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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SERGEY GEORGIEV, DIMITAR KAMENOV,
IVAN GOYCHEV, and BOYAN MANEV¹

Appeal 2019-000227
Application 13/411,254
Technology Center 3600

Before CARL W. WHITEHEAD JR., JASON V. MORGAN, and
JAMES B. ARPIN, *Administrative Patent Judges*.

WHITEHEAD JR., *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

Appellant is appealing the final rejection of claims 1, 5–10, and 13–16 under 35 U.S.C. § 134(a). Appeal Brief 3–8. 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(a). Appellant identifies Vayant Travel Technologies, Inc., as the real party in interest. Appeal Brief 1.

Introduction

The invention is directed “to travel and, more particularly, relates to estimating or refining trip prices and travel routing.” Specification 1.

Representative Claim

1. A system useful for improving travel technologies, comprising:
 - a YQYR calculator configured to calculate a YQYR fee using first and last allowed ticketing dates, which is added to a base fare price to form the estimated trip price;
 - an IATA calculator configured to calculate an IATA fee using first and last allowed travel dates, which is added to the base fare price to form an estimated trip price;
 - a database slots file configured to store base fare prices, YQYR fees, IATA fees, and estimated trip prices;
 - a routing database configured to store records regarding lists of city pairs; and
 - routing selection hardware configured to receive a travel query, finding suitable routes using the routing database based on the estimated trip price, and executing a sorting process to select a list of unique routing combinations based on the estimated trip price so as to decrease a number of generated routings which results in less computation processing, thereby helping to improve the speed by which consumers receive travel solutions over the Internet.

Rejection on Appeal

Claims 1, 5–10, and 13–16 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to patent ineligible subject matter without significantly more. Final Action 5–6.

ANALYSIS

Rather than reiterate the arguments of Appellant and the Examiner, we refer to the Appeal Brief (filed May 15, 2017), the Reply Brief (filed

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October 5, 2018), the Final Action (mailed July 14, 2016), and the Answer (mailed August 8, 2018), for the respective details.

The Examiner determines “[t]he claims are directed to the abstract idea of sorting routing combinations based on an estimated trip price” and, therefore, is a method of organizing human activities. Final Action 5; *see Alice Corp. 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”).

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) (9th ed. 2018)).

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 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 Memorandum.

Alice/Mayo—Step 1 (Abstract Idea)
Step 2A—Prongs 1 and 2 identified in the Memorandum

Step 2A, Prong One

Appellant argues that the claims are not directed to the identified abstract idea of “sorting routing combinations based on an estimated trip price” or that “sorting routing combinations based on an estimated trip price” is an abstract idea. Appeal Brief 11. Appellant contends, the “claims contain at least twenty-two different claim limitations, so it is technically ridiculous for the Examiner to boil all the claim limitations down to ‘sorting routing combinations based on an estimated trip price.’” Appeal Brief 11.

Appellant’s argument is not persuasive. Instead, we agree with the Examiner’s determination that the claims recite an abstract idea. Final Action 2–6.

The Specification discloses:

[A] system form which recites a system for selecting routings based on estimated trip prices. The system comprises a YQYR calculator configured to calculate a YQYR fee, which is added to a base fare price to form an estimated trip price. The system further comprises a routing database configured to store records regarding lists of city pairs. The system additionally comprises routing selection hardware configured to receive a travel query, finding suitable routes using the routing database based on the estimated trip price, and executing a sorting process to select a list of unique routing combinations based on the estimated trip price.

Specification 1.

Claim 1 recites a “system useful for improving travel technologies” wherein:

1. a YQYR calculator configured to calculate a YQYR fee using first and last allowed ticketing dates, which is added to a base fare price to form the estimated trip price;
2. an IATA calculator configured to calculate an IATA fee using first and last allowed travel dates, which is added to the base fare price to form an estimated trip price;
3. routing selection hardware configured to receive a travel query, finding suitable routes using the routing database based on the estimated trip price, and executing a sorting process to select a list of unique routing combinations based on the estimated trip price so as to decrease a number of generated routings which results in less computation processing, thereby helping to improve the speed by which consumers receive travel solutions over the Internet.

Accordingly, the claim recites the abstract idea of “[m]athematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations,” as recited in limitations 1 and 2 above. *See* Memorandum, Section I (Groupings of Abstract Ideas); *see also SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1163 (Fed. Cir. 2018) (holding that claims to a “series of mathematical calculations based on selected information” are directed to abstract ideas); *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1350 (Fed. Cir. 2014) (holding that claims to a “process of organizing information through mathematical correlations” are directed to an abstract idea); *Bancorp Servs., LLC v. Sun Life Assurance Co. of Can. (U.S.)*, 687 F.3d 1266, 1280 (Fed. Cir. 2012) (identifying the concept of “managing a stable value protected life insurance

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policy by performing calculations and manipulating the results” as an abstract idea).²

Therefore, we conclude the claims recite an abstract idea pursuant to Step 2A, Prong One, analysis of the Memorandum. *See* Memorandum, Section III(A)(1) (Prong One: Evaluate Whether the Claim Recites a Judicial Exception).

Step 2A, Prong Two (Integration into a Practical Application)

Under Prong Two of the Memorandum, we must determine “whether the claim as a whole integrates the recited judicial exception into a practical application of the exception” it is noted that a “claim that integrates a judicial exception into a practical application will apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception.” Memorandum, Section III(A)(2).

Appellant argues that the conventional technological process of discovering flights on-line is riddled with problems, however the claimed invention is “directed to an existing technology, namely, on-line discovery of flights, lead to improvements in costs, computation processing, and speed.” Appeal Brief 23–24. As the Federal Circuit has explained, a “claim for a *new* abstract idea is still an abstract idea.” *Synopsis, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016). Even assuming the

² *See also Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (holding that “collecting information, analyzing it, and displaying certain results of the collection and analysis” are “a familiar class of claims ‘directed to’ a patent-ineligible concept”); *see also In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 611 (Fed. Cir. 2016); *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1093–94 (Fed. Cir. 2016).

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technique claimed was “[g]roundbreaking, innovative, or even brilliant,” that would not be enough for the claimed abstract idea to be patent eligible. *See Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 591 (2013).

In *Thales*, the claim recites “[a] system for tracking the motion of an object relative to a moving reference frame, comprising:

- [1] a first inertial sensor mounted on the tracked object;
- [2] a second inertial sensor mounted on the moving reference frame;
- and
- [3] an element adapted to receive signals from said first and second inertial sensors and configured to determine an orientation of the object relative to the moving reference frame based on the signals received from the first and second inertial sensors.

U.S. Patent No. 6,474,159 B1, 11:49–59 (bracketed numbering added). The Federal Circuit determined that *Thales*’ claims “are not merely directed to the abstract idea of using ‘mathematical equations for determining the relative position of a moving object to a moving reference frame,’” but rather “are directed to systems and methods that use inertial sensors in a non-conventional manner to reduce errors in measuring the relative position and orientation of a moving object on a moving reference frame.” *Thales Visionix Inc. v. United States*, 850 F.3d 1343, 1348–49 (Fed. Cir. 2017). As such, the Federal Circuit concluded that *Thales*’ claims are not directed to an “abstract idea” under *Alice* step 1 of the *Alice/Mayo* analysis. *Id.*

We conclude none of Appellant’s claims is like the claims held patent-eligible by the court in *Thales*, in which the claimed invention was directed to the “us[ing] inertial sensors . . . to reduce errors in measuring the

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relative position and orientation of a moving object.” *Thales*, 850 F.3d at 1348–49.

Further, we find Appellant’s claims are distinguished from those claims that our reviewing court has found to be patent eligible by virtue of reciting technological improvements to a computer system. *See, e.g., DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1249, 1257 (Fed. Cir. 2014) (holding that claims reciting computer processor for serving “composite web page” were patent eligible because “the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks”); *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1259 (Fed. Cir. 2017) (holding that claims directed to “an improved computer memory system” having many benefits were patent eligible); *see also* Appeal Brief 27–28 and 42.

In *McRO*³, the Federal Circuit concluded that the claim, when considered as a whole, was directed to a “technological improvement over the existing, manual 3–D animation techniques” through the “use[] [of] limited rules . . . specifically designed to achieve an improved technological result in conventional industry practice.” *McRO*, 837 F.3d at 1316. Specifically, the Federal Circuit found that the claimed rules allow computers to produce accurate and realistic lip synchronization and facial expressions in animated characters that previously could only be produced by human animators; and the rules are limiting because they define morph weight sets as a function of phoneme sub-sequences. *McRO*, 837 F.3d at 1313.

³ *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1303 (Fed. Cir. 2016).

We find no evidence of record here that the present situation is like the one in *McRO*, in which computers did not make certain subjective determinations, i.e., regarding morph weight and phoneme timings, which were made prior to the claimed invention by human animators. *See* Appeal Brief 31–35. The Background section of the *McRO* ‘576 patent includes a description of the admitted prior art method and the shortcomings associated with that prior method. *See McRO*, 837 F.3d at 1303–06. There is no comparable discussion in Appellant’s Specification or elsewhere of record.

Consequently, we do not find Appellant’s arguments persuasive because the claims utilize a calculator, a database, and generic routing selection hardware without any improvement to the functioning of the devices themselves. *See* Specification 1–2; *see also Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016) (“[W]e find it relevant to ask whether the claims are directed to an improvement to computer functionality versus being directed to an abstract idea . . . the focus of the claims is on the specific asserted improvement in computer capabilities (i.e., the self-referential table for a computer database) or, instead, on a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool.”). The claims do not recite an additional element or elements that reflect an improvement in the functioning of a computer, or an improvement to other technology or technical field. *See Alice*, 573 U.S. at 222 (“In holding that the process was patent ineligible, we rejected the argument that ‘implement[ing] a principle in some specific fashion’ will ‘automatically fal[l] within the patentable subject matter of § 101.’” (Alterations in original) (quoting *Parker v. Flook*, 437 U.S. 584, 593 (1978))).

Moreover, we detect no additional element (or combination of elements) recited in Appellant’s representative claim 1 that integrates the judicial exception into a practical application. *See* Memorandum, Section III(A)(2). For example, Appellant’s claimed additional elements (e.g., “calculator,” “database,” “routing selection hardware,” and “advanced computation hardware”): (1) do not improve the functioning of a computer or other technology; (2) are not applied with any particular machine (except for a generic computer); (3) do not effect a transformation of a particular article to a different state; and (4) are not applied in any meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception. *See* MPEP §§ 2106.05(a)–(c), (e)–(h).

Accordingly, we determine the claims do not integrate the recited judicial exception into a practical application, and, thus, the claims are directed to an abstract idea. *See* Memorandum, Section III(A)(2) (Prong Two: If the Claim Recites a Judicial Exception, Evaluate Whether the Judicial Exception Is Integrated Into a Practical Application).

Alice/Mayo—Step 2 (Inventive Concept)
Step 2B identified in the Memorandum

Step 2B

Because we determine that the claims are directed to an abstract idea, we next determine whether the claim includes additional elements that provide *significantly more* than the recited judicial exception, thereby providing an inventive concept. *Alice*, 573 U.S. at 217–18 (quoting *Mayo*, 566 U.S. at 72–73).

Appellant contends that the “proper Section 101 rejections of Claims 1, 5-10, and 13-16 were not established because the required factual basis underlying the rejections was not provided.” Reply Brief 9 (citing *Berkheimer* Memorandum⁴). The Examiner determines that “[t]he additional elements or combination of elements in the claims other than the abstract idea per se amounts to no more than the recitation of generic computer structure that serves to perform generic computer functions that are well-understood, routine, and conventional activities previously known to the pertinent industry.” Final Action 5.

Memorandum, Section III(B) (footnote 36) states (emphasis added):

In accordance with existing guidance, an examiner’s conclusion that an additional element (or combination of elements) is well understood, routine, conventional activity must be supported with a factual determination. For more information concerning evaluation of well-understood, routine, conventional activity, see MPEP 2106.05(d), as modified by the USPTO *Berkheimer* Memorandum.

The *Berkheimer* Memorandum Section III(A) states when formulating rejections, “[i]n a step 2B analysis, an additional element (or combination of elements) is not well-understood, routine or conventional unless the examiner finds, and expressly supports a rejection in writing.” The *Berkheimer* Memorandum⁵ provides four illustrations for the Examiner to

⁴ “Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (*Berkheimer v. HP, Inc.*),” April 19, 2018.

⁵ *Berkheimer* Memorandum Section III(A) (1. A citation to an express statement in the specification or to a statement made by an applicant during prosecution that demonstrates the well-understood, routine, conventional

utilize to provide support for the additional elements to be considered to be well-understood, routine, or conventional. Appellant contends, the:

Final Office Action does not provide a citation to any statement made by the applicant, by a court decision, or by a publication that demonstrates the well-known, routine, conventional nature of the claim elements, and does not provide an indication that the Examiner is taking Official Notice of such facts.

Reply Brief 10; *see* Appeal Brief 25; Final Action 5.

Consequently, the Examiner's findings that the additional claim elements are well-understood, routine, and conventional are not properly based upon a factual determination as specified in the *Berkheimer* Memorandum, Section III(A)(1). We are constrained by the record whereby upon reevaluation of the additional claim elements in light of the insufficient factual determination, the additional claim elements indicate that an inventive concept is present and, therefore, the claims are patent eligible. *See* Memorandum, Section III(B) ("If such reevaluation indicates that the element is unconventional or otherwise more than what is well-understood, routine, conventional activity in the field, this finding may indicate that an inventive concept is present and that the claim is thus eligible.").

Accordingly, on this record, we conclude claims 1, 5–10, and 13–16 recite limitations that amount to significantly more than the abstract idea

nature of the additional element(s); 2. A citation to one or more of the court decisions discussed in MPEP § 2106.05(d)(II) as noting the well-understood, routine, conventional nature of the additional element(s); 3. A citation to a publication that demonstrates the well-understood, routine, conventional nature of the additional element(s); and 4. A statement that the examiner is taking official notice of the well-understood, routine, conventional nature of the additional element(s).).

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itself. We reverse the Examiner's § 101 rejection of claims 1, 5–10, and 13–16.

CONCLUSION

Claims Rejected	35 U.S.C. §	Basis	Affirmed	Reversed
1, 5–10, 13–16	101	Eligibility		1, 5–10, 13–16

REVERSED