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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROGER BURKHARDT, ANNE E. ALLEN,
ROBERT J. McSWEENEY, and LOUIS G. PASTINA

Appeal 2019-002064
Application 11/182,982
Technology Center 3600

Before MURRIEL E. CRAWFORD, PHILIP J. HOFFMANN, and
BRADLEY B. BAYAT, *Administrative Patent Judges*.

BAYAT, *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 1–4, 6–9, and 16–25, which are all the claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as NYSE Merger Sub LLC. Appeal Br. 1.

CLAIMED SUBJECT MATTER

The claims are related “to systems and methods for automatic order processing and execution in conjunction with a live floor auction market.” Spec. 1:10–12. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method for integrating automatic and at least partially non-automatic trading systems, the method comprising:

receiving, by an order processing system, order flow information, the order processing system in communication with a programmed computer and a specialist model computer, the specialist model computer communicatively coupled to the programmed computer via an application program interface (API), the programmed computer configured to automatically process securities orders in an auction market with a published best bid and a published best offer, the specialist model computer comprising a non-transitory memory storing computer-readable instructions and at least one processor executing said computer-readable instructions, the specialist model computer configured to automatically generate and transmit electronic messages to the programmed computer;

automatically directing, by the order processing system, the order flow information along a first order flow pathway to the specialist model computer and separately directing the same order flow information along a second order flow pathway to the programmed computer such that the order flow information is received by the specialist model computer prior to the programmed computer, the order flow information defining a first auction limit buy order with a limit price that is above the published best offer;

defining, by the specialist model computer, responsive to receiving the first auction limit buy order via the first order flow pathway, instructions associated with the first auction limit buy order, said instructions comprising price improvement data and specialist interest data other than the price improvement data;

automatically generating and transmitting, by the specialist model computer, to the programmed computer, an electronic message comprising said instructions;

automatically determining, by the programmed computer, a spread between the published best bid and the published best offer, responsive to receiving the first auction limit buy order via the second order flow pathway;

automatically determining, by the programmed computer, whether the spread is or is not equal to a minimum variation, the minimum variation comprising a minimum difference in price between the published best bid and the published best offer;

modifying, by the programmed computer, responsive to automatically determining that the spread is equal to the minimum variation, the first auction limit buy order according to the price improvement data of the instructions in the electronic message received from the specialist model computer, the programmed computer immediately executing the first auction limit buy order modified according to the price improvement data; and

responsive to automatically determining, by the programmed computer, that the spread is not equal to the minimum variation:

automatically quoting, by the programmed computer, the first auction limit buy order by modifying the limit price to the minimum variation that is higher than the published best bid, such that the modified limit price of the quoted first auction limit buy order becomes a new published best bid that is displayed on the order book, and

performing a further action, by the programmed computer, after the first auction limit buy order is automatically quoted, according to the specialist interest data of the instructions in the electronic message received from the specialist model computer, said further action comprising at least one of trading or quoting with at least one of the first auction limit buy order, one or more orders in the order book and orders at a remote exchange.

REJECTION

The Examiner rejects claims 1–4, 6–9, and 16–25 under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

OPINION

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: “[I]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).

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 (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 (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 PTO recently published revised guidance on the application of § 101. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) (“Guidance”). Under the Guidance, we first look to whether the claim recites:

- (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes); 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. 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 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 Guidance.

Appellant does not argue error as to the Examiner’s determination that the claims are “directed to processing and executing auction limit buy orders,”² which the Examiner characterizes as a fundamental economic

² Independent claims 1, 16, and 17 are directed to buy orders, but independent claim 6 is directed to sell orders.

practice. *See* Ans. 3. Appellant also does not argue Examiner error with respect to the Examiner’s additional determination that the claimed method can be performed by human thought, as it “is directed toward receiving an order, defining instructions by which to process the order, determining a spread, determining whether a spread is or is not equal to a minimum variation, and, based upon the determination, modifying and executing the order.” *Id.*

Appellant instead advances arguments that the claimed methods and systems improve computers, and are unconventional, thus providing “significantly more” than abstract ideas. Appeal Br. 10–29; *see also* Reply Br. 1–8. Specifically, for example, Appellant argues, generally citing *Berkheimer v. HP, Inc.*, 890 F.3d 1369 (Fed. Cir. 2018), “there is nothing conventional about modifying incoming orders in an automated trading system.” Appeal Br. 25.

We agree with Appellant, because the Examiner has oversimplified the nature of the “additional elements,” and has not addressed them in a manner consistent with the Office Guidance. *See* Guidance, 84 Fed. Reg. at 56.

As to “additional limitations” beyond the abstract idea, the Examiner first finds only “additional limitations pertaining to computer system components,” which “are recited at a high level of generality and are recited as performing generic computer functions routinely used in computer applications.” Ans. 4. We disagree with the Examiner’s assertion that the “additional elements” are limited to computer system components.

Later, in response to Appellant’s arguments, as to the claimed “defining . . . instructions” limitation, found recited in some form in every

independent claim, the Examiner finds “‘defining’ is merely the retrieval of information (i.e. price improvement data and specialist interest data, referred to as an instruction when aggregated) from memory. Retrieving information from memory is a well-understood, routine and conventional computer activity.” Ans. 18.

Here, however, the claim recites that the instructions comprise “price improvement data and specialist interest data.” The Specification describes that “the specialist algorithm (5802) receives order flow information prior to the order display book (5804). This allows the specialist algorithm to decide whether to send specialist interest to the order display book, which could interact with that incoming order.” Spec. 44:6–9 (cited at Appeal Br. 2–3). The Specification further describes that the instructions may contain content such as:

Quoting messages: supplement the size of the existing Exchange published best bid or offer; place within the order display book specialist reserve interest at the Exchange published best bid and offer; layer within the order display book specialist interest at varying prices outside the published Exchange quotation; establish the Exchange best bid and offer; and withdraw previously established specialist interest at the Exchange best bid and offer.

Trading messages: provide additional specialist volume to partially or completely fill an order at the Exchange published best bid or offer; match better bids and offers published by other market centers where automatic executions are immediately available; provide price improvement to an order; and trade with the Exchange published quotation.

Spec. 17:13–22.

The “defining” of “instruction” messages involve more than “retrieval of information,” as asserted by the Examiner, because it involves decisions

made by a Specialist, by way of the algorithms programmed into the claimed specialist model computer.

As a further example, the independent claims recite conditional language, for either “modifying . . . the first auction limit buy order according to the price improvement data of the instructions in the electronic message received from the specialist model computer [and] executing the first auction limit buy [or sell] order modified according to the price improvement data,” or “automatically quoting . . . the first auction limit buy [or sell] order by modifying the limit price to the minimum variation that is higher [or lower] than the published best bid.” The Specification provides an example of this modifying, as follows:

[T]he Exchange quote is 20.15 bid, offered at 20.20. Another market is posting the national best offer of 20.18. An AL order to sell, limited to a price of 20.10 arrives. This AL order is automatically offered at 20.19, one penny better than the Exchange best offer existing at the time the AL order arrived. The Exchange quote is now 20.15 bid, offered at 20.19. An order arrives on the Exchange to buy at a limit of 20.19. The order automatically executes against the AL order at a price of 20.18, providing price improvement to the limit order and avoiding trading through the better offer away.

Spec. 7:21–8:5.

As to these limitations, the Examiner finds “‘modifying’ is merely a mathematical calculation (e.g., [.] add three cents to the ask price).

Performing a repetitive calculation is a well-understood, routine and conventional computer activity,” and “[t]ransmitting data (i.e. quoting the first auction limit buy order) over a network is a well-understood, routine and conventional computer activity.” Ans. 19.

As to the “modifying” limitations, the Examiner does not address that the modifying is done by a specialist’s algorithm, to effect a change in an order directed to an automated matching system (“the programmed computer configured to automatically process securities orders in an auction market with a published best bid and a published best offer”). More specifically, considering the combination of the “defining” of “instructions” along with the conditional steps that modify an incoming order to an automated system, the Examiner has not provided evidence that it is well-understood, routine, and conventional for a specialist (a type of “market maker” in an open-call auction market) to be able to provide instructions, for an automated auction market, to modify orders, placed by entities other than the specialist and copied to the specialist before arriving at an automated auction market. This is a requirement, because a specialist modifying orders to an automated auction system is beyond the scope of either the abstract idea of “processing and executing auction limit buy orders,” or the abstract idea of “receiving an order, defining instructions by which to process the order, determining a spread, determining whether a spread is or is not equal to a minimum variation, and, based upon the determination, modifying and executing the order.” Ans. 3.

The Examiner has thus failed to properly identify and analyze the combination of “additional elements” to determine whether they provide “significantly more” than the identified judicial exception. On this record, we do not sustain the rejection of claims 1–4, 6–9, and 16–25 under 35 U.S.C. § 101 as directed to abstract ideas.

CONCLUSION

The Examiner's rejection is REVERSED.

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-4, 6-9, 16-25	101	Eligibility		1-4, 6-9, 16-25

REVERSED