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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHRISTOPHER J. CROWLEY and PETER BARSOOM

Appeal 2016-008506¹
Application 14/700,347²
Technology Center 3600

Before MICHAEL R. ZECHER, KENNETH G. SCHOPFER, and
TARA L. HUTCHINGS, *Administrative Patent Judges*.

HUTCHINGS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner’s final rejection of claims 1–17. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ Our Decision references Appellants’ Appeal Brief (“App. Br.,” filed May 20, 2016), Reply Brief (“Reply Br.,” filed Sept. 14, 2016), and Specification (“Spec.,” filed Apr. 30, 2015), and the Examiner’s Answer (“Ans.,” mailed July 14, 2016) and Final Office Action (“Final Act.,” mailed Dec. 30, 2015).

² Appellants identify Intercontinental Exchange Holdings, Inc., as the real party in interest. App. Br. 1.

CLAIMED INVENTION

The claimed invention generally relates to “systems and methods of transforming data defining one or more initial portfolios (e.g., non-hedged trading portfolios) into data defining one or more transformed portfolios (e.g., hedged trading portfolios), for example, in connection with the hedging of at least a portion of a futures contracts portfolio.” Spec. ¶ 1.

Claims 1, 9, and 17 are the independent claims on appeal. Claim 9, reproduced below, is illustrative of the claimed subject matter:

9. A computer-implemented method for transforming an initial portfolio into a transformed portfolio via an electronic exchange server, said initial portfolio having an initial settlement price, the electronic exchange server comprising one or more computer devices, each comprising a processing component executing computer-readable instructions that cause the electronic exchange server to perform the steps of:

receiving, by the electronic exchange server, one or more buy or sell orders of the initial portfolio to be transformed;

determining, by the electronic exchange server, an imbalance in orders of the received one or more buy or sell orders;

requesting, by the electronic exchange server, one or more offsetting buy or sell orders to offset the imbalance within a predefined time window;

receiving, by the electronic exchange server, one or more offsetting buy or sell orders to offset the imbalance during or before the predefined time window;

comparing, by the electronic exchange server, data of the one or more buy or sell orders with data of the one or more offsetting buy or sell orders;

pairing, by the electronic exchange server, the one or more buy or sell orders with the one or more offsetting buy or sell orders until the imbalance is completely offset;

determining, by the electronic exchange server, a final auction price based on the paired orders;

determining, by the electronic exchange server, an adjustment amount based on the final auction price and a fixings price;

applying, by the electronic exchange server, the adjustment amount to the initial settlement price to determine a final settlement price; and

applying, by the electronic exchange server, the final settlement price to the initial portfolio to transform the initial portfolio into the transformed portfolio;

wherein the request for one or more offsetting buy or sell orders transmits the request over an Internet communication channel to activate a stock viewer application to cause the request to display on a remote subscriber computer and to enable connection to the electronic exchange server over the Internet for submission of the one or more offsetting buy or sell orders to offset the imbalance during the predefined time window.

REJECTIONS³

Claims 1–17 are rejected under 35 U.S.C. § 101 as directed to patent-ineligible subject matter (i.e., they are directed to a judicial exception without significantly more). Final Act. 3–11.

Claims 1–17 are rejected under 35 U.S.C. § 103 as unpatentable over Williams (US 8,078,521 B1, iss. Dec. 13, 2011) and Costakis (US 2006/0173761 A1, pub. Aug. 3, 2006). Final Act. 15–21.

ANALYSIS

Patent-Ineligible Subject Matter

Under 35 U.S.C. § 101, an invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.”

³ The Examiner’s rejection of claims 1–17 as being indefinite under 35 U.S.C. § 112, second paragraph, has been withdrawn. Final Act. 3.

35 U.S.C. § 101. The U.S. Supreme Court, however, has long interpreted § 101 to include an implicit exception: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *See, e.g., Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014).

The Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice*, 134 S. Ct. at 2355. The first step in that analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts.” *Id.* If the claims are not directed to a patent-ineligible concept (e.g., an abstract idea), the inquiry ends. Otherwise, the inquiry proceeds to the second step where the elements of the claims are considered “individually and ‘as an ordered combination’” to determine whether there are additional elements that “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*, 566 U.S. at 79, 78).

In rejecting the pending claims under 35 U.S.C. § 101, the Examiner determined that the claims comprise “a series of steps” including “receiving buy/sell orders of an initial portfolio,” “determining an imbalance,” “requesting offsetting buy/sell orders,” “receiving offsetting buy/sell orders,” “comparing the buy/sell orders,” “pairing the buy/sell orders,” “determining a final auction price,” “determining an adjustment amount,” “determining a final settlement price,” and “applying the final settlement price to the initial portfolio to transform the initial portfolio into a transformed portfolio.” Final Act. 4–5. The Examiner determined that

“[m]anaging investment portfolios has been widespread used in the industry and is considered to be a fundamental economic practice, which is in the realm of abstract ideas.” *Id.* at 5. The Examiner also determined that the claimed invention is similar to other concepts that have been held by the courts to be abstract, such as comparing new and old information, and using rules to identify options. *Id.* Turning to the second step, the Examiner determined that the claims do not include additional elements or a combination of elements that is sufficient to amount to significantly more than the judicial exception. *Id.* at 6–11.

Appellants argue that “the claims are not directed to managing investment portfolios on a computer; rather, the claims are directed to *transforming* a portfolio.” App. Br. 6. Yet, we see no meaningful distinction between transforming a portfolio and concepts that have been deemed by the courts to be abstract ideas. *See, e.g., OIP Technologies, Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (price optimization in an e-commerce environment is, “[a]t best, . . . the automation of a fundamental economic concept of offer-based price optimization through the use of generic-computer functions”); *Bilski v. Kappos*, 561 U.S. 593, 609–11 (2010) (hedging risk in commodities transactions is a method of organizing human activity and a fundamental economic practice); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016) (determining that collecting information, analyzing information by steps people go through in their minds, or by mathematical algorithms, and presenting the results of collecting and analyzing information, without more, are matters that fall within the realm of abstract ideas). For example, similar to Appellants’ claims, which involve

gathering and processing data and result in applying the adjustment amount to the initial settlement amount price and applying the final settlement price to the initial portfolio, the method claims at issue in *OIP Technologies* involved testing a plurality of prices, gathering statistics about customer reaction, estimating outcomes, and automatically selecting and offering a new price based on the estimated outcome. *OIP Techs.*, 788 F.3d at 1362. As another example, similar to the claims in *Electric Power Group*, Appellants’ claimed invention recites steps for collecting (e.g., “receiving,” “requesting”) and processing (e.g., “determining,” “pairing,” “applying . . . the adjusted amount”) information, and displaying the results (e.g., “applying . . . the final settlement price to the initial portfolio to transform the initial portfolio into the transformed portfolio). Further, like the claims at issue in *Bilski*, Appellants’ claimed invention recites steps for applying a final settlement price for a portfolio, which is a method of organizing human activity and a fundamental economic practice similar to hedging risk.

We disagree with Appellants that the claimed remote stock viewer application is similar to claim elements found unconventional in Example 21. Br. 6 (citing the Office’s July 2015 Guidance,⁴ Example 21); *see also id.* at 13–14 (arguing that the claims are similar to Example 21 because they include features for activating other components, causing other actions to occur that are time-sensitive). Example 21 describes a hypothetical claim 1 as patent-ineligible, and a hypothetical claim 2 as patent-eligible. July 2015 Guidance 2–3. Patent-eligible claim 2 “recites a series of acts for

⁴ *See* July 2015 Update Appendix 1: Examples (available at <https://www.uspto.gov/sites/default/files/documents/ieg-july-2015-app1.pdf>).

distributing stock quotes to selected remote devices.” July 2015 Guidance 4. Applying the first step of the *Alice* analysis, the Office’s July 2015 Guidance determines that steps of comparing and organizing data are a mental process, similar to other concepts held by the courts to be abstract. *Id.* Turning to the second step, the Office’s July 2015 Guidance explains that some of the additional limitations (e.g., storing subscriber preferences and transmitting an alert), viewed individually, do not amount to significantly more than the abstract idea. *Id.* However, when viewed as an ordered combination, the claimed invention “amounts to significantly more than [the abstract idea of] organizing and comparing data” because it “addresses the Internet-centric challenge of alerting a subscriber with time sensitive information when the subscriber’s computer is offline.” *Id.* Specifically, it transmits an alert over a wireless communication channel to activate the stock viewer application, thereby causing the alert to display and enabling the subscriber’s computer to connect to the data source over the Internet when the remote subscriber’s computer comes online. *Id.*

We are not persuaded that the present claims address any comparable Internet-centric challenge, such as patent-eligible claim 2 identified above in Example 21. Instead, Appellants’ claims recite that the request for one or more offsetting buy or sell orders is transmitted over an Internet communication channel to activate the stock viewer application: (i) to cause the request for one or more offsetting buy or sell orders to display on a remote subscriber computer, and (ii) to enable connection to the electronic exchange server over the Internet for submission of the offsetting orders. But there is no indication that these limitations, alone or in combination, address an Internet-centric challenge akin to alerting a subscriber with time-

sensitive information when the subscriber's computer is offline. Instead, these limitations (i.e., cause information to display and to enable a connection) performed by the stock viewer application amount to no more than generic functionality associated with a user interface. *See* Spec. ¶ 15 (describing that a conventional user interface provides a connection through which information can be conveyed to a user).

We are not persuaded by Appellants' argument that the claims are "directed toward a new specialized computer system, namely, an electronic exchange server that . . . activates a specialized stock application viewer to cause the request to display on a remote subscriber computer and to enable connection to the electronic exchange server over the Internet." App. Br. 6. Appellants contend that, "[a]t a minimum, the claims recite unique technical features (including the specialized stock viewer application) that amount to significantly more than an abstract idea." *Id.* We find no indication in the Specification that the particular operations recited in the claims (e.g., activating the stock application viewer or causing the request to display and to enable a connection) require any specialized computer hardware or other inventive computer components, invoke any assertedly inventive programming, or are implemented using other than generic computer components to perform the generic functions recited in the claimed steps (e.g., receiving, determining, requesting, comparing, pairing, and applying data). *See* Spec. ¶¶ 9–12, 15, 33; *see also DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1256 (Fed. Cir. 2014) ("[A]fter *Alice*, there can remain no doubt: recitation of generic computer limitations does not make an otherwise ineligible claim patent-eligible.").

It also is significant here that, even though the claims recite the use of an “electronic exchange server,” “one or more computer devices,” a “stock viewer application,” “an Internet communication channel,” and a “remote subscriber computer,” the underlying processes recited in independent claims 1, 9, and 17 are all acts that could be performed by a human (e.g., manually with pen and paper) without the use of a computer. The U.S. Court of Appeals for the Federal Circuit has held that, if a method can be performed by human thought alone, or by a human using pen and paper, it is merely an abstract idea and is not patent-eligible under § 101.

See CyberSource Corp. v. Retail Decisions, Inc., 654 F.3d 1366, 1372–73 (Fed. Cir. 2011) (“[A] method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101.”); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (“[p]henomena of nature . . . , mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”).

Additionally, mental processes remain unpatentable even when automated to reduce the burden on the user of what once could have been done with pen and paper. *CyberSource*, 654 F.3d at 1375 (“That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*.”).

Appellants argue that the claimed invention is “an improvement over existing electronic trading software.” App. Br. 7; *see also* Reply Br. 2–4 (attempting to draw a further analogy with the claims held patent-eligible in *Enfish*). We recognize that “[s]oftware can make non-abstract improvements to computer technology, just as hardware improvements can.” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d. 1327, 1335 (Fed. Cir. 2016).

However, the relevant inquiry at step one is whether the claims are directed to an improvement to computer functionality versus an abstract idea, such as “economic or other tasks for which a computer is used in its ordinary capacity.” *Id.* at 1336. Here, the focus of the claims is on economic tasks (i.e., an improved process for transforming a portfolio, which is an abstract idea) for which computers are invoked merely as a tool, and not a specific asserted improvement in computer capabilities analogous to *Enfish*’s self-referential table for a computer database. *Id.* We find no parallel between the present claims and the claims in *Enfish*, nor any comparable aspect in the present claims that represents “an improvement to computer functionality.”

We also are not persuaded that the claims are comparable to the claims at issue in *DDR Holdings* because they are computer-centric. App. Br. 8–11. Appellants contend that the claimed invention eliminates various additional processes required by prior art systems to correct inaccurate settlement prices, thereby improving system efficiency and saving system resources. *See* App. Br. 8–11; *see also id.* at 10 (“eliminating wasteful processing is also necessarily computer-centric insofar as it represents a technical solution to a technical problem that only exists in the realm of computers.”). Appellants also assert that the claims improve overall system efficiency “by only activating the claimed stock viewer application when the request is transmitted over the Internet by the electronic exchange system.” *Id.* at 11. As an initial matter, we find nothing in the record, short of attorney argument, attributing an improvement in computer capabilities or a solution to a problem rooted in technology to the claimed invention. *See Icon Health and Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017) (“[a]ttorney argument is not evidence”) (citations omitted).

Instead, the Specification makes clear that the claimed invention is directed to addressing problems in the management of portfolios, such as transforming a non-hedge portfolio into a hedged portfolio. *See Spec.* ¶¶ 2–4, 8.

Moreover, as the court cautioned in *DDR Holdings*, “not all claims purporting to address Internet-centric challenges are eligible for patent.” 773 F.3d at 1258. Here, the improvements Appellants tout (e.g., elimination of functions required when orders are traded at inaccurate prices) pertain to an improvement to a process that itself is an abstract idea (i.e., transforming a portfolio). Unlike the situation in *DDR Holdings*, we find no indication that Appellants’ claims are necessarily rooted in technology to overcome a problem specifically arising in the realm of computer networks, nor that the claims change the routine, conventional functioning of computer networks. *See DDR Holdings*, 773 F.3d at 1257 (determining that the claims changed the routine, conventional functioning of Internet hyperlink protocol).

We also are not persuaded by Appellants’ argument that the present claims are analogous to the claims at issue in *Diamond v. Diehr*, 450 U.S. 175 (1981) because they include features such as activating separate components. App. Br. 11–12. Specifically, Appellants posit that “the electronic exchange server provides a mechanism for determining and controlling when the stock viewer application is activated and what functions it performs,” which is “much like the press in *Diehr* that had a computer program causing it to open and close.” *Id.* at 12. Yet, activating a stock viewer application based on a request, as recited in the claims, is an abstract idea akin to performing an action based on the occurrence of an event. *See, e.g., Accenture Global Servs., GmbH v. Guidewire Software*,

Inc., 728 F.3d 1336, 1344 (generating tasks to be completed on the occurrence of an event is an abstract idea); *Parker v. Flook*, 437 U.S. 584, 594 (1978) (monitoring chemical processing variables and using alarm limits to trigger alarms is an abstract idea).

In *Diehr*, the Supreme Court held that a computer-implemented process for curing rubber was patent eligible because, even though it employed a well-known mathematical equation, it used the equation in a process to solve a technological problem in conventional industry practice. *See Diehr*, 450 U.S. at 185–93. We find no analogous technological problem addressed by Appellants’ claims. Instead, the present claims are directed to receiving and processing data to adjust the initial settlement price of a portfolio, which, as we explain above, is an abstract idea. The claims merely use generic computer components to carry out the abstract idea.

We also are not persuaded of Examiner error by Appellants’ argument regarding preemption. App. Br. 15–16. There is no dispute that the Supreme Court has described “the concern that drives [the exclusion of abstract ideas from patent eligible subject matter] as one of pre-emption.” *Alice*, 134 S. Ct. at 2354. But characterizing preemption as a driving concern for patent eligibility is not the same as characterizing preemption as the sole test for patent eligibility. “The Supreme Court has made clear that the principle of preemption is the basis for the judicial exceptions to patentability” and, “[f]or this reason, questions on preemption are inherent in and resolved by the § 101 analysis.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) (citing *Alice*, 134 S. Ct. at 2354). “[P]reemption may signal patent ineligible subject matter, [but] the absence of complete preemption does not demonstrate patent eligibility.” *Id.*

We also cannot agree that the Examiner has not met his/her burden of establishing a rejection under 35 U.S.C. § 101. App. Br. 17–18. The Federal Circuit has repeatedly observed that “the prima facie case is merely a procedural device that enables an appropriate shift of the burden of production.” *Hyatt v. Dudas*, 492 F.3d 1365, 1369 (Fed. Cir. 2007) (citing *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992)). The Federal Circuit has, thus, held that the Office carries its procedural burden of establishing a prima facie case when its rejection satisfies the requirements of 35 U.S.C. § 132 by notifying the applicant of the reasons for the rejection, “together with such information and references as may be useful in judging of the propriety of continuing the prosecution of [the] application.” *See In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011). Consequently, all that is required of the Office is that it sets forth the statutory basis of the rejection in a sufficiently articulate and informative manner as to meet the notice requirement of § 132. *Id.*; *see also Chester v. Miller*, 906 F.2d 1574, 1578 (Fed. Cir. 1990) (Section 132 “is violated when a rejection is so uninformative that it prevents the applicant from recognizing and seeking to counter the grounds for rejection.”). Here, the Examiner set forth the statutory basis of the rejection in a sufficiently articulate and informative manner as to meet the notice requirement of § 132. Appellants cannot reasonably maintain that the rejection was not understood or that the rejection otherwise fails to satisfy the notice requirement of § 132. Indeed, Appellants’ understanding of the rejection is plainly manifested by Appellants’ responses, as set forth in their briefs.

In the Reply Brief, Appellants additionally argue that the claims are analogous to the claims in *BASCOM Global Internet Services, Inc. v. AT&T*

Mobility LLC, 827 F.3d 1341 (Fed. Cir. 2016). Reply Br. 4–5. Specifically, Appellants contend that the claims improve data accuracy, thereby improving the overall operating efficiency and speed. *Id.* at 5. However, in *BASCOM*, the Federal Circuit decided at step two of the analysis that the claimed invention represents a “technology-based solution . . . to filter content on the Internet that overcomes existing problems with other Internet filtering systems . . . making it more dynamic and efficient.” *BASCOM*, 827 F.3d at 1351 (citations omitted). Here, in contrast, the alleged advantages that Appellants tout concern an improvement to the process for transforming a portfolio itself, not an improvement to computer capabilities or to a computer system itself.

We are not persuaded, on the present record, that the Examiner erred in rejecting claims 1–17 under 35 U.S.C. § 101. Therefore, we sustain the Examiner’s § 101 rejection.

Obviousness

In rejecting claims 1, 9, and 17 under 35 U.S.C. § 103, the Examiner relies on Williams to teach or suggest most of the limitations recited in these claims. Final Act. 15–17. The Examiner acknowledges, however, that Williams does not teach or suggest, among other things, to receive “one or more offsetting buy or sell orders to offset the imbalance during or before the predefined time window,” as recited in claim 1, and similarly recited in claims 9 and 17. Final Act. 17. The Examiner relies on Costakis for this teaching. *Id.* (citing Costakis ¶¶ 8, 24, 136–37, 141–44; Fig. 5); *see also id.* (“Williams does not explicitly disclose the offsetting features).

Costakis describes a virtual specialist program that engages in trading to offset price volatility and provide liquidity to the market. Costakis ¶ 8. The virtual specialist program handles fulfillment of buy and sell orders, providing “instantaneous liquidity by fulfilling all orders, whether or not there are equal and matching sell orders to offset buy orders, and vice versa.” *Id.* ¶ 24. The system keeps a running net movement balance for the quantity of buy or sell trades fulfilled by the virtual specialist program without offsetting sell or buy trades. *Id.* The virtual specialist program regulates trading by trading out of a virtual specialist portfolio (“VSP”) that initially contains half of all issued shares of each derivative financial instrument. *Id.* ¶ 140. Specifically, the virtual specialist program trades out of the VSP when price movement during a particular sweep pricing cycle meets or exceeds an adjusted price movement threshold (APT). *Id.* ¶ 141. A greater price movement results in more shares being traded to offset the price movement. *Id.*

Appellants argue, and we agree, that Costakis does not teach or suggest receiving one or more offsetting buy or sell orders to offset the imbalance during or before the predefined time window, as required by claims 1, 9, and 17, because Costakis’s virtual specialist program fulfills all orders regardless of whether there are equal, and matching sell orders to offset buy orders, and vice versa. App. Br. 18–19 (citing Costakis ¶ 24).

In view of the foregoing, we do not sustain the Examiner’s rejection under 35 U.S.C. § 103 of independent claims 1, 9, and 17, and the claims depending therefrom.

DECISION

The Examiner's rejection of claims 1–17 under 35 U.S.C. § 101 is affirmed.

The Examiner's rejections of claims 1–17 under 35 U.S.C. § 103 is reversed.

Because we have affirmed at least one ground of rejection with respect to each claim on appeal, the Examiner's decision is affirmed. *See* 37 C.F.R. § 41.50(a)(1).

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