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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MATTHEW W. CLAUS, KEVIN M. FOLEY,
JOSEPH C. NOVIELLO, and HOWARD W. LUTNICK

Appeal 2018-005049
Application 14/251,179¹
Technology Center 3600

Before JENNIFER L. McKEOWN, CATHERINE SHIANG, and
JASON J. CHUNG, *Administrative Patent Judges*.

SHIANG, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 21–39, which are all the claims pending in the application. Claims 1–20 have been cancelled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ Appellants identify BGC Partners, Inc. as the real party in interest. App. Br. 3.

STATEMENT OF THE CASE

Introduction

The present invention relates to “electronic trading and more specifically to a system for replenishing quantities of trading orders.” Spec.

¶ 2. Claim 21 is exemplary:

21. An apparatus, comprising:
 - at least one processor;
 - at least one memory in electronic communication with the processor, the at least one memory having instructions stored thereon which, when executed by the at least one processor, direct the at least one processor to:
 - (a) receive from a trader computer a trading order comprising a total quantity of a product;
 - (b) transmit to the trader computer at least one electronic message comprising a request to indicate a formula for replenishing a quantity of the trading order;
 - (c) receive from the trader computer information about at least one algorithm to determine a displayed quantity for the trading order, in which the information is transmitted from the trader computer to the at least one processor in response to the electronic message comprising a request to indicate a formula for replenishing a quantity of the trading order;
 - (d) apply the algorithm to determine the displayed quantity;
 - (e) determine a reserved quantity based on the determined displayed quantity and the total quantity;
 - (f) communicate the trading order having the determined displayed quantity and the determined reserved quantity, in which the determined displayed quantity is displayed to other traders;
 - (g) determine that the displayed quantity of the trading order was filled;
 - (h) reduce the total quantity of the trading order by the amount of the displayed quantity that was filled; and
 - (i) responsive to determining that the total quantity of the trading order is not yet filled, repeat operations (d) through (f).

*Rejection*²

Claims 21–39 are rejected under 35 U.S.C. § 101 because they are directed to patent-ineligible subject matter. Final Act. 2–5.

ANALYSIS

We disagree with Appellants’ arguments. To the extent consistent with our analysis below, we adopt the Examiner’s findings and conclusions in (i) the action from which this appeal is taken (Final Act. 2–5) and (ii) the Answer (Ans. 3–6).³

The Examiner rejects the claims under 35 U.S.C. § 101 because they are directed to patent-ineligible subject matter. *See* Final Act. 2–5; Ans. 3–6. In particular, the Examiner concludes the claimed processes and functions are directed to a fundamental economic practice. *See* Final Act. 3; Ans. 5. The Examiner determines the claims do not identify an inventive concept to transform the nature of the claims into a patent-eligible application. *See* Final Act. 2–5; Ans. 3–6. Appellants argue the Examiner erred. *See* App. Br. 10–15; Reply Br. 2.

Appellants have not persuaded us of error. 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

² Throughout this opinion, we refer to the (1) Final Office Action dated July 20, 2017 (“Final Act.”); (2) Appeal Brief dated January 12, 2018 (“App. Br.”); (3) Examiner’s Answer dated February 14, 2018 (“Ans.”); and (4) Reply Brief dated April 12, 2018 (“Reply Br.”).

³ To the extent Appellants advance new arguments in the Reply Brief without showing good cause, Appellants have waived such arguments. *See* 37 C.F.R. § 41.41(b)(2).

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. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (internal quotation marks and citation omitted).

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. 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 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 (citation 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 PTO recently published revised guidance on the application of § 101. USPTO, 2019 REVISED PATENT SUBJECT MATTER ELIGIBILITY

GUIDANCE, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Guidance”). Under the guidance set forth in 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 PROCEDURE (“MPEP”) § 2106.05(a)–(c), (e)–(h)) (9th Ed., Rev. 08.2017, 2018) (Step 2A, Prong 2).

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.

Turning to Step 2A, Prong 1 of the Guidance (*Alice* step one), claim 21 (with emphases) recite:

21. An apparatus, comprising:
 - at least one processor;
 - at least one memory in electronic communication with the processor, the at least one memory having instructions stored thereon which, when executed by the at least one processor, direct the at least one processor to:
 - (a) *receive from a trader computer a trading order comprising a total quantity of a product;*

(b) transmit to the trader computer at least one electronic message comprising a request to indicate a formula for replenishing a quantity of the trading order;

(c) receive from the trader computer information about at least one algorithm to determine a displayed quantity for the trading order, in which the information is transmitted from the trader computer to the at least one processor in response to the electronic message comprising a request to indicate a formula for replenishing a quantity of the trading order;

(d) apply the algorithm to determine the displayed quantity;

(e) determine a reserved quantity based on the determined displayed quantity and the total quantity;

(f) communicate the trading order having the determined displayed quantity and the determined reserved quantity, in which the determined displayed quantity is displayed to other traders;

(g) determine that the displayed quantity of the trading order was filled;

(h) reduce the total quantity of the trading order by the amount of the displayed quantity that was filled; and

(i) responsive to determining that the total quantity of the trading order is not yet filled, repeat operations (d) through (f).

All of the italicized limitations are associated with trading.⁴ For example, “(a) receive from a trader . . . a trading order comprising a total quantity of a product” is an activity of trading. Likewise, “(b) transmit to the trader . . . at least one . . . message comprising a request to indicate a formula for replenishing a quantity of the trading order,” “(c) receive from the trader . . . information about at least one algorithm to determine a

⁴ Appellants also argue “a human cannot perform the claimed . . . algorithms with the aid of pencil and paper” (App. Br. 15), but do not persuasively explain why.

displayed quantity for the trading order, in which the information is transmitted from the trader. . . to . . . in response to the . . . message comprising a request to indicate a formula for replenishing a quantity of the trading order,” “(d) apply the algorithm to determine the displayed quantity,” and “(e) determine a reserved quantity based on the determined displayed quantity and the total quantity” manage trading by requesting a formula, and using an algorithm to determine a displayed quantity and a reserved quantity for the trading order. Further, “(f) communicate the trading order having the determined displayed quantity and the determined reserved quantity, in which the determined displayed quantity is displayed to other traders,” “(g) determine that the displayed quantity of the trading order was filled,” “(h) reduce the total quantity of the trading order by the amount of the displayed quantity that was filled,” and “(i) responsive to determining that the total quantity of the trading order is not yet filled, repeat operations (d) through (f)” manage trading by communicating the trading order with the determined displayed quantity, reducing the total quantity of the trading order by the filled displayed quantity, and if the total quantity of the trading order is not filled, repeat operations to fill the total quantity.

Our determination is supported by the Specification, which describes the need to provide better trading systems, such as “us[ing] one or more formulas to determine replenishment amounts so as to disguise the actions of a particular trader” (Spec. ¶ 9):

[0002] *The present invention relates generally to electronic trading and more specifically to a system for replenishing quantities of trading orders.*

. . .

[0004] Many of these electronic trading systems use a bid/offer

process in which bids and offers are submitted to the systems by a passive side and then those bids and offers are hit or lifted (or taken) by an aggressive side. For example, a passive trading counterparty may submit a "bid" to buy a particular trading product. In response to such a bid, an aggressive side counterparty may submit a "hit" in order to indicate a willingness to sell the trading product to the first counterparty at the given price. Alternatively, a passive side counterparty may submit an "offer" to sell the particular trading product at the given price, and then the aggressive side counterparty may submit a "lift" (or "take") in response to the offer to indicate a willingness to buy the trading product from the passive side counterparty at the given price.

[0005] *In accordance with the present invention, the disadvantages and problems associated with prior electronic trading systems have been substantially reduced or eliminated.*

....

[0009] *One advantage is that the trading platform of the present system uses one or more formulas to determine replenishment amounts so as to disguise the actions of a particular trader.* When other traders see multiple transactions involving the same amount of the same trading product, those other traders may guess that a single trader is incrementally purchasing or selling a large amount of that trading product. By replenishing the displayed quantity (or reserved quantity) of a particular trading order using one or more formulas, the trading platform may generate multiple transactions involving different amounts of a trading product. Thus, the trading platform may disguise the fact that a single trader is buying or selling a large amount of a trading product. The formula may be used to generate a random value. In addition, the trading platform may become more or less aggressive during the course of filling trading orders according to the formulas that are used.

Spec. ¶ 2–9 (emphases added).

Similar to the concepts of intermediated settlement in *Alice* and hedging in *Bilski*, the concept of trading “is a fundamental economic

practice long prevalent in our system of commerce.” *Alice*, 573 U.S. at 216 (citations and internal quotation marks omitted). Accordingly, we conclude claim 21 recites a fundamental economic practice, which is one of certain methods of organizing human activity identified in the Guidance, and thus an abstract idea.⁵

Appellants’ assertion regarding pre-emption (App. Br. 14, Reply Br. 2) is unpersuasive, because “[w]hile preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility Where a patent’s claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework, as they are in this case, preemption concerns are fully addressed and made moot.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015); *see also OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015) (“that the claims do not preempt all price optimization or may be limited to price optimization in the e-commerce setting do not make them any less abstract”).

Turning to Step 2A, Prong 2 of the Guidance, contrary to Appellants’ assertion (App. Br. 10–15; Reply Br. 2), Appellants have not shown claim 21 recites additional elements that integrate the judicial exception into a practical application. In particular, Appellants have not shown the additional elements “at least one processor,” “at least one memory in electronic communication with the processor, the at least one memory having instructions stored thereon which, when executed by the at least one processor, direct the

⁵ As a result, the Examiner correctly determines claim 21 is directed to a fundamental economic practice (Final Act. 3; Ans. 5).

at least one processor to,” “computer,” “electronic,” and “the at least one processor” integrate the judicial exception into a practical application.

Appellants’ argument that claim 21 provides “a novel . . . function” (App. Br. 11) is unpersuasive because “a claim for a *new* abstract idea is still an abstract idea.” *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016). “[U]nder the *Mayo/Alice* framework, a claim directed to a newly discovered law of nature (or natural phenomenon or abstract idea) cannot rely on the novelty of that discovery for the inventive concept necessary for patent eligibility” *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1376 (Fed. Cir. 2016) (citations omitted).

Appellants also argue “paragraph ¶ [0009] of Appellants’ published application . . . contains ‘a teaching . . . about how the claimed invention improves a computer.’” App. Br. 12. That argument contradicts the record because paragraph 9 explains the improvement is “us[ing] one or more formulas to determine replenishment amounts so as to disguise the actions of a particular trader”—not “improve[ing] a computer,” as Appellants assert.

[0009] *One advantage is that the trading platform of the present system uses one or more formulas to determine replenishment amounts so as to disguise the actions of a particular trader. When other traders see multiple transactions involving the same amount of the same trading product, those other traders may guess that a single trader is incrementally purchasing or selling a large amount of that trading product. By replenishing the displayed quantity (or reserved quantity) of a particular trading order using one or more formulas, the trading platform may generate multiple transactions involving different amounts of a trading product. Thus, the trading platform may disguise the fact that a single trader is buying or selling a large amount of a trading product. The formula may*

be used to generate a random value. In addition, the trading platform may become more or less aggressive during the course of filling trading orders according to the formulas that are used. Spec. ¶ 9 (emphases added).

Further, Appellants' argument that "the claimed subject matter recites an improvement to the computer by allowing the computer to perform a function it could not previously perform (*i.e.* no prior art anticipates or obviates the claimed subject matter)" (App. Br. 12–13) is unpersuasive, because a prior art rejection is determined under 35 U.S.C. § 102 and § 103, which are different statutory requirements. As the Supreme Court emphasizes: "[t]he '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." *Diehr*, 450 U.S. at 188–89 (emphasis added). Our reviewing court further guides that "[e]ligibility and novelty are separate inquiries." *Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1340 (Fed. Cir. 2017).

As a result, we conclude claim 21 does not recite additional elements that integrate the judicial exception into a practical application. *See* Guidance, Step 2A, Prong 2.

Turning to Step 2B of the Guidance (*Alice* step two), Appellants do not persuasively argue any specific limitation is not well-understood, routine, or conventional in the field. Nor do Appellants persuasively argue the Examiner erred in that aspect. As a result, Appellants have not persuaded us the Examiner erred with respect to the Guidance's Step 2B analysis. *See* Guidance, Step 2B.

Because Appellants have not persuaded us the Examiner erred, we

sustain the Examiner's rejection of independent claim 21 under 35 U.S.C. § 101.

Regarding independent claims 30 and 38, Appellants contend that claims are patent eligible for "at least the same reasons" associated with claim 21. App. Br. 16. Therefore, for similar reasons discussed above, we sustain the Examiner's rejection of independent claims 30 and 38 under 35 U.S.C. § 101.

We also sustain the Examiner's rejection of corresponding dependent claims 22–29, 31–37, and 39 as Appellants do not advance separate substantive arguments about those claims.

DECISION

We affirm the Examiner's decision rejecting claims 21–39.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv). *See* 37 C.F.R. § 41.50(f).

AFFIRMED