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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHRISTOPHER WHITE, JUSTIN GMELICH, DIMITER GEORGIEV, DEBRA HERSCHMANN, PAUL J. HUCHRO, WICHAR JIEMPREECHA, ROSS LEVINSKY, JOHNNY SHAFFER, STEPHANIE MIRIAM SKLAR, and PAUL WALKER

Appeal 2017-011028
Application 13/671,555[1]
Technology Center 3600

Before JOHNNY A. KUMAR, CATHERINE SHIANG, and JASON J. CHUNG, *Administrative Patent Judges*.

CHUNG, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the Final Rejection of claims 1, 3–37, and 43–45.[2] We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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[1] According to Appellants, Goldman, Sachs & Co. is the real party in interest. App. Br. 3.
[2] Claims 2 and 38–42 have been canceled. App. Br. 28, 35.

INVENTION

The invention is directed to filling orders based on time of order entry and liquidity allocation. Abstract. Claim 1 is illustrative of the invention and is reproduced below:

> 1. An order execution method, comprising:
>
> receiving, by an electronic trading system server during an order entry period, a plurality of orders to trade a financial instrument, each order being submitted via an order entry user interface and specifying an order size and a trade side;
>
> identifying, by the electronic trading system server, a trade side with an aggregate order size larger than that of an opposing trade side;
>
> assigning, based on the time of order entry, a first n-number of orders on the identified trade side, where n is a predefined number greater than one;
>
> determining, by the electronic trading system server, a first priority for executing the first n-number of orders on the identified trade side, based on available liquidity and time of order entry, wherein the first priority maximizes the number of trades;
>
> executing, by the electronic trading system server, the first n-number of orders on the identified trade side according to the determined first priority; and
>
> based on available liquidity, executing, by the electronic trading system, remaining orders on the identified trade side.

REJECTION AT ISSUE

Claims 1, 3–37, and 43–45 stand rejected under 35 U.S.C. § 101 as being directed to patent ineligible subject matter. Final Act. 4–10.

ANALYSIS

I. Independent Claims 1, 14, and 26 Rejected Under 35 U.S.C. § 101

A. The Examiners Conclusions and Appellants' Arguments

The Examiner concludes the present claims are directed to an abstract idea of fulfilling prioritizing orders for trading. Final Act. 5. The Examiner concludes that certain limitations in the independent claims recite concepts performed in the human mind. *Id.* at 5–6. And the Examiner determines the present claims do not amount to significantly more than an abstract idea because the Examiner finds the abstract idea is implemented on a computer using generic computer functions that are well-understood, routine, and conventional activities previously known to the industry. *Id.* at 7–8 (citing Spec. ¶¶ 32–36).

Appellants argue the Examiner improperly overgeneralizes the independent claims are directed towards the abstract idea of receiving intangible information and processing or analyzing the information in a human mind or by mathematical algorithm. App. Br. 19–21; Reply Br. 2–4. Appellants argue the independent claims are directed to an unconventional solution for an electronic trading system that fills orders in a trade having imbalanced trade sides that uses a process rewarding both time priority and order size and the claims do not preempt any abstract idea. App. Br. 21–22; Reply Br. 4–6. Appellants argue the Examiner does not provide evidence to support the finding that the abstract idea implements generic components using well-understood, routine, and conventional activities previously known to the industry claims. App. Br. 22–23; Reply Br. 7–9. Appellants argue the Examiner merely analyzes limitations individually, but fails to

explain why the independent claims as a whole do not meet the significantly more threshold. App. Br. 23–25.

B. Legal Principles

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. 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, 69 (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 192 ("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 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's January 7, 2019 Memorandum, *2019 Revised Patent Subject Matter Eligibility Guidance* ("Memorandum"). Under that guidance, we first look to whether the claim recites:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human interactions such as a fundamental economic practice, or mental processes); and
> (2) additional elements that integrate the judicial exception into a practical application (*see* MANUAL OF PATENT EXAMINING PROCEDURE (MPEP) § 2106.05(a)–(c), (e)–(h) (9th Ed., Rev. 08.2017, Jan. 2018)).

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 are not "well-understood, routine, conventional" in the field (*see* MPEP § 2106.05(d)); or
> (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

See Memorandum.

C. Discussion

1. Step 2A, Prong 1 (Alice Step 1)

As an initial matter, we discern no error in the Examiner's conclusion that the present claims are directed to an abstract idea of fulfilling prioritizing orders for trading (i.e., a commercial interaction, which is a certain method of organizing human activity). Final Act. 5. We consider claim 1 (with emphases), reproduced below.

> 1. An order execution method, comprising:
>
> *receiving*, by an electronic trading system server *during an order entry period, a plurality of orders to trade a financial instrument, each order being submitted via an order entry user interface and specifying an order size and a trade side;*
>
> *identifying*, by the electronic trading system server, *a trade side with an aggregate order size larger than that of an opposing trade side;*
>
> *assigning*, based on the time of order entry, *a first n-number of orders on the identified trade side, where n is a predefined number greater than one;*
>
> *determining*, by the electronic trading system server, *a first priority for executing the first n-number of orders on the identified trade side, based on available liquidity and time of order entry, wherein the first priority maximizes the number of trades;*
>
> *executing*, by the electronic trading system server, *the first n-number of orders on the identified trade side according to the determined first priority; and*
>
> *based on available liquidity, executing*, by the electronic trading system, *remaining orders on the identified trade side.*

We conclude the emphasized portions of claim 1 recite the abstract idea of a commercial interaction, which is a certain method of organizing human activity. We also agree with the Examiner's conclusion that certain limitations (i.e., the emphasized portions of the paragraphs beginning with "identifying," "assigning," and "determining" recited directly above) in the

independent claims recite concepts that can be performed in the human mind, which is the abstract idea of a mental process.

We, therefore, disagree with Appellants' argument (App. Br. 19–21; Reply Br. 2–4) that the Examiner improperly overgeneralizes the independent claims are directed towards the abstract idea of receiving intangible information and processing or analyzing the information in a human mind or by mathematical algorithm because a majority of claim 1 recites an abstract idea, as indicated by the emphasized portions above.

Wealso disagree with Appellants' argument (App. Br. 21–22; Reply Br. 4–6) that the independent claims are directed to an unconventional solution for an electronic trading system that fills orders in a trade having imbalanced trade sides that uses a process rewarding both time priority and order size because the claims do not improve an electronic trading system server.

Additionally, we disagree with Appellants' argument that the present claims are patent eligible because they do not preempt any abstract idea (App. Br. 21–22; Reply Br. 4–6); while preemption may denote patent ineligibility, its absence does not demonstrate patent eligibility. *See FairWarning, IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1098 (Fed. Cir. 2016). For claims covering a patent-ineligible concept, preemption concerns "are fully addressed and made moot" by an analysis under the *Mayo*/*Alice* framework. *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015).

Because the independent claims recite a certain method of organizing human activity and a mental process, we proceed to prong 2.

2. Step 2A, Prong 2 (Alice Step 2)

From reproduced claim 1, shown above in the discussion pertaining to *Alice* step 1, prong 1, claim 1 recites additional limitations pertaining to an electronic trading system server. The recitation of an electronic trading system server in claim 1 is recited at a high level of generality. This generic electronic trading system server limitation is no more than a generic component.[3]

Accordingly, this additional element does not integrate the abstract idea into a practical application because it does not impose any meaningful limits on practicing the abstract idea. Because the present claims are directed to an abstract idea, we proceed to Step 2B.

3. Step 2B, (Alice Step 2 Continued)

We discern no error in the Examiner's determination that the independent claims do not amount to significantly more than an abstract idea because the Examiner finds the abstract idea is implemented on a computer using generic computer functions that are well-understood, routine, and conventional activities previously known to the industry. Final Act. 7–8 (citing Spec. ¶¶ 32–36).[4]

We disagree with Appellants' argument (App. Br. 22–23; Reply Br. 7–9) that the Examiner does not provide evidence to support the finding that the abstract idea implements generic components using

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[3] *See also* Final Act. 7–8 (citing Spec. ¶¶ 32–36) (Paragraphs 32 through 36 describe the components in an open ended manner. For example, paragraph 32 states, "executed by a general-purpose computer, a personal computer, a server, and/or other computing systems," which indicates the generic nature of the components recited in the independent claims).
[4] *See* n.4.

well-understood, routine, and conventional activities previously known to the industry claims because the Examiner cites to paragraphs 32 through 36 of Appellants' Specification as evidence to support the Examiner's finding. Final Act. 7–8 (citing Spec. ¶¶ 32–36).

We also disagree with Appellants' argument (App. Br. 23–25) that the Examiner fails to explain why the independent claims as a whole do not meet the significantly more threshold because the Examiner analyzes the entire claim by analyzing each limitation individually and supporting well-understood, routine, and conventional activities previously known to the industry claims finding by citing to paragraphs 32 through 36 of Appellants' Specification. Final Act. 7–8 (citing Spec. ¶¶ 32–36).

Accordingly, we sustain the Examiner's rejection of claims 1, 14, and 26 under 35 U.S.C. § 101.

II. Claims 3–13, 15–25, 27–37, and 43–45 Rejected Under 35 U.S.C. § 101

Appellants separately argue dependent claim 7 (and similarly recited claims 22 and 34). We consider claim 7 (with emphasis), reproduced below.

> 7. The method of claim 5, wherein when order size of at least one of the selected first n-number orders is smaller than the allocated available liquidity, determining the first priority for executing the selected first n-number orders further comprises:
>
> *determining an executable order size for the at least one of the selected first n-number orders by reallocating the available liquidity equivalent to the order size to the at least one of the selected first n-number orders;*
>
> *determining an executable order size for each of the remaining selected first n-number orders by reallocating remainder of the available liquidity equally to each of the remaining selected first n-number orders.*

We conclude the emphasized portions of claim 7 recite the abstract idea of a commercial interaction, which is a certain method of organizing

human activity that do not amount to significantly more than any abstract idea because we find the abstract idea is implemented on a computer using generic computer functions that are well-understood, routine, and conventional activities previously known to the industry. Final Act. 7–8 (citing Spec. ¶¶ 32–36). Similarly, we conclude the emphasized claim 7 limitations above recite concepts performed in the human mind, which is the abstract idea of a mental process that do not amount to significantly more than any abstract idea because we find the abstract idea is implemented on a computer using generic computer functions that are well-understood, routine, and conventional activities previously known to the industry. Final Act. 7–8 (citing Spec. ¶¶ 32–36).

Appellants argue claims 3–13, 15–25, 27–37, and 43–45 are patent eligible because they are directed towards a particular methodology for fulfilling prioritized orders by guaranteeing at least partial fulfillment of an order for a limited number of orders. App. Br. 25–26. We disagree for at least the reasons stated *supra* pertaining to the independent claims. Accordingly, we sustain the Examiner's rejection of claims 3–13, 15–25, 27–37, and 43–45 under 35 U.S.C. § 101

We have only considered those arguments that Appellants actually raised in the Briefs. Arguments Appellants could have made, but chose not to make, in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

DECISION

We affirm the Examiner's decision rejecting claims 1, 3–37, and 43–45 under 35 U.S.C. § 101.

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