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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte THOMAS WINTER, JOHANNES MÜLLER, ALEXANDER MARTIN, SUSANNE PAPE, ANDREA PETER, and SEBASTIAN POKUTTA

Appeal 2018-003506
Application 13/920,041
Technology Center 3600

Before JOSEPH L. DIXON, JENNIFER S. BISK, and STEVEN M. AMUNDSON, *Administrative Patent Judges*.

DIXON, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from a rejection of claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

The claims are directed to a method and system for performing an opening auction of a derivative by,

> determining execution states, market clearing prices and bid and ask prices for futures products at an opening auction. A plurality of orders is received, each order is associated with a price limit, a quantity, a participant and a futures product. For each order a quantity vector is determined, is based on the futures product associated with the order. Further, for each order a price vector is determined, based on the price limit and the futures product associated with the order. Then, an execution state vector is determined by using the determined price and quantity vectors to maximize an objective function subject to constraints. Market clearing prices and best, not executed, buy and sell orders are determined for each product using the execution state vector. Finally the bid and ask prices are given by the price limits of the best, not executed, buy and sell orders.

(Abstract). Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A computer-implemented method for determining an execution state vector, market clearing prices and bid and ask prices for futures products at an opening auction, wherein a futures product is one of a sell futures contract, a buy futures contract, a sell futures contract combination and a buy futures contract combination, the method comprising:

receiving, by at least one computing device, a plurality of orders, wherein each order is associated with a price limit, a quantity, a participant and a futures product;

determining, by at least one computing device, for each order a quantity vector based on the futures product associated with the order, wherein the quantity vector vanishes at all but two entries when the futures product is a buy futures contract combination or a sell futures contract combination;

determining, by at least one computing device, for each order a price vector based on the price limit associated with the order and the futures product associated with the order;

determining, by at least one computing device, an execution state vector by using the determined price and quantity vectors to maximize an objective function subject to constraints, wherein the objective function is based on an executed volume and wherein at least one of the constraints depends on the determined quantity vectors;

determining, by at least one computing device, market clearing prices and best, not executed, buy and sell orders for each futures product using the execution state vector; and

outputting, by at least one computing device, the determined execution state vector, the determined market clearing prices, and bid and ask prices for each futures product, the bid and ask prices being based on the best, not executed, buy and sell orders of the respective futures product.

REJECTION[1]

The Examiner made the following rejection:

Claims 1–20 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more.

ANALYSIS

We have reviewed the Examiner's rejection in light of Appellants' contentions and the evidence of record. We concur with Appellants' contention that the Examiner erred in this case.[2]

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 and requirements of this title." 35 U.S.C. § 101. That provision "'contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.'" *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014) (quoting *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2116 (2013)). According to the Supreme Court,

> [W]e set forth a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from

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[1] The Examiner withdrew the obviousness rejection of claims 1, 2, 6, 8, 10, 14, 16, and 19 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Dreyer and Stevens. (Ans. 7).

[2] Appellants raise additional arguments. Because the identified issue is dispositive of the appeal, we do not reach the additional arguments.

> those that claim patent-eligible applications of those concepts. First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts. . . . If so, we then ask, "[w]hat else is there in the claims before us?" . . . To answer that question, we consider the elements of each claim both individually and "as an ordered combination" to determine whether the additional elements "transform the nature of the claim" into a patent-eligible application. . . . We have described step two of this analysis as a search for an "'inventive concept'" —*i.e.,* 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." (citations omitted).

Alice, 134 S. Ct. at 2355.

The Federal Circuit has described the *Alice* step-one inquiry as looking at the "focus" of the claims, their "character as a whole," and the *Alice* step-two inquiry as looking more precisely at what the claim elements add—whether they identify an "inventive concept" in the application of the ineligible matter to which the claim is directed. *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016); *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015).

According to the Federal Circuit, "[t]he second step of the *Alice* test is satisfied when the claim limitations 'involve more than performance of 'well-understood, routine, [and] conventional activities previously known to the industry.'" *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1367 (Fed. Cir. 2018) (quoting *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1347–48 (Fed. Cir. 2014) and *Alice*, 134 S. Ct. at 2359).

In this case, the Examiner finds,

> The elements of the instant process, when taken alone, each execute in a manner routinely and conventionally expected of these elements. The elements of the instant process, when taken in combination, together do not offer substantially more than the sum of the functions of the elements when each is taken alone. That is, the elements involved in the recited process undertake their roles in performance of their activities according to their generic functionalities which are well-understood, routine and conventional. The elements together execute in routinely and conventionally accepted coordinated manners and interact with their partner elements to achieve an overall outcome which, similarly, is merely the combined and coordinated execution of generic computer functionalities which are well-understood, routine and conventional activities previously known to the industry.

(Final Act. 6–7). The Examiner maintains,

> The claim as a whole, does not amount to significantly more than the abstract idea itself. This is because the claim does not affect an improvement to another technology or technical field; the claim does not amount to an improvement to the functioning of a computer system itself; and the claim does not move beyond a general link of the use of an abstract idea to a particular technological environment.
>
> The claim merely amounts to the application or instructions to apply the abstract idea (i.e. determining an execution state vector, market clearing prices and bid and ask prices for futures products at an opening auction) on a computer, and is considered to amount to nothing more than requiring a generic computer system (e.g.[,] a computer system comprising a processor, a memory, and a program stored in memory) to merely carry out the abstract idea itself. As such, the claim, when considered as a whole, is nothing more than the instruction to implement the abstract idea (i.e.[,] determining an execution state vector, market clearing prices and bid and ask prices for futures products at an opening auction) in a particular, albeit

> well-understood, routine and conventional technological environment.

(Final Act. 8).

In the Appeal Brief, Appellants argue with respect to the *Alice* step-two analysis,

> The Examiner has failed to provide any reasoning or evidence on the record regarding how any of claims relate to an abstract idea. Other than the conclusory comments above which do not take into account the claims as a whole. To simply assert that the claimed invention relates to an abstract idea without providing the required reasoning and evidence on the record is a clear oversimplification of the recited claims, requires a selective reading of the claim language, and disregards the plainly recited claim limitations.

(App. Br. 7). Appellants further contend,

> The statement that "specific details of determining an execution state vector, market clearing prices and bid and ask prices for futures products at an opening auction recited in the independent claim and dependent claims do not change the fact that the claim is drawn to an abstract idea" also has no analytical support. These steps are an ordered series of steps that solve a problem.

(App. Br. 8). Appellants further contend, "The Examiner's assertion regarding generic computer hardware cannot take the place of analysis of the express claim language." (App. Br. 8). Additionally, Appellants argue, "There is no analysis of the ordered combination of claim elements." (App. Br. 10).

In response to Appellants' argument that the Examiner provides no support or evidence to show that the claimed sequence of steps was well-

understood, routine, and conventional, the Examiner maintains that all the steps after the receiving step are directed to the abstract idea of instructing how to determine an execution state vector. (Ans. 8). The Examiner further maintains that the claims do not amount to "significantly more" than the judicial exception and it do not improve the computer-based technology. (Ans. 8–9). The Examiner interprets the claims

> as applying an abstract idea on a computer or conventional computer implementation. The limitations of determining data and using a computer to perform a calculation with respect to determining an execution state vector, market clearing prices and bid and ask prices for futures products at an opening auction are not interpreted as significantly more, rather routine, well understood and conventional steps of performing a calculation, which does not improve functions of a computer.

(Ans. 9).

Appellants further argue "[w]hen addressing the second step of the *Alice* test, the Examiner presents merely conclusion, without analysis or rationale." (Reply Br. 3). Appellants contend

> [f]or example, the Examiner states, "(t)he limitations of determining data and using a computer to perform a calculation with respect to determining an execution state vector, market clearing prices and bid and ask prices for futures products at an opening auction are not interpreted as significantly more, rather routine, well understood and conventional steps of performing a calculation, which does not improve functions of a computer." Page 9 of the Answer. There is no explanation of why the Examiner arrives at this conclusion, only the mere conclusion.

(Reply Br. 3). Appellants argue that all of the steps except the receiving step are not well-known individually or in the combination and that the Examiner has merely concluded that all of the steps are well known. (Reply Br. 5; *see*

also Ans. 4 "The elements together execute in routinely and conventionally accepted coordinated manners and interact with their partner elements to achieve an overall outcome."). Appellants finally contend "[t]he claimed features . . . are not well known individually or in combination and the Examiner cannot change that fact merely by concluding as such." (Reply Br. 5).

We agree with Appellants that the Examiner's assertion contradicts the case law, as the *Berkheimer* court held "[w]hether something is well-understood, routine, and conventional to a skilled artisan at the time of the patent is a factual determination." *Berkheimer*, 881 F.3d at 1369. Therefore, we are constrained by the record to reverse the Examiner's rejection of claims 1–20 on procedural grounds.

CONCLUSION

The Examiner erred in rejecting claims 1–20 based upon a lack of patent-eligible subject matter under 35 U.S.C. § 101.

DECISION

For the above reasons, reverse the Examiner's rejection of claims 1–20 based upon a lack of patent eligible subject matter under 35 U.S.C. § 101.

REVERSED