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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RICHARD K. MACWILLIAMS and
JOHN ANDREW MCQUOWN

Appeal 2017-010548¹
Application 12/703,073²
Technology Center 3600

Before MURRIEL E. CRAWFORD, BIBHU R. MOHANTY, and
MATTHEW S. MEYERS, *Administrative Patent Judges*.

MEYERS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) claims 1, 3–9, 11–17, and
22–29. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ Our decision references Appellants’ Appeal Brief (“Appeal Br.,” filed March 22, 2017), Reply Brief (“Reply Br.,” filed August 7, 2017), and the Examiner’s Answer (“Ans.,” mailed June 5, 2017) and Final Office Action (“Final Act.,” mailed May 20, 2016).

² Appellants identify “eBond Advisors LLC,” as the real party in interest (Appeal Br. 3).

CLAIMED INVENTION

Appellants' claims "relate generally to investment vehicles, and, more particularly, to bonds and credit default swaps" (Spec. ¶ 1).

Claims 1, 9, and 17 are the independent claims on appeal. Claim 1, reproduced below with bracketed notations added, is illustrative of the claimed subject matter:

1. A method comprising:

[a] determining, by one or more computing devices, a par amount for an exchangeable bond instrument, the exchangeable bond instrument comprising a bond indenture specifying requirements for exchanging the exchangeable bond instrument for an enhanced bond, wherein the enhanced bond has a claim on a credit default swap contract as specified by the bond indenture;

[b] calculating, by the one or more computing devices, a price for the enhanced bond based on the par amount of the exchangeable bond;

[c] calculating, by the one or more computing devices, a price for the exchangeable bond based on the price of the enhanced bond and a total cost of the credit default swap contract, wherein the total cost of the credit default swap contract includes all future coupon payments on the credit default swap;

[d] calculating, by the one or more computing devices, a rate of exchange for exchanging the exchangeable bond for the enhanced bond based on the total cost of the credit default swap contract as specified by the bond indenture;

[e] publishing, by the one or more computing devices, the rate of exchange; and

[f] exchanging the exchangeable bond for the enhanced bond by:

[f.1] receiving the exchangeable bond and the credit default swap contract, plus a cash amount based on the rate of exchange; and

[f.2] converting the exchangeable bond to the enhanced bond.

REJECTION

Claims 1, 3–9, 11–17, and 22–29 are rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

ANALYSIS

Patent-Ineligible Subject Matter

Under 35 U.S.C. § 101, 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, 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 id.* 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. 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 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 (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 recently published revised guidance on the application of § 101. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) (“2019 Revised Guidance”). 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

(2) additional elements that integrate the judicial exception into a practical application, i.e., that “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.” *See* 2019 Revised Guidance, 84 Fed. Reg. at 53; *see also* 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 2019 Revised Guidance, 84 Fed. Reg. at 56.

Appellants argue claims 1, 3, 5–9, 11, 13–17, and 22–27 as a group (*see* Appeal Br. 8–20; *see also* Reply Br. 2–10). We select independent claim 1 as representative. Claims 3, 5–9, 11, 13–17, and 22–27 stand or fall with independent claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

With regard to the first step of the *Mayo/Alice* framework, the Examiner states that claims 1, 3–9, 11–17, and 22–29 recite “a series of steps instructing how to exchange bonds for an enhanced bond” which the Examiner considers to be “a fundamental economic practice and thus an abstract idea” (Final Act. 6) at least because “[b]onds are concepts related to the economy and commerce and represent obligations between parties” (*id.* at 7).

In response, Appellants first argue that the Examiner’s rejection is improper because “the Examiner provides no reasons or evidence to support that the claims of the instant application, or the purported abstract idea, amount to a ‘foundational or basic’ concept. Therefore, the Office has not met its *prima facie* burden.” (Reply Br. 2–5). We cannot agree.

Under the first prong of step 2A of the 2019 Revised Guidance, we first determine if the claims recite an abstract idea. In this regard, the Specification is titled “SYSTEMS, METHODS, AND COMPUTER PROGRAM PRODUCTS FOR CREATION AND TRADING OF ENHANCED BONDS,” and relates “generally to investment vehicles, and, more particularly, to bonds and credit default swaps” (Spec. ¶ 1). The Specification describes that “[t]he current market structure . . . makes it difficult for investors to purchase bonds of a particular issuer at the precise default risk they desire” (*id.* ¶ 6) and suffers from “the high transaction costs

involved with buying and trading bonds” (*id.* ¶ 7). The Specification identifies that “[c]redit default swaps (‘CDS’) are a type of derivative investment that allow one party to transfer the default risk of an asset to another party” (*id.* ¶ 25), but notes several drawbacks with traditional CDS related to multiplicity of transactions and associated costs (*see, e.g.*, Spec. ¶¶ 26–28). To address these drawbacks, the present invention discloses “a new type of investment termed an enhanced bond (or “eBond”) is created that combines corporate bonds with CDS contracts for those same corporate bonds” (*id.* ¶ 29), and thus, provides investors with the ability “to purchase bonds with a specific desired risk regardless of issuer and provide a mechanism for dealers to significantly reduce transaction costs compared to those available today” (*id.* ¶ 8; *cf.* Ans. 4).

Taking independent claim 1 as representative, the claimed subject matter recites “[a] method” including steps for “determining . . . a par amount for an exchangeable bond instrument, the exchangeable bond instrument comprising a bond indenture specifying requirements for exchanging the exchangeable bond instrument for an enhanced bond, wherein the enhanced bond has a claim on a credit default swap contract as specified by the bond indenture,” “calculating . . . a price for the enhanced bond based on the par amount of the exchangeable bond,” “calculating . . . a price for the exchangeable bond based on the price of the enhanced bond and a total cost of the credit default swap contract, wherein the total cost of the credit default swap contract includes all future coupon payments on the credit default swap,” “calculating . . . a rate of exchange for exchanging the exchangeable bond for the enhanced bond based on the total cost of the credit default swap contract as specified by the bond indenture,”

“publishing . . . the rate of exchange,” and “exchanging the exchangeable bond for the enhanced bond by: receiving the exchangeable bond and the credit default swap contract, plus a cash amount based on the rate of exchange; and “converting the exchangeable bond to the enhanced bond.”

Understood in light of the Specification, we agree with the Examiner that independent claim 1 broadly recites the “steps of determining a par amount for an exchangeable bond, calculating a price for an enhanced and exchangeable bond, calculating a rate of exchange for exchanging the bonds, and publishing the rate of exchange involve routine and conventional use of a computer” (Ans. 14), and as such, directed broadly to “a series of steps instructing how to exchange bonds for an enhanced bond” (Final Act. 6). We also agree with the Examiner that “[a] bond instrument (or an exchangeable bond instrument) by itself is a contract and trading such instruments is abstract and as claimed a fundamental economic practice” (Ans. 6). Therefore, when viewed through the lens of the 2019 Revised Guidance, the Examiner’s analysis depicts the claimed subject matter as being directed to ineligible subject matter which may be categorized as one of the ineligible “methods of organizing human activity” that include “fundamental economic principles or practices (including hedging, insurance, mitigating risk)” and “commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations),” and thus an abstract idea. *See* 2019 Revised Guidance, 84 Fed. Reg. at 52.

Having concluded that claim 1 recites a judicial exception, i.e., an abstract idea, we turn to the second prong of step 2A of the 2019 Revised Guidance and determine whether the claims recite a practical application of

the recited judicial exception. Here we look to see if, for example, (i) any additional elements of the claims reflects an improvement in the functioning of a computer or to another technological field, (ii) an application of the judicial exception with, or by use of, a particular machine, (iii) a transformation or reduction of a particular article to a different state or thing, or (iv) a use of the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment. *See* 2019 Revised Guidance, 84 Fed. Reg. at 55; *See also* MPEP § 2106.05(a)–(c), (e)–(h).

Appellants argue that the present claims are similar to the patent-eligible claims in *McRO, Inc. v. Bandai Namco Games Am., Inc.*, 837 F.3d 1299 (Fed. Cir. 2016), and patent-eligible because they “provide a specific technique enabling a market participant to establish a particular credit-enhanced investment position through the use of an unconventional exchange process and a novel enhanced security” (Appeal Br. 12–14; *see also* Reply Br. 5–6). However, independent claim 1, unlike the claims found non-abstract in prior cases, uses generic computer technology to process (i.e., determine, calculate) publish, and exchange data (*see* Spec. ¶¶ 80–86), and does not recite an improvement to a particular computer technology. *See, e.g., McRO*, 837 F.3d at 1314–15 (finding claims not abstract because they “focused on a specific asserted improvement in computer animation”).

Appellants further argue that “the claimed process sets forth specific steps intended to simplify the requirements of the investor to establish a particular position and reduce risks and administration typically associated with CDS contracts” (Appeal Br. 15), and as such, “[s]imilar to the structure of the rules in *McRO*, the structure of the enhanced security and various

exchange requirements recited in the claims represents a specific implementation not demonstrated as that which a past market participant would likely have utilized to establish her position” (*id.* citing *McRO*, 837 F.3d at 1314; *see also* Appeal Br. 18–19). We cannot agree.

In *McRO*, the Federal Circuit premised its determination that the claims were patent-eligible, not merely on the specificity of the claimed animation scheme, but rather on the fact that the claims, when considered as a whole, were directed to a technological improvement over the existing, manual 3-D animation techniques and used limited rules in a process specifically designed to achieve an improved technological result in conventional industry practice. We are not persuaded that a comparable situation is presented here. As our reviewing court has made clear, “relying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible.” *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015).

We further note that there is a fundamental difference between technological or computer functionality improvements, on the one hand, and uses of existing computers as tools to perform a particular task, on the other. Here, the Specification discloses that “the methods illustrated by flowcharts 300 of FIG. 3, 400 of FIG. 4, 500 of FIG. 5, and 600 of FIG. 6, can be implemented in system 700” (Spec. ¶ 80; *see also id.* ¶ 81 (stating “[c]omputer system 700 includes one or more processors, such as processor 704. Processor 704 can be a special purpose or a general purpose processor.”)). Indeed, the Federal Circuit applied this distinction in *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016) in rejecting a § 101 challenge at the step one stage of the *Mayo/Alice* analysis

because the claims at issue focused on a specific type of data structure, i.e., a self-referential table for a computer database, designed to improve the way a computer carries out its basic functions of storing and retrieving data, and not on asserted advances in uses to which existing computer capabilities could be put. *Id.* at 1335–36.

We also find no indication in the Specification that the claimed invention effects a transformation or reduction of a particular article to a different state or thing. Here, Appellants argue

the claims recite a specific process using a new investment construct, which requires far more than implementing conventional mental steps on a generic computer. For example, the recited process of “*exchanging*” and “*converting*” in independent claim 1 involves an actual transformation of financial instruments according to provisions set forth in the bond indenture of the exchangeable bond (“*a bond indenture specifying requirements for exchanging the exchangeable bond instrument for the enhanced bond instrument*”).

Appeal Br. 18–19 (citing Spec. ¶¶ 33, 43, 61, 73). However, any alleged transformation due to the “*exchanging*” and “*converting*” steps recited by independent claim 1 and dependent claim 28 are, at best, merely the manipulation of data, which is not sufficient to meet the transformation prong under 35 U.S.C. § 101. *See Gottschalk v. Benson*, 409 U.S. 63, 71–72 (1972) (a computer based algorithm that merely transforms data from one form to another is not patent-eligible).

Appellants also argue that the present claims are not directed to a fundamental economic practice because “the claims of the instant application allow others to perform exchanges of securities, including bonds for enhanced bonds, without infringing upon the claims” (Appeal Br. 14–16; Reply Br. 7–8), and as such, the present “claims do not prevent an exchange

of a bond for an asset-backed security backed by the bond and an enhancement product (e.g., a CDS)” (Appeal Br. 16). However, Appellants’ preemption argument does not alter our § 101 analysis. Preemption concerns are fully addressed and made moot where a patent’s claims are deemed to disclose patent ineligible subject matter under the two-part framework described in *Mayo* and *Alice*. *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). “While preemption may signal patent ineligible matter, the absence of complete preemption does not demonstrate patent eligibility.” *Id.*

Turning to Step 2B of the 2019 Revised Guidance, we determine whether the additional elements (1) add a specific limitation or combination of limitations that is not well-understood, routine, and conventional activity in the field, which is indicative that an inventive concept may be present or (2) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception, which is indicative that an inventive concept may not be present. *See* 2019 Revised Guidance, 84 Fed. Reg. at 56.

Addressing the second step of the *Mayo/Alice* framework, the Examiner states

[t]he claims do not include additional elements that are sufficient to amount to significantly more than the judicial exception because considered separately and in combination, the generically recited computer elements do not add meaningful limitations to the abstract idea because they would be routine in any computer implementation and therefore they do not add significantly more to the abstract idea itself.

(Final Act. 6–7). We agree with the Examiner that the additional elements taken alone or in combination do not result in anything more than

conventional computer implementation. And, considered as an ordered combination, the “one or more computing devices” recited by independent 1 add nothing that is not already present when the limitations are considered separately. Viewed as a whole, independent claim 1 simply recites “a series of steps instructing how to exchange bonds for an enhanced bond” (Final Act. 6). *See Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 716 (Fed. Cir. 2014) (“[T]he claimed sequence of steps comprises only ‘conventional steps, specified at a high level of generality,’ which is insufficient to supply an ‘inventive concept.’”) (Citing *Alice*, 134 S. Ct. at 2357). The claims do not, for example, purport to improve the functioning of the computer itself. Nor do they effect an improvement in any other technology or technical field, as discussed above with respect to prong two of step 2A. Instead, independent claim 1 amounts to nothing significantly more than an instruction to apply the abstract idea using “one or more computing devices” (*id.*), which under our precedents, is not enough to transform an abstract idea into a patent-eligible invention. *See Alice*, 134 S. Ct. at 2360.

Finally, to the extent Appellants maintain that the claimed invention is patent-eligible, i.e., that claim 1 amounts to “significantly more” than an abstract idea, because the present claims include “features that differentiate the claims from the prior art” (Reply Br. 8–10), Appellants misapprehends the controlling precedent.

Neither a finding of novelty nor a non-obviousness determination automatically leads to the conclusion that the claimed subject matter is patent-eligible. Although the second step in the *Mayo/Alice* framework is termed a search for an “inventive concept,” the analysis is not an evaluation of novelty or non-obviousness, but rather, a search for “an element or

combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Alice*, 573 U.S. at 217–18 (citation omitted).

“Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry.” *Ass’n for Molecular Pathology*, 569 U.S. at 591. A novel and non-obvious claim directed to a purely abstract idea is, nonetheless, patent-ineligible. *See Mayo*, 566 U.S. at 90; *see also Diamond*, 450 U.S. at 188–89 (“The ‘novelty’ of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.”).

Appellants’ other arguments, including those directed to now-superseded USPTO guidance, have been considered but are not persuasive of error. (*See* 2019 Revised Guidance, 84 Fed. Reg. at 51 (“Eligibility-related guidance issued prior to the Ninth Edition, R-08.2017, of the MPEP (published Jan. 2018) should not be relied upon.”))).

We are not persuaded, on the present record, that the Examiner erred in rejecting independent claim 1 under 35 U.S.C. § 101. Therefore, we sustain the Examiner’s rejection of independent claim 1, and claims 3, 5–9, 11, 13–17, and 22–27, which fall with independent claim 1.

Dependent Claims 4, 12, 28, and 29

Appellants argue that “[d]ependent claims 4, 12, 28, and 29 further demonstrate ‘unconventional steps that confine the claim[s] to a particular application,’” and as such, include limitations that “amount to significantly more than the purported abstract idea of ‘instructing how to exchange bonds for an enhanced bond’” (Appeal Br. 20–22; *see also* Reply Br. 10). To

support its argument, Appellants argue that claims 28 and 29 include features which “further restrict the recited exchange process to a particular useful application and limit the preclusive effect on the purported judicial exception” and claims 4 and 12 include features that “allow[] a market participant to revert the enhanced bond back to the original exchangeable bond, in contrast to conventional techniques such as using an ABS in which reversion to the underlying securities is not typically allowed or feasible” (*see* Appeal Br. 21). We cannot agree.

Instead, we find that the argued features merely describe further characteristics of the underlying concept and lack additional elements that would render the claim patent-eligible. In this regard, we agree with the Examiner that these additional are abstract idea themselves and fails to transform the abstract into something patent-eligible (*see* Ans. 23–25). In this regard, dependent claims 28 and 29 simply describe characteristics related to transmitting data and of claims 4 and 12 merely describe characteristics related to exchanging bonds, which, which we discern sit squarely within, and does not alter appreciably, the broader concept of “exchang[ing] bonds for an enhanced bond” (*see* Final Act. 6).

As such, we are not persuaded by Appellants’ arguments for these reasons, and the reasons discussed with respect to independent claim 1, *supra*. Therefore, we sustain the rejection of dependent claims 4, 12, 28, and 29 under 35 U.S.C. § 101.

DECISION

The Examiner’s rejection of claims 1, 3–9, 11–17, and 22–29 under 35 U.S.C. § 101 is affirmed.

Appeal 2017-010548
Application 12/703,073

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).

AFFIRMED