UNITED STATES PATENT AND TRADEMARK OFFICE

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Siemens Corporation		LE, MICHAEL
Intellectual Property Department		
3501 Quadrangle Blvd Ste 230		
Orlando, FL 32817		

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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 MATTHEW STEVENSON, DICK BAARDSE, AUSTIN
BENSON, ERIC M. LEESON, SATYANARAYANA GUDURU, and
THOMAS TABELING

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Appeal 2018-000055
Application 14/289,380[1]
Technology Center 2100

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Before MICHAEL J. STRAUSS, ADAM J. PYONIN, and
NABEEL U. KHAN, *Administrative Patent Judges.*

KHAN, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Final Rejection
of claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

BACKGROUND

THE INVENTION

According to Appellants, the invention is in the field of "computer-aided design ('CAD'), visualization, and manufacturing systems, product lifecycle management ('PLM') systems, and similar systems, that manage data for products and other items." Spec. ¶ 2. More specifically, the invention relates to "[a] method for editing a position of a selected design element in a constraint network" (Abstract) where a "constraint network contains a plurality of positioning constraints concerning a plurality of design elements" (Spec. ¶ 25). Figure 3 from the application is illustrated below:
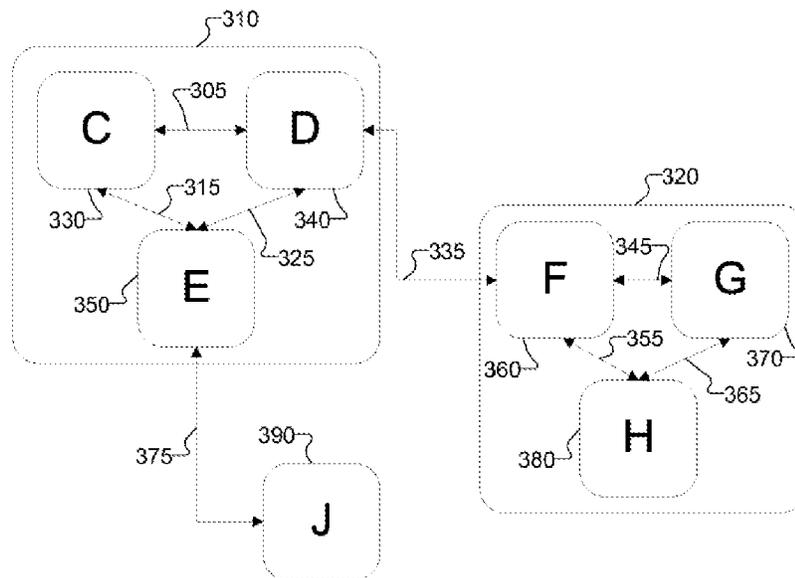

Figure 3

Figure 3 illustrates an example constraint network. In Figure 3, above, boxes C (330), D (340), and E (350), for example, illustrate design elements. Spec. ¶ 25. Positioning constraints, such as 305, 315, and 325, are

illustrated as two-way arrows between the design elements. Spec. ¶ 25. Positioning groups, composed of a group of design elements and associated positioning constraints, are represented as larger boxes 310 and 320.

Exemplary independent claim 1 is reproduced below.

1. A method for editing a position of a selected design element in a constraint network of a geometric model comprising:

through operation of at least one processor:

receiving a selection of a design element in the geometric model from a user;

searching a database for a positioning group related to the selected design element from a plurality of positioning groups previously stored in the database, wherein each of the plurality of positioning groups includes design elements of the geometric model and at least one positioning constraint of the constraint network between the design elements in the respective positioning group;

loading from the database and displaying the positioning group related to the selected design element to the user without loading the full constraint network;

generating an updated positioning group based on user edits to the at least one positioning constraint from the user; and

storing the updated positioning group to the database.

REFERENCES AND REJECTIONS

1. Claims 1–20 stand rejected under 35 U.S.C. § 101. Ans. 2–5.

2. Claims 1–20 stand rejected under 35 U.S.C. § 102(a)(2) as anticipated by Red (US 9,122,817 B2, iss. Sept. 1, 2015). Ans. 2.

DISCUSSION

REJECTION UNDER 35 U.S.C. § 101

Legal Principles

An invention is patent-eligible if it claims a "new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. However, the 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. *E.g., 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 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

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(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 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 (citation and 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. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) ("Guidance"). Under the Guidance, 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 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)).

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, 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 Guidance.

*Guidance Step 2A - Whether the Claims are
Directed to a Judicial Exception*

The Examiner finds the claims are "directed to the abstract idea of collecting constraint network data into a database, retrieving the collected data for display to a user, and allowing a user to make changes to the displayed data, which is saved." Ans. 2. The Examiner finds:

> Claim 1 recites, in part, receiving a user selection upon a geometric model, searching the database a positioning group related to the user's selection, loading and displaying the related

positioning group, allowing a user to update the positioning group, and storing the updated positioning group to the database. These steps describe the concept of collecting data, displaying the data, and manipulating the data, which corresponds to concepts identified as abstract ideas by the courts, such as *Intellectual Ventures, LLC v. Capital One*.

Ans. 3.

Prong One – Whether the Claims Recite an Abstract Idea

Under the first prong of step 2A of the Guidance, we determine if the claims recite an abstract idea. The claims recite "receiving a selection of a design element in the geometric model from a user," "searching a database for a positioning group related to the selected design element from a plurality of positioning groups previously stored in the database," "loading from the database and displaying the positioning group related to the selected design element to the user without loading the full constraint network," "generating an updated positioning group based on user edits to the at least one positioning constraint from the user," and "storing the updated positioning group to the database." Essentially, the claims recite selecting an element, searching a database for information related to that element, loading and displaying the results of the search, allowing the user to edit the results of the search and then storing the edited and updated results back into the database. As such, the claims are analogous to those in *Content Extraction and Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343 (Fed. Cir. 2014) which were "drawn to the abstract idea of 1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory." *Id.* at 1347. The claims are also analogous to those in *Electric Power Group, LLC v. Alstom*, 830 F.3d 1350 (Fed. Cir. 2016) which were directed at "collecting information,

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analyzing it, and displaying certain results of the collection and analysis."
Id. at 1353. Because the claims recite collecting information, recognizing
certain data within that information, displaying the results, and storing
updates to the results, the claims recite steps of "observation, evaluation,
judgment, and opinion," which are mental processes. Guidance 84 Fed. Reg.
at 52; *see also Elec. Power*, 830 F.3d at 1355 ("[M]erely selecting
information, by content or source, for collection, analysis, and display does
nothing significant to differentiate a process from ordinary mental processes,
whose implicit exclusion from § 101 undergirds the information-based
category of abstract ideas"). Because, under the Guidance, mental processes
are identified as a category of abstract ideas, we determine that the claims
recite an abstract idea. Guidance 84 Fed. Reg. at 52.

Prong Two – Whether the Claims Recite a Practical Application

Under the second prong of step 2A we determine whether the claims
recite a practical application of the recited judicial exception. Here we look
to see if, for example, (i) any additional elements of the claims reflects an
improvement in the functioning of a computer or to another technological
field, (ii) an application of the judicial exception with, or by use of, a
particular machine, (iii) a transformation or reduction of a particular article
to a different state or thing (iv) or a use of the judicial exception in some
other meaningful way beyond generally linking the use of the judicial
exception to a particular technological environment. *See* MPEP
§ 2106.05(a)–(c), (e)–(h).

Appellants argue that "[t]he claimed system and method improves
[the] technological process" of loading a constraint network. Reply Br. 2.
Specifically Appellants argue the Specification explains that a large single

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constraint network "increas[es] the amount of memory required to load the model." Reply Br. 2 (quoting Spec. ¶ 14). "Break[ing] up the constraint network into smaller pieces [however] . . . allows users to only download the design element or elements that the user is currently editing which requires less memory." Reply Br. 2 (quoting Spec. ¶ 14). Appellants analogize the claims to those in *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016) and *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299 (Fed. Cir. 2016), arguing that "[t]he claims at issue in the present case are similarly limited to a specific process and system that uses particular information and techniques to solve a technological problem." Reply Br. 4.

We are unpersuaded by Appellants' argument that the claims here are directed to an improvement in a technological process. The claims in *Enfish* were directed to a "specific type of data structure designed to improve the way a computer stores and retrieves data in memory." *Enfish*, 822 F.3d at 1339. Similarly the claims in *McRO* were directed to rules that were "rendered in a specific way: as a relationship between sub-sequences of phonemes, timing, and the weight to which each phoneme is expressed visually at a particular timing . . . ." *McRO*, 837 F.3d at 1315. It was the "structure of the limited rules" that were "limited to a specific process for automatically animating characters using particular information and techniques" that led the Federal Circuit to conclude that the claims were "directed to a patentable, technological improvement." *McRO*, 837 F.3d at 1316.

Here, the suggested improvement stems from the fact that Appellants' invention divides the constraint network into a plurality of positioning groups and loads only the positioning group of the selected design element

rather than loading the entire constraint network. In other words, the reduction in memory usage, as argued by Appellants, stems from retrieving less of the constraint network rather than retrieving all of the constraint network. This is part of the recited abstract idea discussed above, and does not comprise "additional elements" which can integrate the identified judicial exception into a practical application. *See* Guidance 84 Fed. Reg. at 54–55. Further, the invention does not improve the way the recited database is structured or operates, nor does it improve the speed of the recited processor. Rather the improvement stems from just doing less than what was done before, while relying on the typical capabilities of the computer. The invention, therefore, is not directed at improving the capabilities or functionality of the computer itself. Accordingly, we find the claims do not recite a practical application of the recited abstract idea.

*Guidance Step 2B - Whether the Claims
Provide an Inventive Concept*

In our analysis under step 2B, we look to see if the claims add limitations beyond the judicial exception that are not "well-understood, routine, conventional" in the field (*see* MPEP § 2106.05(d)). Except for the recited processor, the limitations of claim 1 are all directed to or part of the abstract idea itself. The Examiner finds the recited

> "at least one processor" [] is recited at a high level of generality and is recited as performing generic computer functions routinely used in computer applications. Generic computer components recited as performing generic computer functions that are well-understood, routine and conventional activities amount to no more than implementing the abstract idea with a computerized system.

Ans. 3–4.

Appellants do not argue that the recited processor is more than a generic computer component that is used in its well understood, routine, or convention way. The Specification describes the processor only briefly and does not indicate that it is anything but a conventional computer component of the data processing system implementing the invention. *See* Spec. ¶ 15. Thus, we agree with the Examiner that the recited processor is used in a well understood, routine, and conventional manner in the claim.

Appellants do argue, however, that because the claimed invention is novel, it is therefore not well-understood, routine and conventional. Reply Br. 4–5. We are unpersuaded by Appellants' argument. Although the second step in the *Alice/Mayo* framework is termed a search for an "inventive concept," the analysis is not an evaluation of novelty or non-obviousness, but rather a search for "an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.'" *Alice*, 573 U.S. at 217–18 (alteration in original) (quoting *Mayo*, 566 U.S. at 72–73). Moreover, we disagree with Appellants that the claimed invention is novel, as explained below in our analysis of the rejection under 35 U.S.C. § 102.

Remaining Arguments

Appellants argue "the pending claims are not directed to an abstract idea that preempts the basic tools of scientific and technological work In other words, the recited claims do not preempt all possible solutions to edit a massive constraint network." Reply Br. 4.

We find this argument unpersuasive. "While preemption may signal patent ineligible subject matter, the absence of complete preemption does

not demonstrate patent eligibility." *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). Moreover, "[w]here a patent's claims are deemed only to disclose patent ineligible subject matter under the *Mayo* framework, as they are in this case, preemption concerns are fully addressed and made moot." *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015), *cert. denied*, 136 S. Ct. 701 (2015).

Conclusion

For the reasons stated above, we sustain the Examiner's rejection of claims 1–20 under 35 U.S.C. § 101.

REJECTION UNDER 35 U.S.C. § 102

The Examiner maps Red's "editing regions" to the claimed "positioning groups" and maps Red's elements and geometries included in the editing regions to the claimed "design elements." Ans. 6–7 ("Much like the positioning group of the claim, the editing region of Red comprises a group of elements with features that define various attributes of those elements within the spatial region"). The Examiner further finds that Red discloses a model datastore that stores information corresponding to an electronic model that is divided into editing regions via spatial decomposition. Ans. 7 (citing Red 4:40–46, 5:55–58). The Examiner further finds Red's "change control module" controls user access to the model so that users are only permitted to access data that corresponds to features within an editing region assigned to the user. Red 4:55–59. Thus, the Examiner finds Red's datastore must store the editing regions in order to control user access. Ans. 7. The Examiner finds that Red's model datastore stores the automatically created editing regions prior to the user making a

selection of a feature and searches that datastore for the editing region that corresponds to the user selected feature. Ans. 7–8 (citing Red 1:40–46). The Examiner finds "[t]he automatically created editing regions would need to be searched to determine the specific editing region that corresponds to the user selected feature." Ans. 8. "Users are blocked from making changes to an editing region assigned to another user, which is further evidence that an editing region must be distinguished (i.e. searched) from a plurality of other editing regions." Ans. 8.

Appellants argue that Red does not disclose "**searching** his 'editing region' **related to the selected design element <u>from</u> a plurality** of 'editing regions' **previously stored in a database**, followed by additional steps of loading, displaying, and generating and update for the searched for 'editing region.'" App. Br. 8. Appellants argue "Red's step of 'partitioning' merely creates the 'editing regions', and does not disclose or inherently require a function of searching from previously stored 'editing regions' in order to partition them." App. Br. 8. Appellants also argue

> the Examiner may be asserting an unreasonably broad claim construction, in which the recited searching step is somehow met by Red's partitioning/displaying functions. However, this is clearly unreasonable as Red's displaying step merely displays an "editing region" after it has been created by partitioning. No search from among a plurality of previously stored "editing regions" is taught or inherently required by such a partitioning/displaying function.

App. Br. 10.

We are unpersuaded by Appellants' arguments. We agree with the Examiner that Red's datastore stores editing regions. Red explicitly discloses this, stating "an apparatus for collaborative editing of an electronic model of a CAx object may include a datastore that stores an electronic

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model of an engineering object that is spatially decomposed into a plurality of editing regions." Red 1:28–31. Red further discloses that the partitioning of the model into editing regions may occur in two different ways. In the first way, the partitioning "may be automatic, for example when an engineering object is opened for editing." Red. 5:57–58. In a second way, the partitioning may be "user driven, for example in response to a user selecting a region or particular elements or features for editing." Red. 5:59–61. Thus, in the case where the editing regions are automatically generated, when a user selects a feature for editing, we agree with the Examiner that "[t]he automatically created editing regions would need to be searched to determine the specific editing region that corresponds to the user selected feature." Ans. 8.

Appellants' argument that Red merely displays an editing region after it has been created by partitioning does not address Red's disclosure that editing regions are automatically generated when the engineering object is first opened rather than when a user selects a feature to edit. Red. 5:57–58. In this case, the editing regions would already be generated at the time the user selects a feature and thus the act of enabling the user to edit the region that comprises the selected feature would require searching the automatically generated and previously stored editing regions, as the Examiner finds.

DECISION

The Examiner's rejection of claims 1–20 under 35 U.S.C. § 101 is affirmed.

The Examiner's rejection of claims 1–20 under 35 U.S.C. § 102 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended. *See* 37 C.F.R. § 1.136(a)(1)(iv).

<u>AFFIRMED</u>