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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHRISTOPHER J. MERZ, WALTER LO FARO,
ADAM K. HOSP, MATTHEW RICHARD STOCKE,
STEPHEN P. HENDRIX, and ROBERT T. GROTHE JR.¹

Appeal 2018-000954
Application 13/797,400
Technology Center 3600

Before BARBARA A. BENOIT, JAMES B. ARPIN, and
MICHAEL M. BARRY, *Administrative Patent Judges*.

BARRY, *Administrative Patent Judge*.

DECISION ON APPEAL
STATEMENT OF THE CASE

Introduction

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1, 4–11, 13–15, and 17–24, which are all of the pending claims.² We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

¹ Appellants identify the real party in interest as MasterCard International Incorporated. App. Br. 1.

² See Final Act. 1; see also App. Br. 17–26 (Claims App'x).

Subject Matter

Appellants' disclosure and claims relate to "recommending merchants to a transaction payment cardholder based at least in part on the cardholder's past transaction history and the cardholder's merchant preferences."

Spec. ¶ 1. Appellants disclose a "recommender application" for providing merchant recommendations to cardholders based on electronic payment information from network transactions, and, specifically, based on transaction information over the payment card network by cardholders that have each engaged in transactions with multiple merchants within a predetermined time period and geographic region. *See* Spec. ¶¶ 17, 71–80, Figs. 2, 3, 6–8. Appellants disclose an algorithm for processing the merchant transaction data in a manner that eliminates individual cardholder bias to create an unbiased "merchant popularity matrix" for use in making recommendations. Spec. ¶¶ 80, 81. The matrix is used along with a candidate cardholder's individual preference information (i.e., which can reflect that cardholder's bias) to create a ranked list of merchant recommendations, which is displayed on a cardholder's device, such as a smartphone. *See* Spec. ¶¶ 81–87, Figs. 7, 12.

Claims 1, 15, and 21 are independent; claim is illustrative and recites:

1. A computer system for recommending at least one merchant of a plurality of merchants to a candidate cardholder, said computer system comprising:
 - a memory device for storing data; and
 - a processor in communication with said memory device, said processor programmed to:
 - identify a plurality of merchants located within a predefined geographical region;

retrieve, from a payment network, electronic payment transaction information for a plurality of electronic payment card transactions involving a plurality of cardholders including the candidate cardholder and at least some of the plurality of merchants, the plurality of electronic payment transactions occurring within a predefined time period;

identify from the electronic payment transaction information a subset of cardholders from the plurality of cardholders, each of the subset of cardholders having completed electronic payment transactions with at least two of the plurality of merchants;

create, based on the retrieved electronic payment transaction information associated with the subset of cardholders, a merchant popularity matrix, wherein the merchant popularity matrix includes a counter associated with each pair of merchants included within the plurality of merchants, wherein to create the matrix, an associated counter is incremented when a cardholder in the subset of cardholders completes electronic payment transactions at both merchants in the pair, and wherein, to reduce an effect of cardholder bias towards a single merchant, no counter in the merchant popularity matrix is incremented when a cardholder completes multiple electronic payment transactions at the same merchant;

receive data signals from the payment network including data associated with electronic payment transactions for the candidate cardholder;

determine gratuity information for the candidate cardholder from the data signals;

determine candidate cardholder preference information for at least one candidate merchant of the plurality of merchants based at least in part on the gratuity information determined from the data signals;

create a candidate cardholder preference vector based on the candidate cardholder preference information, wherein the candidate cardholder preference

vector represents a level of preference of the candidate cardholder for one merchant relative to at least one other merchant;

determine a merchant rank for each merchant of the plurality of merchants based on the merchant popularity matrix and the candidate cardholder preference vector;

determine a neutral merchant rank for each merchant of the plurality of merchants based on the retrieved electronic payment transaction information associated with the plurality of cardholders and a neutral preference vector including preference information values that are equal for each merchant of the plurality of merchants;

determine a merchant score for each merchant of the plurality of merchants based on a difference between the merchant rank and the neutral merchant rank; and

cause a list of recommended merchants including the at least one merchant to be displayed on a user device based on the determined merchant scores, wherein the user device is associated with the candidate cardholder.

App. Br. 17–18 (Claims App’x).

Rejections³

Claims 1, 4–11, 13–15, and 17–24 stand rejected under 35 U.S.C. § 112, first paragraph for failing to comply with the written description requirement. Final Act. 12–14.

Claims 1, 4–11, 13–15, and 17–24 stand rejected under 35 U.S.C. § 101 as directed to patent-ineligible subject matter. *Id.* at 17–24.

³ The Examiner had rejected claims 1, 4–11, 13–15, and 17–24 for indefiniteness under 35 U.S.C. § 112, second paragraph, but withdrew that rejection in response to Appellants’ Appeal Brief argument. *See* Final Act. 15–16; App. Br. 15; Ans. 3.

ANALYSIS

(a) *Adequate Written Description*

All three independent claims recite “wherein, to reduce an effect of cardholder bias towards a single merchant, no counter in the merchant popularity matrix is incremented when a cardholder completes multiple electronic payment transactions at the same merchant.” The Examiner determines this limitation lacks written description support in the Specification. Final Act. 12–14 (citing Spec. ¶ 81). Specifically, the Examiner finds that “while there is disclosure of a matrix that is free of bias, [the] Examiner cannot find disclosure in the specification that [a reduction in] the effect of cardholder bias is achieved by not incrementing counters when a cardholder completes multiple electronic payment transactions at the same merchant.” *Id.* at 13–14.

Appellants argue the Examiner errs because the cited Specification paragraph explains that “a cardholder must have transacted with two or more [] merchants . . . to be counted in matrix 806. This facilitates reducing an effect of cardholder bias towards a single merchant.” App. Br. 15 (quoting Spec. ¶ 81, emphasis omitted). We agree with Appellants. Each value in the matrix is associated with a merchant pair, and a value is incremented only when there are transactions with both merchants in the pair. Spec. ¶ 81. Accordingly, an ordinarily skilled artisan would have understood, as Appellants explain, that “if a cardholder only completes multiple transactions at the same merchant, no counter is incremented.” App. Br. 15.

Thus, we do not sustain the rejection of claims 1, 4–11, 13–15, and 17–24 under 35 U.S.C. § 112, first paragraph.

(b) *Patent Eligible Subject Matter*

Appellants argue the Examiner errs in the § 101 rejection based on the independent claims. App. Br. 7–15. We select claim 1 as representative of all claims. 37 C.F.R. 41.37(c)(1)(iv).

(1) *Principles of Law*

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. The Supreme Court, however, has long interpreted 35 U.S.C. § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *E.g., Alice Corp. Pty. Ltd. 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 U.S. Supreme Court’s two-step framework, described in *Mayo* and *Alice*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). 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, 69 (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 176; *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.* (citing *Benson* and *Flook*); *see also 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 citation 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.* (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.*

The Office recently published revised guidance on the application of § 101. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50–57 (Jan. 7, 2019) (“2019 PEG”). Under the 2019 PEG, we first look to whether the claim recites:

- (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)).⁴

See 2019 PEG at 52, 54–55. 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 2019 PEG at 56.

(2) *The Examiner’s Abstract Idea Determination*

The Examiner determines claim 1 “can be summarized [as] generating merchant recommendations by processing payment transaction information.”

⁴ All references to the MPEP are to Rev. 08.2017 (Jan. 2018).

Final Act. 19. The Examiner determines the limitations of claim 1 are similar, at least in part, those found to be abstract in *SmartGene* and *Electric Power Group, Digitech, Cyberfone, and Cybersource*.⁵ Final Act. 19–20. Thus, the Examiner determines claim 1 recites limitations that “represent (a) an idea of itself, in that they represent mental processes that can be performed in the human mind or by a human using pen and paper, (b) concepts relating to the economy and commerce, and (c) concepts relating to interpersonal and intrapersonal activities.” Final Act. 21.

(3) *Appellants’ Contentions*⁶

Appellants contend claim 1 has a technological focus on a software application that uses transactions over an electronic payment network and is directed to patent-eligible subject matter because it “focus[es] on **a specific means or method that improves the relevant technology.**” App. Br. 7 (quoting *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016)). Appellants argue that claim 1 recites “a **combination** of limitations that operate in a **non-conventional** and non-generic way to process electronic payment transaction information and data signals from a payment network to generate accurate merchant

⁵ *SmartGene, Inc. v. Advanced Biological Labs., SA*, 555 F. App’x 950 (Fed. Cir. 2014); *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016); *Digitech Image Technologies, LLC v. Electronics for Imaging, Inc.*, 758 F.3d 1344 (Fed. Cir. 2014); *Cyberfone Systems, LLC v. CNN Interactive Group, Inc.*, 558 F. App’x 988 (Fed. Cir. 2014); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366 (Fed. Cir. 2011).

⁶ Our decision to reverse the Examiner on the § 101 rejection discusses only those of Appellants’ contentions necessary to reach our conclusion.

recommendations for display on a user device. App. Br. 11. This argument is persuasive.

(4) *Our Analysis*

We agree with the Examiner that claim 1 recites limitations that “can be summarized [as] generating merchant recommendations by processing payment transaction information.” Final Act. 19. We also agree with the Examiner that claim 1 recites limitations that “are, at least in part, similar to those found to be abstract in [*SmartGene, Electric Power Group, Digitech, Cyberfone, and Cybersource*].” *Id.* at 19–20. Thus, there is support for the Examiner’s determination that “the claims are at least in part directed to concepts found to be abstract.” *Id.* at 20. Consistent with the 2019 PEG, however, as discussed below, we disagree with the Examiner’s conclusion under the first step of *Alice/Mayo*.

As the Federal Circuit has repeatedly cautioned, we “‘must be careful to avoid oversimplifying the claims’ by looking at them generally and failing to account for the specific requirements of the claims.” *McRO*, 837 F.3d at 1313 (quoting *In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 611 (Fed. Cir. 2016)). For example, in *McRO*, the claim at issue recited a “rules-based” algorithm that the Federal Circuit determined was integrated into a process directed to a patent-eligible improvement to computer-automated animation (i.e., to improve a computer-automated process of an otherwise human activity). *See* 837 F.3d at 1314–16; *see also id.* at 1313 (noting “processes that automate tasks that humans are capable of performing are patent eligible if properly claimed”).

Here, Appellants’ claim 1 includes a rules-based algorithm that is integrated into a user interface application for providing merchant

recommendations to a cardholder based on payment network information. In addition to providing a user interface, claim 1 integrates the algorithm with, in the vernacular of the claim, “data signals from the payment network including data associated with electronic payment transactions for the candidate cardholder.” In other words, claim 1 does not seek to patent the recited mathematical algorithm and data processing steps in the abstract, but instead includes additional elements that integrate them into a practical application. In similar situations, our reviewing court has found claims directed to such practical user interface functionality to be patent eligible. *See, e.g., Trading Technologies Int’l, Inc. v. CGQ, INC.*, 675 F. App’x 1001, 1003–05, (Fed. Cir. 2017) (determining claims directed to electronic trading of stocks, bonds, etc. were directed to patent-eligible improvements in existing graphical user interface devices that had no pre-electronic trading analog); *Core Wireless Licensing S.A.R.L. v. LG Electronics, Inc.*, 880 F.3d 1356, 1359–60, 1362–63 (Fed. Cir. 2018) (determining at *Alice/Mayo* step one “[t]he asserted claims in this case are directed to an improved user interface for computing devices, not to the abstract idea.”); *see also Finjan, Inc. v. Blue Coat Systems, Inc.*, 879 F.3d 1299, 1305 (Fed. Cir. 2018) (holding the claims at issue were “directed to a non-abstract improvement in functionality, rather than the abstract idea”); *Diehr*, 450 U.S. at 185–91 (observing “an *application* of a . . . mathematical formula to a known . . . process may well be deserving of patent protection” (quoting *id.* at 187)).

Thus, we conclude at *Alice/Mayo* step one that claim 1, as a whole, is not directed merely to the abstract ideas of its recited algorithm and data processing limitations, but, instead, recites additional elements that integrate the abstract ideas into a practical application for a user interface for

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recommending merchants based on electronic payment network transaction information. *See* 2019 PEG at 54–55; MPEP § 2106.04(a)(1)(II).

DECISION

For the above reasons, we reverse the rejections of claims 1, 4–11, 13–15, and 17–24 under both 35 U.S.C. §§ 101 and 112, first paragraph.

REVERSED