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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte ANDREW J. IVORY, TODD E. KAPLINGER,
AARON K. SHOOK, and DAVID M. STECHER

———————————

Appeal 2018-006509
Application 13/913,585[1]
Technology Center 2100

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Before JAMES R. HUGHES, ERIC S. FRAHM, and
MATTHEW J. McNEILL, *Administrative Patent Judges.*

FRAHM, *Administrative Patent Judge.*

DECISION ON APPEAL

———————————

[1] International Business Machines Corporation ("Appellant") is the
applicant, under 37 C.F.R. § 1.46 (*see* Application Data Sheet filed June 10,
2013), and is identified as the real party in interest. App. Br. 1.

STATEMENT OF THE CASE

Introduction

Appellant appeals under 35 U.S.C. § 134(a) from a non-final rejection of claims 1–7. *See* App. Br. 3–42.[2] We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

Exemplary Claim

Appellant's disclosed and claimed invention pertains to optimizing the loading of a web page based on aggregated user preferences for Web page elements of the Web page. Spec. ¶ 2. Claim 1, reproduced below, is illustrative of the claimed subject matter:

> 1. A method for optimizing the loading of a web page, the method comprising:
>
> receiving indications of web page elements of interest of a web page from a plurality of client devices;
>
> updating a list of web page elements of said web page sorted in terms of popularity based on said received indications of web page elements of interest of said web page;
>
> receiving a request to retrieve said web page;
>
> accessing said sorted list of web page elements of said web page; and

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[2] We refer to Appellant's Specification ("Spec.") filed June 10, 2013; Supplemental Appeal Brief ("App. Br.") filed December 12, 2017; and Reply Brief ("Reply Br.") filed June 6, 2018. We also refer to the Examiner's Non-Final Office Action ("Non-Final Act.") mailed September 21, 2017; and Answer ("Ans.") mailed April 10, 2018.

> transmitting, by a processor, data to populate content of web page elements of said web page in an order based on said sorted list.

The Examiner's Rejections

Claims 1–7 stand rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter.

Claims 1, 2, and 5 stand rejected under 35 U.S.C. § 102(a)(1) as being anticipated by Khorashadi (US 2013/0031459 A1; Jan. 31, 2013).[3]

Claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Khorashadi and Bryar (US 8,225,195 B1; July 17, 2012).

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Khorashadi and Coleman (US 2011/0055740 A1; Mar. 3, 2011).

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[3] Appellant asserts the Examiner improperly searched for the new prior art references relied upon in the current anticipation and obviousness rejections, subsequent to the Board's prior decision reversing obviousness rejections based on other prior art references. *See* App. Br. 7–8; Reply Br. 2. The Board's role is to review the rejections on the record. *See* 35 U.S.C. § 6(b) ("The Patent Trial and Appeal Board shall–(1) on written appeal of an applicant, review adverse decisions of examiners upon applications for patents pursuant to section 134(a)"). The Examiner's conduct regarding the new search is a petitionable matter, and we do not address it in our opinion. *See* 37 C.F.R. § 1.181(a) ("Petition may be taken to the Director: (1) From any action or requirement of any examiner in the *ex parte* prosecution of an application . . . which is not subject to appeal to the Patent Trial and Appeal Board or to the court") (emphasis added); MANUAL OF PATENT EXAMINING PROCEDURE ("MPEP") § 1201 (Ninth Edition, Revision 08.2017 (rev. Jan. 2018)) ("The line of demarcation between appealable matters for the Board and petitionable matters for the Director of the U.S. Patent and Trademark Office (Director) should be carefully observed.").

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Khorashadi and Venkatrao (US 2014/0188814 A1; July 3, 2014).

ANALYSIS

Patent Eligibility

Patent-eligible subject matter is defined in 35 U.S.C. § 101 of the Patent Act, which recites:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

There are, however, three judicially-created exceptions to the broad categories of patent-eligible subject matter in 35 U.S.C. § 101: "[l]aws of nature, natural phenomena, and abstract ideas." *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court's two-step framework, described in *Mayo* 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 id.* 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 . . . .").

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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 (1853))); 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 Supreme 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 Supreme 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, 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 (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.* (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 PTO recently published revised guidance on the application of § 101. USPTO's January 7, 2019 Memorandum, *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (hereinafter, "Revised Guidance"). Under that guidance, after determining that a claim falls within one of the statutory categories under §101 (hereinafter, "USPTO Step 1"), we determine whether the claim recites:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, mental processes, or certain methods of organizing human activities such as a fundamental economic practice or managing personal behavior or relationships or interactions between people) (hereinafter, "USPTO Step 2A, Prong 1"); and
> (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP §§ 2106.05(a)–(c), (e)–(h)) (hereinafter, "USPTO Step 2A, Prong 2").

Revised Guidance, at 51–52, 54–55. Only if a claim: (1) recites a judicial exception, and (2) does not integrate that exception into a practical application, do we then evaluate whether the claim provides an inventive concept. Revised Guidance, at 56; *Alice*, 573 U.S. at 217–18. For example, we 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, and conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception (hereinafter, "USPTO Step 2B").

Revised Guidance, at 56.

USPTO Steps 1 and 2A, Prong 1

Claim 1 relates to "[a] method for optimizing the loading of a web page," which, on its face, falls at least within the category of a "process" under 35 U.S.C. § 101. *See* MPEP § 2106.03(I). The Examiner finds, however, that claim 1 is directed to a judicial exception, in particular, an abstract idea. Non-Final Act. 4–5. Specifically, the Examiner compares certain concepts embodied by claim 1—"receiving information, sorting the received information, and transmitting the sorted information for display"— to the abstract concepts found by the Federal Circuit in *Electric Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016). Non-Final Act. 4; Ans. 15. The Examiner further compares the sorting concept in claim 1 to a "mathematical algorithm" (Non-Final Act. 4–5) and a "method of organizing human behavior." Ans. 15. Appellant contends that claim 1 is unlike the patent-ineligible claims in *Electric Power* and that claim 1 is not directed to an abstract mathematical algorithm or any of the abstract methods of organizing human activity identified by the Examiner in the Answer. *See* App. Br. 9–14; Reply Br. 4–8. We are persuaded by Appellant that claim 1 is not directed to an abstract idea.

We focus here on the claim 1 limitations that correspond to the concepts the Examiner has found constitute an abstract idea. *See* Non-Final

Act. 4. Claim 1 recites "receiving indications of web page elements of interest of a web page from a plurality of client devices," "updating a list of web page elements of said web page sorted in terms of popularity based on said received indications of web page elements of interest of said web page," and "transmitting, by a processor, data to populate content of web page elements of said web page in an order based on said sorted list." These limitations, under their broadest reasonable interpretation, recite loading a Web page by transmitting Web page elements in an order based on a determined popularity of respective elements, i.e., a particularly optimized loading of a Web page. The optimized loading of a Web page recited in claim 1 does not fall into any of the subcategories of abstract ideas enumerated in the Revised Guidance, namely:

       (a) Mathematical concepts—mathematical relationships, mathematical formulas or equations, mathematical calculations;

       (b) Certain methods of organizing human activity— fundamental economic principles or practices (including hedging, insurance, mitigating risk); commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations); managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions); and

       (c) Mental processes—concepts performed in the human mind (including an observation, evaluation, judgment, opinion).

Revised Guidance, at 52. In particular, the sorting feature of claim 1— "updating a list of web page elements of said web page sorted in terms of popularity based on said received indications of web page elements of interest of said web page"—does not define any mathematical relationships,

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formulas, equations, or calculations. While sorting may be based on underlying mathematical concepts, updating a sorted list of Web page elements based on popularity is not a naked mathematical abstraction, but part of a procedure that defines how to load a Web page. The sorting feature of claim 1 also does not define one of the enumerated subcategories of methods of organizing human activity. Rather than organizing any economic, commercial, legal, or human-based activity, the claimed updating of a sorted list of Web page elements based on popularity organizes information in the service of a technical pursuit, i.e., loading a Web page in a particularly optimized way.

In addition, claim 1 is unlike the claims at issue in *Electric Power*. In *Electric Power* the claims focused on "collecting information, analyzing it, and displaying certain results of the collection and analysis." 830 F.3d at 1353. The court found "[t]he advance [the claims] purport to make is a process of gathering and analyzing information of a specified content, then displaying the results, and not any particular assertedly inventive technology for performing those functions." *Id.* at 1354. In contrast, claim 1 does not merely define *what* content is collected, analyzed, and displayed, but *how* indications of interest in Web page elements are used to load a Web page. Accordingly, we are persuaded the Examiner erred in finding claim 1 is directed to an abstract idea.

<div align="center">USPTO Step 2A, Prong 2</div>

For completeness, we also look at whether claim 1 integrates the alleged judicial exception into a practical application. Appellant contends claim 1 is directed to a technological improvement. App. Br. 14–18; Reply Br. 4–5. We agree with Appellant.

In *DDR Holdings, LLC v. Hotels.com, L.P.*, the Federal Circuit found claims "directed to systems and methods of generating a composite web page that combines certain visual elements of a 'host' website with content of a third-party merchant" to be patent eligible. 773 F.3d 1245, 1248 (Fed. Cir. 2014). Specifically, the court explained that

> these claims stand apart because they do not merely recite the performance of some business practice known from the pre-Internet world along with the requirement to perform it on the Internet. Instead, the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.

Id. at 1257. Similarly, claim 1 solves a problem specific to computer networks:

> [T]he server will be able to transmit to the browser of the requesting client device the data to populate the content of the elements of the requested web page that are higher in interest prior to those of lower in interest thereby optimizing the loading of the web page (i.e., possibly reducing the waiting time for the user to view the element(s) of interest in the requested web page).

Spec. ¶ 17. Accordingly, we conclude that claim 1 integrates the allegedly abstract concepts embodied therein into a practical application, specifically, an improvement in the loading of a Web page. *See* MPEP § 2106.05(a).

<div align="center">USPTO Step 2B</div>

As we determine claim 1 is not directed to a judicial exception, and in any event, integrates the alleged judicial exception into a practical application, we need not consider whether there is an inventive concept under USPTO Step 2B. We are, therefore, persuaded the Examiner erred in

rejecting independent claim 1, and dependent claims 2–7 for the same reasons, under 35 U.S.C. § 101.

Anticipation

Claims 1 and 5

Appellant contends Khorashadi fails to disclose "accessing said sorted list of web page elements of said web page" and "transmitting, by a processor, data to populate content of web page elements of said web page in an order based on said sorted list," as recited in claim 1. *See* App. Br. 20–23. We are not persuaded by Appellant's arguments.

Khorashadi describes improving a browser experience when rendering a Web page on a computing device, such as a mobile device, by providing metadata to the browser that "may provide hints on how the mobile device can efficiently handle a request for a webpage sent from the mobile device." Khorashadi ¶¶ 57–60. "For example, the metadata may provide information that certain data is frequently accessed or is popular among users." Khorashadi ¶ 61. In one embodiment,

> based on a number of observed users, the metadata may indicate that a portion of a webpage is the most viewed webpage element based on statistical information. Metadata may indicate that the most viewed webpage element may be downloaded first before other webpage elements. . . . Metadata may indicate that the processor may download one portion first over another portion, a sequence or a schema.

Khorashadi ¶ 125. Here, Khorashadi's description of metadata meets the broadest reasonable interpretation of "a sorted list of web page elements" because it indicates at least a portion of a Web page that may be downloaded prior to other portions. That is, metadata that indicates priority of one portion over other portions is "a sorted list." Further, Khorashadi's sending

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the metadata to the mobile computing device and downloading, at the mobile device, Web page portions in an order based on the metadata (*see* Khorashadi ¶ 125) meets the limitations of "accessing said sorted list of web page elements of said web page" and "transmitting, by a processor, data to populate content of web page elements of said web page in an order based on said sorted list," as recited in claim 1.

We are, therefore, not persuaded the Examiner erred in rejecting as anticipated claim 1, and claim 5 not specifically argued separately.

<div align="center">Claim 2</div>

Appellant contends Khorashadi fails to disclose "wherein said indications of web page elements of interest of said web page are expressed as Document Object Model (DOM) elements," as recited in claim 2. App. Br. 23–25. We are persuaded of Examiner error.

Khorashadi discloses that "the metadata may include hints on how to process a DOM tree in a parallel manner." Khorashadi ¶ 62. We are, however, persuaded by Appellant's argument that "[t]he server informing a user on how to process a DOM tree does not correspond to the server receiving browsing habits of the users, where such browsing habits include indications that are expressed as Document Object Model (DOM) elements." App. Br. 25. Although Khorashadi's metadata is based on, for example, "aggregate information on browsing habits based on a plurality of users as the users use a web browser" (Khorashadi ¶ 7), the Examiner has not shown Khorashadi's browsing habits include "indications of web page elements of

interest" that "are expressed as Document Object Model (DOM) elements," as recited in claims 1 and 2.[4]

We are, therefore, constrained by the record to find the Examiner erred in rejecting claim 2.

Obviousness

Claims 3 and 4

The Examiner has not shown Bryar cures the deficiencies of Khorashadi discussed above with respect to claim 2, from which claims 3 and 4 depend. Accordingly, we find the Examiner erred in rejecting claims 3 and 4 as being obvious for the same reasons the Examiner erred in rejecting claim 2 as being anticipated.

Claim 6

Appellant contends the Examiner fails to provide sufficient reasoning for combining Coleman with Khorashadi in rejecting claim 6. App. Br. 34–35. Specifically, Appellant argues the following:

> There is no language in Coleman that makes any suggestion to have the browsing habits of Khorashadi . . . be identified in response to a user selection of an area on the web page, where the user selection comprises drawing an outline around the element of interest on the web page . . . in order to limit future loading or updating of elements corresponding to the selected portion as taught by Coleman. In fact, this is contrary to Khorashadi's intended purpose.
>
> As taught in Khorashadi, Khorashadi teaches using the monitored browsing habits to determine which portions of the

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[4] Upon further prosecution, the Examiner may consider whether the Coleman reference teaches these limitations in the portions of Coleman relied upon by the Examiner in rejecting claim 6, and whether the combination of such teachings with Khorashadi would have been obvious to one of ordinary skill in the art.

webpage should be rendered first <u>as opposed to being prevented</u> <u>from being rendered as taught in Coleman</u>.

App. Br. 35. We are not persuaded of Examiner error.

Coleman's teachings are not as narrow as Appellant's arguments suggest. Coleman teaches that a user can select among multiple display templates for customizing the display of the selected content portion. Coleman ¶ 13. For example, display templates may include "a traditional collapsible section, a dynamic slider, and an accordion-type display. Other display templates could cause the selected content portion to be, for example, always hidden or always visible." *Id.* Accordingly, Coleman teaches a display template in which the user's selected content portion is always visible. *See id.* Thus, combining Coleman with Khorashadi would not have rendered Khorashadi unsatisfactory for its intended purpose because Coleman's teachings are not confined to a display template that limits the loading of the user's selected content.

We are, therefore, not persuaded the Examiner erred in rejecting as obvious claim 6.

<div align="center">Claim 7</div>

Appellant contends "[t]here is no discussion in Khorashadi or Venkatrao regarding the concept of using <u>AMD API</u>, let alone using AMD API for <u>defining web page elements of interest and their children that can be</u> <u>asynchronously loaded</u>." App. Br. 37–38. We are persuaded of Examiner error.

The Examiner relies on Khorashadi for teaching the claim 7 limitation of an "Asynchronous Module Definition (AMD) Application Programming Interface (API) for defining web [page] elements of interest." Non-Final

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Act. 12; Ans. 23–24. The Examiner's cited portions of Khorashadi, however, do not explicitly describe such an AMD API, and the Examiner does not explain how the cited portions teach this feature. Rather, Khorashadi merely describes an API "that enables interaction with any resident applications (e.g., a 'media' interface 140 that works cooperatively with information communicated by the registration server 142 shown in FIG. 1)." Khorashadi ¶ 77. We see no teaching of an AMD API "for defining web page elements of interest," as recited in claim 7.

The Examiner relies on Venkatrao for teaching the claim 7 limitation of "defining . . . children that can be asynchronously loaded." *See* Non-Final Act. 12–13; Ans. 24. However, while Venkatrao describes APIs that provide "asynchronous update behavior for data viewable via the personalized user site" (Venkatrao ¶ 4), the Examiner has not shown Venkatrao teaches defining children of Web page elements of interest that can be asynchronously loaded.

We are, therefore, constrained by the record to find the Examiner erred in rejecting as obvious claim 7.

CONCLUSIONS

Under 35 U.S.C. § 101, the Examiner erred in rejecting claims 1–7.

Under 35 U.S.C. § 102(a)(1), the Examiner erred in rejecting claim 2, but did not err in rejecting claims 1 and 5.

Under 35 U.S.C. § 103(a), the Examiner erred in rejecting claims 3, 4, and 7, but did not err in rejecting claim 6.

DECISION

We affirm the Examiner's decision to reject claims 1, 5, and 6,[5] and reverse the Examiner's decision to reject claims 2–4 and 7.

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-IN-PART

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[5] *See* 37 C.F.R. § 41.50(a)(1) ("The affirmance of the rejection of a claim on any of the grounds specified constitutes a general affirmance of the decision of the examiner on that claim, except as to any ground specifically reversed").