in October 2019.⁴ 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 activity such as a fundamental economic practice, or mental processes); and

⁴ We recognize that the Memorandum was not available to the Examiner and Appellant during the prosecution of the instant Application.

(2) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h)).

Only if a claim recites a judicial exception and 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 generally Memorandum.

Analysis

Claims 1, 19, and 24

Determination of Claims’ Statutory Category

Before any consideration as to whether claims 1, 19, and 24 are directed to patent-ineligible subject matter, such as an abstract idea, we must first determine if the claim falls under a statutory category, as a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101.

There is no dispute between Appellant and the Examiner that claim 1 falls under a statutory category under 35 U.S.C. § 101. *See generally* Appeal Br.; *see generally* Non-Final Act.

For completeness, we note that (1) independent claim 1 is a method claim falling under the statutory category of a “process,” (2) independent

claim 19 is an apparatus falling under the statutory category of “machine” under 35 U.S.C. § 101, and (3) independent claim 24, directed to a non-transitory program storage medium, is an article or manufacture falling under the statutory category of “manufacture” under 35 U.S.C. § 101.

Having established that the claims fall in a statutory category, we now follow the Memorandum to analyze claims 1, 19, and 24 to determine if they are directed to patent-ineligible subject matter.

Determination of Patent Subject Matter Eligibility

Applying the guidance set forth in the Memorandum, we conclude that claims 1, 19, and 24, and thus all claims on appeal, do not recite patent-eligible subject matter.

Revised Step 2A, Prong One—Recites a Judicial Exception

The Memorandum instructs us first to determine whether each claim recites any judicial exception to patent eligibility. 84 Fed. Reg. at 54. The Memorandum identifies three judicially-excepted groupings of abstract ideas: (1) mathematical concepts, (2) certain methods of organizing human activity such as fundamental economic practices, and (3) mental processes. *Id.* at 52. The Examiner finds claim 1 recites a mathematical relationship for calculating a line-to-neutral voltage and a mental process. Non-Final Act. 4–6.

Claim 1

Claim 1 recites a computer-implemented process comprising two steps of performing full waveform inversions (FWI) to arrive at an updated subsurface attribute model, each wave inversions using different types of seismic data.

a. Step of performing a first full waveform inversion . . .

The first step of claim 1, performing a first FWI inversion on an initial subsurface attribute model using low frequency, known source-signature data and low frequency humming seismic data representative of a subterranean geological formation to generate a first updated subsurface attribute model, is recited at a high level of generalization and merely provides information, through mathematical operations, to be used in the process. Providing information through mathematical operations is a step that can be performed in the human mind. As such, this step is a mental step that recites a mental process.

This step recites a mathematical concept because information is provided for use in a FWI. According to the Specification, FWI is a well-known technique for constructing a subsurface attribute model that involves using low frequencies at the beginning and then adding higher and higher frequencies to slowly and progressively define the finer features of the subsurface attribute model. Spec. ¶ 30. A wave equation, which is a partial differential equation, is used to model transmission, reflection, diffraction, etc., of seismic waves, as is well-known in the art. *Id.* ¶ 36. As the Specification explains, the full waveform inversion relies on an extrapolation engine used within an iterative optimization process that attempts to find an earth model that explains all of the recorded seismic data. *Id.* ¶ 37. This iterative optimization process can be associated with an acoustic wave equation. *Id.* As such, this step is recites a mathematical concept.

b. Step of performing a second full waveform inversion. . .

The second step of claim 1, performing a second FWI inversion on the first updated subsurface attribute model using low-frequency, narrowband sweeping known source-signature data and low-frequency, swept seismic data representative of a subterranean geological formation to generate a second updated subsurface attribute model, is also recited at a high level of generalization and merely provides information through mathematical operations. Providing information through mathematical operations is a step that can be performed in the human mind. As such, this step is a mental step that recites a mental process.

This step recites a mathematical concept because the information is provided for use in a FWI, as discussed above with respect to the step of performing a FWI. This step also involves an iterative optimization process that can be associated with an acoustic wave equation. *Id.* As such, this step is a recites a mathematical concept.

Claim 9

Independent claim 9 recites a computing apparatus comprising a processor, a communication medium, a storage, and a software component residing on storage, where the software component performs the method of claim 1 when executed. Claim 9 recites these components at a high level of generality. The Specification teaches that the processor may be any suitable processor or processor set known. Spec. ¶ 52. The Specification also indicates that the communication medium may be a user interface. *Id.* ¶ 56. The Specification describes the storage as including include a hard disk and/or random access memory, a floppy magnetic disk or an optical disk (*id.* ¶ 54) and the software component as an operating system, an

application, data structures, etc. (*id.*). These devices are merely configured so as to perform the method of claim 1, which recites a judicial exception, i.e., mathematical concept, and the system likewise also recites this judicial exception. Fundamentally, this claim recites the same judicial exception, a mental process and mathematical concept, for substantially the same reasons as provided above regarding claim 1.

Claim 24

Independent claim 24 recites a non-transitory program storage medium encoded with instructions that, when executed, performs the computer-implemented method corresponding to that of claim 1. As such, claim 24 recites the same judicial exception as claim 1—a mental process and mathematical concept.

Accordingly, applying the guidance in the Memorandum, we conclude that claims 1, 9 and 24 each recite an abstract idea, i.e., a mental process and a mathematical concept, and, thus, recite a judicial exception.

*Revised Step 2A, Prong Two – Practical Application*⁵

Having determined that claims 1, 9, and 24 recite the abstract ideas of a mental process and mathematical concept, we next look to determine whether the claims recite “additional elements that integrate the [judicial] exception into a practical application.” MPEP § 2106.05(a)–(c), (e)–(h); Memorandum, 84 F.3d at 53–54. Integration into a practical application requires an additional element or a combination of additional elements in the

⁵ We acknowledge that some of these considerations may be properly evaluated under Step 2 of *Alice* (Step 2B of Office Memorandum). Solely for purposes of maintaining consistent treatment within the Office, we evaluate it under Step 1 of *Alice* (Step 2A of Office Memorandum). *See generally* Memorandum, 84 Fed. Reg. 50.

claim to “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.” Memorandum, 84 Fed. Reg. at 53–54; *see also id.* at 55 (setting forth exemplary considerations indicative that an additional element or combination of elements may have integrated the judicial exception into a practical application).

With regard to claim 1, Appellant argues that the claimed invention is directed to improvements to computer-related technologies or technological processes beyond computer improvements. Appeal Br. 5. Thus, Appellant contends that the subject matter of claim 1 does not recite an abstract idea. *Id.* According to Appellant, the claimed invention pertains to improvements to computer-related technologies or technological processes beyond computer improvements because seismic exploration is a long established technological art. Appeal Br. 6.

Appellant contends that the claimed subject matter improves computer-related technologies because analysis of the seismic data is computationally intensive and requires specific data mass storage design. Appeal Br. 6–7 (citing Spec. ¶¶ 53, 55, 81–84).

We first note that method claim 1 generally recites the use of a computer to perform the claimed method in the preamble and does not specifically recite any other technology. As the Examiner notes, the subject matter claimed is performing generic computer functions routinely used in computer applications. Final Act. 4. In fact, the Specification discloses that the method can be practiced using any suitable processor or processor set known. *Id.* ¶ 52. That is, the method can be practiced using a general

purpose computer. Further, the Specification also discloses that “there is no requirement that the functionality of the computing system . . . be implemented as disclosed.” *Id.* ¶ 58. Thus, Appellant directs us to no evidence explaining how the mass storage, which is not part of the subject matter of claim 1, improves the computer’s functionality itself. Specifically, Appellant does not explain how the mass storage improves the computer’s operation or how it relates to any rules with specific characteristics reflecting an implementation not likely to be used. *McRO*, 837 F.3d. at 1313, 1316.

While Appellant asserts an improvement to a computer-related technology, the Specification does not adequately describe the asserted improvement nor does Appellant directs us to any portion of the Specification that describes the asserted improvement.

Appellant also relies on *In re Abele*, 684 F.2d 902 (C.C.P.A 1982) and *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299 (Fed. Cir. 2016) to argue that the claimed invention is not directed to an abstract idea. Appeal Br. 6–7. Appellant argues that *Abele* stands for the proposition that a computer-implemented process is statutory, i.e., does not claim an abstract idea-where the data operated upon is representative of tangible, real world objects. Appeal Br. 6 (citing *Abele*, 684 F.2d at 907–908). Thus, Appellant contends that the claim 1 is not directed to an abstract idea because, like *Abele*, it is a computer implemented method operating on seismic data that representative of tangible, real world objects. Appeal Br. 6.

We have considered Appellant’s arguments with respect to *Abele* (Appeal Br. 6–7; Reply Br. 3), but are unpersuaded of reversible error in the Examiner’s determination that Claim 1 is directed to an abstract idea.

First, we note that Appellant’s reliance on *Abele* is misplaced because the eligibility test applied in *Abele* was abrogated by *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (en banc), *aff’d but criticized sub nom. Bilski v. Kappos*, 561 U.S. 593 (2010), although our reviewing court subsequently relied on a different holding of *Abele*. See *Cybersource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1374 (Fed. Cir. 2011).

Second, even if *Abele* is good law, Appellant does not explain adequately how it supports Appellant’s position that the claim invention is directed to patent eligible subject matter. As the Examiner explains, the issue of patent eligibility does not revolve on whether the computer-implemented process was patent eligible. Ans. 6. Instead, the issue is whether the claim attempts to patent an abstract idea. *Id.* at 6–7.

To the extent that Appellant relies on *McRO* (Appeal Br. 6–7), “the claims [in *McRO* were] limited to rules with specific characteristics” and “the structure of the limited rules reflects a specific implementation not demonstrated as that which ‘any [animator] engaged in the search for [an automation process] would likely have utilized.’” *McRO* 837 F.3d at 1313, 1316 (alterations to second quotation in original) (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S.Ct. 2107, 2119–20 (2013)). Here, Appellant does not point to any portion of the claims, that when read in light of the Specification, recites rules with specific characteristics reflecting an implementation not likely to be used.

Thus, contrary to Appellant’s arguments, the Examiner’s identification of the judicial exception which the claim recites—a mental process and a mathematical concept—is supported by a preponderance of the evidence and is sufficiently identified as required by the Memorandum.

Therefore, we find that the claimed subject matter does not integrate the judicial exception into a practical application.

Accordingly, we conclude, as did the Examiner, that claim 1 recites a judicial exception, i.e., the abstract ideas of a mental process and a mathematical concept, and does not integrate this judicial exception into a practical application.

With regard to apparatus claim 9, as indicated above, none of apparatus's components improve the functioning of a computer or another technology or technical field. This is also true with respect to non-transitory program storage medium claim 24. We note that Appellant's apparatus's components and the non-transitory program storage medium are broadly disclosed. Spec. ¶¶ 52, 54, 56.⁶ But such disclosure does not integrate the mental processes or mathematical concepts recited in the claims into a practical application. *See* Memorandum, 84 Fed. Reg. at 55 (setting forth examples in which a judicial exception has not been integrated into a practical application).

Accordingly, we conclude, as did the Examiner, that the claims recite a judicial exception, i.e., the abstract idea of a mathematical relationship for calculating the transmittance and reflectance values of a material, and do not integrate this judicial exception into a practical application.

⁶ Although some of these considerations also may be properly evaluated under Step 2 of *Alice* (Step 2B of Office guidance), consistent with the Memorandum, we evaluate them under Step 1 of *Alice* (Step 2A of Office guidance). *See* Memorandum, 84 Fed. Reg. at 55.

Step 2 B–Inventive Concept

Because we determine that claims 1, 9, and 24 recite an abstract idea and does not include additional elements that integrate the abstract idea into a practical application, we look to whether the claims provide an inventive concept, i.e., adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field. Memorandum, 84 Fed. Reg. at 56.

As we note above, claim 1 only generally recites the use of a computer to perform the claimed method in the preamble and does not specifically recite any other technology. Claim 1 does not recite any additional elements, such as specific components of the computer. While Appellant contends that the computer requires specific mass storage design to the voluminous seismic data (Appeal Br. 6–7 (citing Spec. ¶¶ 53, 55, 81–84)), the Specification describes that storage includes well known components such as a hard disk and/or random access memory, and/or removable storage such as a floppy magnetic disk and an optical disk (Spec. ¶ 54). In addition, as we note above, the Specification discloses that the method can be practiced using any suitable processor or processor set known. *Id.* ¶ 52. That is, the method can be practiced using a general purpose computer. Thus, even if the computer was positively claimed in claim 1, it would not add a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field, taken individually or as an ordered combination with the claimed steps.

We have again considered Appellant’s arguments regarding the claimed invention being an improvement in computer-related technologies in our deliberations of this step. Appeal Br. 6–8; Reply Br. 2–3. We

maintain our position that these arguments lack persuasive merit for the reasons we give above.

Appellant argues that the additional elements are not well-understood, routine, and conventional. Appeal Br. 10.

We disagree. As the Examiner asserts, the Specification recites the claimed elements (computer, processor, communication medium, storage, software components) as known in the art. Final Act. 5; Spec. ¶¶ 52, 54, 55, 58. Given this disclosure, Appellant has not identified error in the Examiner's determination that the components are "well, understood, conventional."

We also disagree with Appellant's argument that the lack of an art rejection is implicit evidence that the claimed subject matter is patent eligible. Appeal Br. 11. Initially, we note that the Examiner actually stated that these claims would be allowable if rewritten to overcome any outstanding section 101 rejections. Final Act. 6. Thus, the Examiner is merely stating that these claims recite subject matter which, when combined with the limitations of the base and any intervening claims, is free of the prior art, i.e., is novel and non-obvious. At the same time, the Examiner clearly stated that any such amended claims must be rewritten to also overcome the § 101 rejection, thereby indicating that these claims are not in compliance with § 101. Thus, Appellant's argument misapprehends the fact that there is no prior art rejection.

Moreover, to the extent Appellant asserts the claims are distinguishable from the claims of other cases due to a lack of applied prior art (*see* Appeal Br. 11), we note that the mere fact an abstract idea is novel or non-obvious does not render the subject matter eligible under § 101. In

response to an argument that a claim contained an inventive concept because it was not shown to be anticipated under § 102 or obvious under § 103, the Federal Circuit has stated:

[t]hat position misstates the law. It is true that “the § 101 patent-eligibility inquiry and, say, the § 102 novelty inquiry might sometimes overlap.” *Mayo*, 132 S. Ct. at 1304. But, a claim for a *new* abstract idea is still an abstract idea. The search for a § 101 inventive concept is thus distinct from demonstrating § 102 novelty.

Synopsys, Inc. v. Mentor Graphics Corp., 839 F.3d 1138, 1151 (Fed. Cir. 2016).

With regard to apparatus claim 9, this claim recites a computing apparatus comprising a processor, a communication medium, a storage, and a software component residing on storage, where the software component performs the method of claim 1 when executed.

As we discuss above, the Specification recites the claimed elements (computer, processor, communication medium, storage, software components) as known in the art and, thus, “well, understood, conventional.” Final Act. 5; Spec. ¶¶ 52, 54, 55, 58. Appellant has not argued adequately to the contrary. Appeal Br. 10.

Appellants also do not identify any inventive concept in the recited combination of steps here or any specific arrangement of computing components. Indeed, the claim’s focus is to perform calculations and not a specific configuration of the computer.

Therefore, we agree with the Examiner’s determination that the claimed steps and components are well understood, routine and conventional activities/components. Ans. 5. Further, courts have recognized the performance of repetitive calculations by a computer as a well understood,

routine, conventional activity. *Flook*, 437 U.S. at 594 (recomputing or readjusting alarm limit values); *Bancorp Servs. L.L.C. v. Sun Life Assurance Co.*, 687 F.3d 1266, 1278 (Fed. Cir. 2012) (“The computer required by some of Bancorp’s claims is employed only for its most basic function, the performance of repetitive calculations, and as such does not impose meaningful limits on the scope of those claims.”).

We also reevaluate our conclusions about whether the recited computer apparatus integrates the abstract idea into a practical application. *See* Guidance, 84 Fed. Reg. at 56. Because the recited computer apparatus (and its components) adds nothing more than well-understood, routine, conventional activities, those conclusions stand. Considering both our previous conclusions and the findings about well-understood, routine, and conventional activity, we determine that the claimed method does not use the computer apparatus in a way that indicates that the claim provides an inventive concept. Therefore, we find no element or ordered combination of elements recited in claims 1, 9, and 24 that contains any “inventive concept” or adds anything “significantly more” to transform the abstract concept (i.e., mental processes and mathematical concepts) into a patent-eligible application.

Accordingly, we conclude that method claims 1–28 are directed to patent-ineligible subject matter under 35 U.S.C. § 101. They ensnare the abstract ideas of a mental process and mathematical concept and do not recite additional elements, individually or as an ordered combination, that integrate this mental process and mathematical concept into a practical application.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-28	101	Ineligible subject matter	1-28	

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

AFFIRMED