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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ADRIAN D. BANNER,
VASILEIOS PAPATHANAKOS,
and PHILLIP WHITMAN

Appeal 2019-001925
Application 14/732,304
Technology Center 3600

Before BRADLEY W. BAUMEISTER, AMBER L. HAGY, and RUSSELL E. CASS, *Administrative Patent Judges*.

BAUMEISTER, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1–13 and 21.[1] Appeal Br. 13–22. We have jurisdiction under 35 U.S.C. § 6(b). The Board conducts a limited *de novo* review of the appealed rejections for error based upon the issues identified by Appellant, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential). We AFFIRM.

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[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 Intech Investment Management LLC. Appeal Brief filed September 6, 2018 ("Appeal Br.") 2.

STATEMENT OF THE REJECTIONS

Claims 1–13 and 21 stand rejected under 35 U.S.C. § 101 as being directed to a judicial exception to patent-eligible subject matter (an abstract idea) without reciting significantly more. Final Act. 2–10.[2]

Claims 1–13 and 21 also stand rejected under 35 U.S.C. § 103 as being unpatentable. Final Act. 10–23.

THE SECTION 101 REJECTION

The Claimed Invention

Independent claim 1 represents the appealed claims.[3] Claim 1 is reproduced below with paragraph designators added for ease of reference and emphasis added to the claim language that recites an abstract idea:

> 1. *A method for analyzing a performance of at least one asset in a portfolio, the method comprising,* with a processor having an associated memory:
>
> [(a)] *retrieving, from a number of financial sources, information for a list of trades, the list of trades representing assets associated with a portfolio that have been traded during a time interval*;
>
> [(b)] *determining, based on the information, a number of returns associated with the list of trades over the time interval*;

[2] Rather than repeat the Examiner's positions and Appellant's arguments in their entirety, we refer to the above mentioned Appeal Brief, as well as the following documents for their respective details: the Final Action mailed May 23, 2018 ("Final Act."); the Examiner's Answer mailed November 16, 2018 ("Ans."); and the Reply Brief filed January 3, 2019 ("Reply Br.").

[3] Appellant argues the section 101 rejection of all of the appealed claims together as a group. Appeal Br. 13–22. Accordingly, we select independent claim 1 as representative. 37 C.F.R. § 41.37(c)(1)(iv).

> [(c)] *creating, for each trade of the assets in the list of trades, a remainder fraction, the remainder fraction being equal to an initial fraction for that trade*;
>
> [(d)] *determining, for each sale of the assets in the list of trades, a rebalancing trading profit contribution to a portfolio return over the time interval via trade attribution matching*;
>
> [(e)] *computing an incidental exposure residual expressed in currency and/or percentage to the portfolio return over the time interval; and*
>
> [(f)] *presenting a performance of the assets in the portfolio comprising: the rebalancing trading profit contribution for each asset, and the incidental exposure residual for the portfolio.*

Principles of Law

A. SECTION 101:

Inventions for a "new and useful process, machine, manufacture, or composition of matter" generally constitute patent-eligible subject matter. 35 U.S.C. § 101. However, the U.S. 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. *Alice Corp. 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 Court's two-step framework, described in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66 (2012), and *Alice. Alice*, 573 U.S. at 217–18 (citing *Mayo*, 566 U.S. at 75–77). 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, 67 (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 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 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*. at 191 (citing *Benson* and *Flook*) (citation omitted); *see also, 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 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.* (alterations in original) (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.*

B. USPTO SECTION 101 GUIDANCE:

In January 2019, the U. S. Patent and Trademark Office ("USPTO") published revised guidance on the application of 35 U.S.C. § 101. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) ("2019 Guidance"), *updated by* USPTO, *October 2019 Update: Subject Matter Eligibility* (available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf) ("October 2019 Guidance Update"); *see also* October 2019 Patent Eligibility Guidance Update, 84 Fed. Reg. 55942 (Oct. 18, 2019) (notifying the public of the availability of the October 2019 Guidance Update). "All USPTO personnel are, as a matter of internal agency management, expected to follow the guidance." 2019 Guidance, 84 Fed. Reg. at 51; *see also* October 2019 Guidance Update at 1.

Under the 2019 Guidance, we first look to whether the claim recites the following:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activities 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)).

2019 Guidance, 84 Fed. Reg. at 52–55.

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, [and] 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.

2019 Guidance, 84 Fed. Reg. at 56.

Analysis

STEP 2A, PRONG 1:

Under step 2A, prong 1, of the 2019 Guidance, we first look to whether the claim recites any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activities such as a fundamental economic practice, or mental processes). 84 Fed. Reg. at 52–54.

Limitations (a)–(f) of claim 1 recite a certain method of organizing human activity. More specifically, the steps recite a fundamental economic practice that entails managing risk in the buying and selling of assets in an asset portfolio. As Appellant explains,

> The principles described herein include a method for analyzing a performance of at least one asset in a portfolio. . . . Such a method identifies a profit resulting from trading assets during a lifetime of a portfolio in a rebalancing manner by buying assets at a low cost and selling the assets at a higher cost. Further, such a method identifies an incidental exposure residual of the performance of the portfolio since the portfolio may be exposed to various risk factors.

Spec. ¶ 12. The 2019 Guidance expressly recognizes such certain methods of organizing human activities as constituting patent-ineligible abstract ideas. 2019 Guidance, 84 Fed. Reg. at 52. The October 2019 Guidance Update further explains,

> the sub-groupings [within the exception of "Certain Methods of Organizing Human Activity"] encompass both activity of a single person (for example, a person following a set of instructions or a person signing a contract online) and activity that involves multiple people (such as a commercial interaction), and thus, certain activity between a person and a computer (for example a method of anonymous loan shopping that a person conducts using a mobile phone) may fall within the "certain methods of organizing human activity" grouping. The number of people involved in the activity is not dispositive as to whether a claim limitation falls within this grouping. Instead, the determination should be based on whether the activity itself falls within one of the sub-groupings.

October 2019 Guidance Update at 5.

Limitation (a)'s step of retrieving information also constitutes a mental process that entails an observation. The step of "retrieving, from a number of financial sources, information for a list of trades, the list of trades

representing assets associated with a portfolio that have been traded during a time interval" reads on the act of observing or reading printed reports—a concept that can be performed in the human mind. The 2019 Guidance also recognizes mental processes, including observations that can be performed in the human mind or with the aid of pen and paper, as constituting a patent-ineligible abstract idea. 2019 Guidance, 84 Fed. Reg. at 52; *see also* October 2019 Guidance Update at 9 ("A claim that encompasses a human performing the step(s) mentally with the aid of a pen and paper recites a mental process." (emphasis omitted).)

The steps recited in limitations (b)–(e) also reasonably constitute mental processes. More specifically, the following steps constitute mental evaluations or judgements that can be performed in the human mind or with the aid of pen and paper: (b) determining a number, (c) creating a remainder fraction, (d) determining a rebalancing trading profit, and (e) computing a residual. The 2019 Guidance's mental-processes judicial exception also includes evaluations and judgements. 2019 Guidance, 84 Fed. Reg. at 52.

Limitation (f)'s step of presenting a performance of the assets in the portfolio also constitutes a mental process. More specifically, presenting a performance, as claimed, constitutes expressing an opinion either orally or with the aid of pen and paper. The 2019 Guidance recognizes that the mental-processes judicial exception includes expressing opinions. 2019 Guidance, 84 Fed. Reg. at 52.

For these reasons, each of limitations (a) through (f) recites a judicial exception to patent-eligible subject matter under step 2A, prong 1, of the 2019 Guidance. *See RecogniCorp, LLC v. Nintendo Co.*, 855 F.3d 1322,

1327 (Fed. Cir. 2017) ("Adding one abstract idea . . . to another abstract idea . . . does not render the claim non-abstract.").

STEP 2A, PRONG 2:

Under step 2A, prong 2, of the 2019 Guidance, we next analyze whether claim 1 recites additional elements that individually or in combination integrate the judicial exception into a practical application. 2019 Guidance, 84 Fed. Reg. at 53–55. The 2019 Guidance provides exemplary considerations that indicate that an additional element or combination of elements integrates the judicial exception into a practical application, such as whether the element reflects an improvement in the functioning of a computer or an improvement to other technology or technical field. *Id.* at 55; MPEP § 2106.05(a).

The preceding analysis of the abstract ideas recited in claim 1 indicates that claim 1's "additional elements" only consist of a "processor having an associated memory," as recited in the claim's preamble. A "processor having an associated memory" is simply part of a generic computer that executes the recited abstract ideas. *See Alice*, 573 U.S. at 226 (determining that the claim limitations "data processing system," "communications controller," and "data storage unit" were generic computer components that amounted to mere instructions to implement the abstract idea on a computer); October 2019 Guidance Update at 11–12 (recitation of generic computer limitations for implementing the abstract idea "would not be sufficient to demonstrate integration of a judicial exception into a practical application"). Nothing in claim 1 reasonably indicates that anything other than a generic computer is needed to carry out the abstract idea.

Furthermore, even if claim 1's first step of "retrieving, from a number of financial sources, information for a list of trades, the list of trades representing assets associated with a portfolio that have been traded during a time interval" is interpreted narrowly as reciting more than an abstract idea by virtue of the preamble stating that the claims are carried out by a processor having a memory, limitation (a) still does not add significantly more to the recited abstract ideas. Under this narrow interpretation, limitation (a) still merely recites insignificant pre-solution activity:

> An example of pre-solution activity is a step of gathering data for use in a claimed process, *e.g.,* a step of obtaining information about credit card transactions, which is recited as part of a claimed process of analyzing and manipulating the gathered information by a series of steps in order to detect whether the transactions were fraudulent.

MPEP § 2106.05(g).

Under a similarly narrow interpretation of limitation (f), claim 1's final step of "presenting a performance of the assets in the portfolio," as claimed does not add any meaningful limitations to the abstract idea either. The limitation merely is directed to the insignificant post-solution activity of presenting information. *E.g.*, *Apple, Inc. v. Ameranth*, *Inc.*, 842 F.3d 1229, 1241–42 (Fed. Cir. 2016) (holding that printing or downloading generated menus constituted insignificant extra-solution activity).

Appellant argues that the claims are directed to patent-eligible subject matter because the claims recite an improvement in computer-related technology. Appeal Br. 14. To support this assertion, Appellant points to the Specification's discussion of "the problem[s] of current systems which do not allow certain types of analysis and which may not accurately determine portfolio performance based on asset trading." *Id*. at 16. While

we do not question Appellant's assertion that "an analysis of Appellant's specification indicates that the claim provides a . . . solution at least in the form of the performance metrics that are determined and how those metrics are determined," Appellant does not persuade us that such a solution is a "technological-based solution." *Id*. at 17. Rather, Appellant's Specification indicates that the purported improvement relates to the underlying abstract ideas, and the additional elements—"the computer having an associated memory"—merely help perform the abstract ideas more efficiently. *See BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018) ("It has been clear since *Alice* that a claimed invention's use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention 'significantly more' than that ineligible concept."); *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) ("[A] claim for a new abstract idea is still an abstract idea." (emphasis omitted)); *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018) ("What is needed is an inventive concept in the non-abstract application realm.").

Appellant argues that the claims recite patent-eligible subject matter because the "the claims do not recite the mere idea of portfolio performance analysis, but rather very clearly describe 'a particular way to achieve' such analysis, including creating remainder fractions, determining a rebalancing trading profit contributions, and calculating an incidental exposure residual." Appeal Br. 17–18. This argument is unpersuasive. The level of abstraction at which the Examiner describes the invention does not change the accuracy of the Examiner's determination. *Apple*, 842 F.3d at 1240 ("An abstract idea can generally be described at different levels of abstraction."); *see also SAP*

Am. Inc., 898 F.3d at 1168 ("[E]ven if a process of collecting and analyzing information is 'limited to particular content' or a particular 'source,' that limitation does not make the collection and analysis other than abstract." (citation omitted)).

Appellant argues that the claims are directed to patent-eligible subject matter because "the claims and specification include subject matter that is non-conventional and non-routine." Appeal Br. 18. According to Appellant, "the subject matter of the present claims is not taught by any reference." *Id*. at 19.

Even assuming Appellant's assertions to be true, though, the arguments still are unpersuasive. "The 'novelty' of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter." *Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981). A novel and nonobvious claim directed to a purely abstract idea is, nonetheless, patent ineligible. *See Mayo*, 566 U.S. at 90.

For these reasons, Appellant does not persuade us that claim 1 is directed to an improvement in the function of a computer or to any other technology or technical field. MPEP § 2106.05(a). Nor is claim 1 directed to a particular machine or transformation. MPEP §§ 2106.05(b), (c). Nor has Appellant persuasively demonstrated that claim 1 adds any other meaningful limitations for the purposes of the analysis under Section 101. MPEP § 2106.05(e). Accordingly, Appellant has not persuaded us that claim 1 integrates the recited abstract ideas into a practical application within the meaning of the 2019 Guidance. *See* 2019 Guidance, 84 Fed. Reg. at 52–55.

STEP 2B:

Under step 2B of the 2019 Guidance, we next analyze whether claim 1 adds any specific limitations beyond the judicial exception that, either alone or as an ordered combination, amount to more than "well-understood, routine, conventional" activity in the field. 84 Fed. Reg. at 56; MPEP § 2106.05(d).

The Examiner determines, and we agree, that the preamble's claim language, "a processor having an associated memory," merely recites conventional computer components. Ans. 9–10 (citing Spec. ¶¶ 29–31, 110–11, 117, Figures 1, 5, 6). *See, e.g.*, Spec. ¶ 30 ("To allow the computers and the servers to exchange data, the computer network (106) may include various hardware components. The hardware components may include processors, a number of data storage devices, a number of peripheral device adapters, and a number of network interfaces (103)."); *id*. ¶ 117 ("The analyzing system (600) of Fig. 6 may be part of a general purpose computer."); *id*. ¶ 110 ("The machine-readable storage medium (604) represents generally any memory capable of storing data such as instructions or data structures used by the analyzing system (600).").

Furthermore, Appellant's Specification does not indicate that consideration of these conventional elements as an ordered combination adds any significance beyond the additional elements, as considered individually. Rather, Appellant's Specification indicates that the invention is directed to a fundamental economic practice (an abstract idea) — managing risk in the buying and selling of assets in an asset portfolio—that is made more efficient with generic computer components. Spec. ¶ 12.

For these reasons, we determine that claim 1 does not recite additional elements that, either individually or as an ordered combination, amount to significantly more than the judicial exception within the meaning of the 2019 Guidance. *See* 84 Fed. Reg. at 52–55; MPEP § 2106.05(d).

Accordingly, we sustain the Examiner's rejection of claim 1 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. We, likewise, sustain the 101 rejection of claims 2–13 and 21, which Appellant does not argue separately. Appeal Br. 13–22.

THE SECTION 103 REJECTION

The Rejection

Claims 1–13 and 21 also stand rejected under 35 U.S.C. § 103 as being unpatentable over Damschroder (US 2009/0292648 Al; published Nov. 26, 2009) and Altomare (US 2012/0030138 Al; published Feb. 2, 2012). Final Act. 10–23.

Examiner Determinations and Appellant's Contentions

The Examiner finds that Damschroder teaches most of the limitations of independent claim 1, but does not teach the limitation, "wherein the rebalancing trading contribution is a rebalancing trading *profit* contribution and a performance comprising the rebalanacing trading […] contribution for each asset." Final Act. 13–14. The Examiner finds that Altomare teaches this limitation and determines that motivation existed to combine these teachings with those of Damschroder. *Id*. at 14.

Appellant asserts that the Examiner's reliance on Damschroder is misplaced because "Damschroder relates to 'measuring and analyzing ***diversification*** of portfolio assets' . . . and not the performance of a

portfolio." Appeal Br. 23 (citing Damschroder, Abstract). Turning to the actual claim language, Appellant argues, *inter alia*, that Damschroder fails to teach or suggest "determining, based on the information, a number of returns associated with the list of trades over the time interval." *Id*. Appellant acknowledges that one of the four paragraphs relied upon in the rejection for teaching this limitation describes "a 'rank selection'" and another of Damschroder's paragraphs mentions "risk of return," but argues that Damschroder "in no way describes determining 'a number of returns associated with the list of trades over a time interval.'" *Id.* Appellant asserts, "it appears as if the final Action is identifying keywords from the claim recitation without considering that the description of those keywords in Damschroder does not match with the claim recitations." *Id.*

Analysis

In relation to the disputed limitation, the rejection reads, in its entirety, as follows:

> See **Damschroder,** at least at [0145], [0156], [0164], [0226] {determining based on the data (see, e.g., [0145], "rank selection . . . determined by examining the derivates of the relationship measures . . . determined by portfolio objectives", [0226], "determination of a portfolio") a number of returns associated with the trades over the time interval (see, e.g., [0156], "principal component analysis, allocation weights or attribution exposures for . . . risk or return" [0164], "sample based on a return series . . . return series and the weight of the sample")}[.]

Final Act. 12.

Appellant's Specification defines the claim term "return" as "a net gain or net loss." Spec. ¶ 17. The Final Action's analysis of this disputed claim limitation rejection does not reasonably explain how these four cited passages of Damschroder teach determining a number of returns associated

with a list of trades over a time interval, as claimed. *See* Final Act. 12. Nor does our review of the four cited, disparate passages reasonably indicate that Damschroder, in fact, teaches or suggests this limitation.

Accordingly, Appellant persuades us of error in the Examiner's obviousness rejection of independent claim 1. We, therefore, do not sustain the Examiner's rejection of that claim or of claims 2–13 and 21, which either depend from claim 1 or otherwise include similar claim language. *See* independent claim 9 (reciting, "the system comprising . . . a profit determining engine to determine, for each sale of the assets in the list of trades, a rebalancing trading profit contribution to a portfolio return over a time interval"); *see also* independent claim 21 (reciting, "retrieving information comprising a list of trades of assets of a portfolio during a specific time interval; . . . determining performance metrics . . . [which] metrics comprise: . . . a benchmark return . . . over the specific time interval").

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/ Basis	Affirmed	Reversed
1–13, 21	101	Eligibility	1–13, 21	
1–13, 21	103	Damschroder, Altomare		1–13, 21
Overall Outcome			**1, 13–21**	

TIME PERIOD FOR RESPONSE

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). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED