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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte THOMAS F. HALLER

Appeal 2018-001779
Application 14/657,002¹
Technology Center 3600

Before ELENI MANTIS MERCADER, NORMAN H. BEAMER, and
ADAM J. PYONIN, *Administrative Patent Judges*.

BEAMER, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–3, 5, and 7. We have jurisdiction over the pending rejected claims under 35 U.S.C. § 6(b).

We AFFIRM and ENTER NEW GROUNDS OF REJECTION pursuant to 37 C.F.R. § 41.50(b).

¹ Appellant identifies NYSE Group, Inc. as the real party in interest. (App. Br. 1.)

THE INVENTION

Appellant's disclosed and claimed invention is directed to a trading platform adapted for pairs trading of unrelated securities from one or more asset classes using a single order approach. (Abstract.)

Independent claim 1, reproduced below, is illustrative of the subject matter on appeal:

1. A computer-implemented method of pairing, storing and processing unrelated securities, said method comprising:

in a computer system comprising a pairing module, a trading engine module, an order books module and at least one database structure, said database structure defining an order book associated with a unique identifier and storing data defining pairs of unrelated securities corresponding to the unique identifier as single orders in said order book:

receiving, by the pairing module a request to pair at least a first leg and a second leg, the first leg and the second leg comprising two legs of the unrelated securities, each security associated with a different asset class;

comparing, by the pairing module, predetermined criteria of each of the first leg and the second leg to determine whether said first leg and said second leg are tradable as a pair;

converting, by the pairing module, the first leg and the second leg into a created pair of said unrelated securities and assigning the unique identifier to said created pair when it is determined that the first leg and the second leg are tradable as a pair;

causing, by the pairing module, at least one remote trader computing device to automatically present the created pair of said unrelated securities to at least one trader entity for selection;

receiving, by the pairing module, a selection of the created pair of said unrelated securities that is presented from among the at least one remote trader computing device;

creating, by the trading engine module, a pairs trade order corresponding to the created pair of said unrelated securities including the unique identifier, based on the received selection;

entering, by the order books module, said pairs trade order as a single order into the order book based on the unique identifier included in the pairs trade order, the pairs trade order having order parameters, a portion of the order parameters associated with the first leg, another portion of the order parameters associated with the second leg;

automatically matching, by the trading engine module, information in other trade orders to the order parameters of the pairs trade order entered in the order book;

determining, by the trading engine module, whether the order parameters associated with each leg of the entered pairs trade order are met; and

causing, by the trading engine module, at least one computer to automatically execute the pairs trade order as one single order when the order parameters are met.

REJECTIONS²

The Examiner rejected claims 1–3, 5, and 7 under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. (Final Act. 6.)

ISSUE ON APPEAL

Appellant's arguments in the Appeal and Reply Briefs present the following issue:³

² The rejections of claims 1–3, 5, and 7 under 35 U.S.C. § 112, first and second paragraphs (*see* Final Act. 13, 14) were withdrawn in the Answer. (Ans. 2.)

³ Rather than reiterate the arguments of Appellant and the positions of the Examiner, we refer to the Appeal Brief (filed June 8, 2017); the Reply Brief

Whether the Examiner erred in finding claims 1–3, 5, and 7 as directed to non-statutory subject matter. (App. Br. 5–19, Reply Br. 1–7.)

ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellant’s arguments. Arguments Appellant could have made but chose not to make are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner determines the claims are patent ineligible under 35 U.S.C. § 101, because after reviewing each limitation of exemplary claim 1, the Examiner finds the claim “is [] directed to an abstract idea of pairing, storing and processing unrelated securities.” (Final Act. 10; *see* Final Act. 8–10 for analysis.) The Examiner further finds that, with respect to claim 1, “the ten limitations which describe [the] process being performed by respective ‘modules’ labelled as [a] ‘pairing module’, [a] ‘trading engine module’ and [an] ‘order book module’ [are] implemented on a computer system” (Final Act. 11) and “do not amount to significantly more when treated individually and in combination because these elements of the instant process, when taken alone, each execute in a manner routinely and conventionally expected of these elements.” (Final Act. 11–12; *see also Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 217 (2014) (Describing the two-step framework “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.”).)

(filed Nov. 30, 2017); the Final Office Action (mailed Jan. 13, 2017); and the Examiner’s Answer (mailed Oct. 17, 2017) for the respective details.

After the mailing of the Answer and the filing of the Briefs in this case, the USPTO published revised guidance on the application of § 101. (2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) (hereinafter “Memorandum”).) Under the Memorandum, the Office first looks 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* 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, does the Office 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.

We are not persuaded the Examiner’s rejection is in error. We adopt the Examiner’s findings and conclusions as our own, and we add the following primarily for emphasis and clarification with respect to the Memorandum.

Step 2A - Prong One

Appellant’s main argument is that similar to *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016),

the claims include a reconfigured database structure that is specifically reconfigured to define an order book that is associated with a unique identifier and to accept and store pairs trade orders of unrelated securities (corresponding to the unique identifier) as single orders.

(App. Br. 7, emphasis in original.) Thus, as a result of the “claimed database structure,” a pairs trade order may be stored “into a single location,” and is a **“significant and substantial technological advancement”** that “provides *more efficient storage*.” (App. Br. 7.)

For similar reasons, Appellant contends because “the claimed invention results in improved memory and processing efficiency in conventional systems in this art and it results in tangible benefits to the end user,” the claims “are also patentable in view of *BASCOM*.” (App. Br. 10, citing *Bascom Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016).) Appellant further contends that the claims are patent-eligible under *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016), because “the claimed invention implements a novel set of rules that ‘focus on a specific means or method that improves the relevant technology.’” (App. Br. 10.)

We agree with the Examiner that the claimed invention is directed to an abstract idea. *See* Ans. 4–9. Under Supreme Court precedent, claims directed purely to an abstract idea are patent ineligible. As set forth in the Revised Guidance, which extracts and synthesizes key concepts identified by the courts, abstract ideas include (1) mathematical concepts, (2) certain

methods of organizing human activity, and (3) mental processes. Among those certain methods of organizing human activity listed in the Revised Guidance are fundamental economic practices, such as the concept of intermediated settlement in *Alice*, and the concept of hedging in *Bilski v. Kappos*, 561 U.S. 593 (2010). Applying this authority, we conclude claim 1 recites a fundamental economic practice and mathematical concepts.

Specifically, claim 1 recites operations that would ordinarily take place in performing a pairs trade, in which

[t]he concept of pairs trading is disarmingly simple. Find two stocks whose prices have moved together historically. When the spread between them widens, short the winner and buy the loser. If history repeats itself, prices will converge and the arbitrageur will profit.⁴

The trading of single or multiple securities involves the economic acts of purchasing and/or selling securities, typically in one or more financial markets. Such trading forms the basis of a fundamental economic practice.⁵

⁴ Gatev et al., “Pairs Trading: Performance of a Relative-Value Arbitrage Rule,” *The Review of Financial Studies*, Vol. 19, No. 3 (2006), pp. 797–827, available at: <http://www-stat.wharton.upenn.edu/~steele/Courses/434/434Context/PairsTrading/PairsTradingGGR.pdf>.

⁵ See also *Bilski v. Kappos*, 561 U.S. 593, 611 (2010) (“The concept of hedging, described in claim 1 and reduced to a mathematical formula in claim 4, is an unpatentable abstract idea”); *Alice*, 573 U.S. at 218 (“These claims are drawn to the abstract idea of intermediated settlement.”); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355 (Fed. Cir. 2014) (claims that “are squarely about creating a contractual relationship—a ‘transaction performance guaranty’” held as “directed to an abstract idea”); *Accenture Glob. Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013) (claims reciting “generalized software components arranged to implement an abstract concept [of generating insurance-policy-related tasks

Further, limitations used to describe the accomplishment of the pairs trade describe mathematical concepts. The Examiner finds that the claimed

- a. “converting, by the pairing module” (identified by the Examiner as limitation 3) “corresponds to a mathematical concept/formula” and describes “intangible information processing” (*see* Final Act. 8); and
- b. “creating, by the trading engine module” (identified by the Examiner as limitation 6) “corresponds to a mathematical concept/formula” (*see* Final Act. 9);

We agree with the Examiner, as these recited limitations replicate the mathematical operations used in determining and performing a pairs trade, which involves identifying price divergences between two securities whose prices are historically correlated.⁶ *See* Memorandum, Section I (Groupings of Abstract Ideas); *see particularly* fn. 12–13.

based on rules to be completed upon the occurrence of an event] on a computer” not patent eligible); *Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Can. (U.S.)*, 687 F.3d 1266, 1277 (Fed. Cir. 2012) (determining a “method for managing a life insurance policy comprising’ seven steps” is abstract).

⁶ *See, for example*, Gatev et al, at 804 (“We select trading rules based on the proposition that we open a long–short position when the pair prices have diverged by a certain amount and close the position when the prices have reverted. Following practice, we base our rules for opening and closing positions on a standard deviation metric. We open a position in a pair when prices diverge by more than two historical standard deviations, as estimated during the pairs formation period. We unwind the position at the next crossing of the prices.”)

Step 2A - Prong Two

We are unpersuaded by Appellant’s arguments that “the Examiner’s over-simplification [of claim 1] essentially amounts to a generalization ‘untethered from the language of the claims,’ which is explicitly impermissible under *Enfish*.” (App. Br. 14, citing *Enfish*, 822 F.3d at 1337.) The Examiner additionally finds, and we agree, that with respect to modules recited in claim 1,

the pairing module can routinely perform the functions of receiving, comparing, converting, and causing a remote trade computing device to automatically present data. The trading engine module can routinely create a pair trade order. The order books module can routinely enter information regarding the pair trade order into the order book. The trading engine module can routinely perform the functions of automatically matching, determining and causing at least one computer to automatically execute the pairs trade order.

(Final Act. 12; *see also* Final Act. 11.) These limitations fail to integrate the exception into a practical application, as the limitations do not reflect an improvement in the function of a computer or an improvement to a technology or technical field. Instead, these limitations concern mere data gathering and insignificant extra-solution activity.

We are additionally unpersuaded by Appellant’s principal argument that “the claims include a *reconfigured database structure*” and represents a “**significant and substantial technological advancement.**” (App. Br. 7.) Appellant offers no technical reasoning or factual support for the assertion that Appellant’s claimed invention includes a reconfigured database structure and data handling mechanism that provide an advancement in technology. The claim limitations are recited at a high level of generality

and the Specification provides no indication that the recited modules and structures improve the underlying computer system.

Additionally, although the claim recites a “database structure” that defines “a plurality of order books and storing data defining predefined pairs of unrelated securities as single orders in said plurality of order books,” the disclosure fails to describe this structure in terms that one of ordinary skill in the art would use in a description. *See particularly* Spec. ¶¶ 1, 7, 16, 21, 22, 27, and 32–36, Figs. 1 and 4, the portions of the disclosure that Appellant identifies in the Summary of Claimed Subject Matter. (App. Br. 2.)

Accordingly, we determine the claim does not integrate the judicial exception into a practical application. *See* Memorandum, 84 Fed. Reg. at 54. We determine the “claim recites a judicial exception and fails to integrate the exception into a practical application,” therefore we proceed with “further analysis pursuant to the second step of the *Alice/Mayo* test (USPTO Step 2B).” Memorandum, 84 Fed. Reg. at 51.

Step 2B

We agree with the Examiner that the claimed elements and combination of elements do not amount to significantly more than the judicial exception itself. *See* Final Act. 11–12; Memorandum, Section III (B) (Step 2B), 84 Fed. Reg. at 56. The Examiner finds, and we agree, that no particular machine is claimed, in that the disclosure refers only to use of a “computer network 100” that includes “pairs trading platform 130,” which itself is referred to as comprising “pairing module 132,” “trading engine module 134,” and “order books module 136.” (Spec. ¶¶ 20–21, Fig. 1.) Such modules would appear to be part of “computer system 400” described

using generic components. (Spec. ¶¶ 31–36, Fig. 4; *see also Alice*, 573 U.S. at 226 (“merely requiring generic computer implementation fails to transform [the] abstract idea into a patent-eligible invention”).)

Accordingly, we agree with the Examiner that claim 1 is patent ineligible, as well as independent claim 5 not separately argued, and all claims dependent therefrom. *See* App. Br. 19.

NEW GROUNDS OF REJECTION

Pursuant to our authority under 37 C.F.R. § 41.50(b), we enter new grounds of rejection and separately reject independent claim 1 under pre-AIA 35 U.S.C. § 112, first paragraph.

We reject independent claim 1 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, because the disclosure does not convey with reasonable clarity to those skilled in the art that, as of the filing date, Appellant was in possession of the claimed invention. *See, e.g., Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1323 (Fed. Cir. 2000) (citations omitted). As described *supra*, claim 1 recites the limitation:

in a computer system comprising a pairing module, a trading engine module, an order books module and at least one database structure, said database structure defining an order book associated with a unique identifier and storing data defining pairs of unrelated securities corresponding to the unique identifier as single orders in said order book

However, the disclosure is devoid of any description of the database having the claimed “structure.” We note Appellant quotes various statements from the Specification to show support for the “database structure,” but does not

explain how these sections relate to the limitations at issue. *See* App. Br. 19–20. The only use of the term “database” in the disclosure appears to merely acknowledge that databases exist. *See* Spec. ¶ 36 (stating “the term ‘machine-readable storage medium’ should be taken to include a single medium or multiple media (e.g., a centralized or distributed database, and/or associated caches and servers) that store the one or more sets of instructions.”)

Similarly, the disclosure does not provide sufficient description, such as an algorithm, of how to perform the steps in conjunction with the claimed “database structure.” Thus, we do not find any indication that Appellant possessed the “database structure,” or, otherwise, how to achieve the claimed steps using the “database structure.” *See Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 683 (Fed. Cir. 2015) (“The more telling question [for written description analysis] is whether the specification shows possession by the inventor of how accessing disparate databases is achieved.”); *see also In re Wilder*, 736 F.2d 1516, 1521 (Fed. Cir. 1984) (Affirming a rejection for lack of written description because the specification does “little more than outlining goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate.”); *Ex parte Smith*, Appeal 2012-007631, slip op. at 21 (PTAB Mar. 14, 2013) (informative) (“Beyond general statements of the function to be performed, which, at most, may render the claimed function obvious, the inventor has not shown how the recited opinion timeline is generated,” which “is not sufficient because a description that merely renders the invention obvious does not satisfy the written description requirement.”); *see*

also Examining Computer-Implemented Functional Claim Limitations for Compliance with 35 U.S.C. 112, 84 Fed. Reg. 57 (Jan. 7, 2019).

We note the Patent Trial and Appeal Board is a review body, rather than a place of initial examination. We have rejected independent claim 1 based on our authority under 37 C.F.R. § 41.50(b). We have not, however, reviewed the remaining claims to the extent necessary to determine whether those claims fail to meet the requirements of 35 U.S.C. § 112, first paragraph. We leave it to the Examiner to ascertain whether claims 2, 3, 5, and 7 should be rejected on similar grounds to those set forth herein.

CONCLUSION

For the reasons stated above, we affirm the Examiner's non-statutory subject matter rejection of claims 1–3, 5, and 7.

DECISION

The Examiner's decision rejecting claims 1–3, 5, and 7 under 35 U.S.C. § 101 is affirmed.

37 C.F.R. § 41.50(b) provides a “new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 C.F.R. § 41.50(b) also provides that Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

- (1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both,

Appeal 2018-001779
Application 14/657,002

and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner

(2) *Request rehearing.* Request that the proceeding be reheard under §41.52 by the Board upon the same Record

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; 37 C.F.R. § 41.50(b)