UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/778,042	01/25/2016	Alessandro MINZONI	40767-0005US1	6983

26201   7590   05/20/2019
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ART UNIT	PAPER NUMBER
2112	

NOTIFICATION DATE	DELIVERY MODE
05/20/2019	ELECTRONIC

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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 ALESSANDRO MINZONI[1]

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Appeal 2018-006807
Application 14/778,042
Technology Center 2100

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Before CAROLYN D. THOMAS, JOSEPH P. LENTIVECH, and
SCOTT E. RAEVSKY, *Administrative Patent Judges.*

THOMAS, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellant seeks our review under 35 U.S.C. § 134(a) of the
Examiner's Final Rejection of claims 22–43. We have jurisdiction over the
appeal under 35 U.S.C. § 6(b).

We AFFIRM.

The present invention relates generally to a storage device data access
method (*see* Abstract).

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[1]Appellant names XI'AN SINOCHIP SEMICONDUCTOR CO., as the real
party in interest (App. Br. 1).

Claim 22 is illustrative:

> 22. A memory data access method comprising:
> generating a parity bit for data to be stored;
> generating a flag bit that expresses whether a data mask is present or absent in the data to be stored;
> storing the data, the flag bit, and the parity bit;
> reading out the data, the flag bit and the parity bit;
> determining whether the data mask is present or absent based on the read out flag bit;
> in response to determining that the flag bit expresses the absence of the data mask, detecting and correcting the data using the read out parity bit;
> otherwise, in response to determining that the flag bit expresses the presence of the data mask, performing no detection or correction on the data.

Appellant appeals the following rejection:

Claims 22–43 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to patent-ineligible subject matter (Final Act. 6–13).

We review 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).

ANALYSIS

Rejection under § 101

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 the 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."). For example, 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)).

Recently, the USPTO published revised guidance on the application of 35 U.S.C. § 101. USPTO's 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) ("Revised Guidance"). Under the Revised Guidance "Step 2A," 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)). 84 Fed. Reg. at 51–52, 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

(pursuant to the Guidance "Step 2B") 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.

84 Fed. Reg. at 56.

Step 2A, Prong 1 (Does the Claim Recite a Judicial Exception?)

With respect to independent method claims 22 and 39, and similarly,

system claims 30 and 43, the Examiner determines that representative claim

22 is directed to a judicial exception, in particular, an abstract idea (Final

Act. 7). Specifically, the Examiner compares certain concepts embodied by

claim 22's – "generating," "storing," "reading," "determining," and

"detecting and correcting" – to at least the abstract concepts found by the

Federal Circuit in *Electric Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350

(Fed. Cir. 2016), i.e., "merely collection of data, analysis of the data, and

based on the analysis performing a result" (Final Act. 7), also "based on

certain characteristics in" *Intellectual Ventures I LLC v. Capital One Bank

(USA)*, 792 F.3d 1363, 1367 (Fed. Cir. 2015), i.e., "customizing information

and presenting it to users based on certain characteristics" (*id.*), which we conclude are mental processes that could be performed in the human mind, or by a human using pen and paper. *See, e.g., CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372 (Fed. Cir. 2011).

Appellant contends that "the Examiner improperly ignores the detailed bit-level operations of the computer memory recited in the claims and fails to 'interpret[] [the claims] in view of the specification" (App. Br. 9), i.e., "the specific bit-level memory operations of 'generating a flag bit . . . and controlling operation of the memory based [thereon]" (*id.*). We are unpersuaded by Appellant that representative claim 22 is not directed to an abstract idea.

Claim 22 recites "generating a parity bit for data," "generating a flag bit that expresses whether a data mask is present or absent in the data," storing the data, the flag bit, and the parity bit," "reading out the data, the flag bit, and the parity bit," "determining whether the data mask is present or absent," and "detecting and correcting the data," if absence of the data mask, otherwise "performing no detection or correction." Noteworthy, as highlighted by the Examiner, and we agree, the "detecting and correcting" step "merely recite a conditional limitation for when to perform or not perform error detection and correction according to the value of the flag bit" (Final Act. 3). As such, claim 22 does not necessarily require "detecting and correcting" to occur; rather, the condition is based on an event that may or may not occur. Accordingly, this particular conditional limitation is optional and is not entitled to patentable weight. *See In re Johnston*, 435 F.3d. 1381, 1384 (Fed. Cir. 2006) ("[O]ptional elements do not narrow the claim because they can always be omitted."); *see also* MPEP § 2111.04 (claim

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scope is not limited by claim language that suggests or makes optional but does not require steps to be performed).

In any case, the aforementioned limitations, under their broadest reasonable interpretation, recite memory data access and error correction, which falls into the mental process subcategory, i.e., concepts performed in the human mind (including an observation, evaluation, judgment, or opinion). Revised Guidance, at 52. This is true even if the claim recites that a generic computer component performs the acts. *See, e.g., Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015) ("Courts have examined claims that required the use of a computer and still found that the underlying, patent-ineligible invention could be performed via pen and paper or in a person's mind."); *see also* Revised Guidance 84 Fed. Reg. at 52 n.14 ("If a claim, under its broadest reasonable interpretation, covers performance in the mind but for the recitation of generic computer components, then it is still in the mental processes category unless the claim cannot practically be performed in the mind.").

For instance, people can perform the "generating" and "correcting" steps by simply looking at the recited data content and performing calculations, in their mind or using pen and paper. Also, people can perform the "determining," "detecting," and "reading" steps merely by observing the information. Additionally, people can perform the "storing" step by writing down such information on a piece of paper or remembering the information. The dependent claims are directed to similar processes or functions, and Appellant has not shown such claims are directed to other non-abstract functions or processes.

Therefore, for at least the aforementioned reasons, we agree with the Examiner that claim 22 is recites an abstract idea, which we conclude are "mental processes."

Step 2A—Prong 2 (integration into Practical Application) [2]

Under the Revised Guidance, we now must determine if additional elements in the claims integrate the judicial exception into **a practical application** (*see* MPEP § 2106.05(a)–(c), (e)–(h)).

We discern no additional element (or combination of elements) recited in Appellant's representative claim 22 that integrates the judicial exception into a practical application. *See* Revised Guidance, 84 Fed. Reg. at 54–55 ("Prong 2"). For example, Appellant's claimed additional elements (e.g., "storage unit," "parity bit generator," "flag bit generator," "writing unit," "reading unit," and "correction unit") (*see* claims 30 and 43) do not: (1) 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).

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[2] We acknowledge that some of the considerations at Step 2A, Prong 2, properly may be evaluated under Step 2 of *Alice* (Step 2B of the Office guidance). For purposes of maintaining consistent treatment within the Office, we evaluate them under Step 1 of *Alice* (Step 2A of the Office guidance). *See* Memorandum, 84 Fed. Reg. at 55 n.25, 27–32.

Appellant contends "the Examiner ignores the clear improvement that the recited invention makes to computer memory" (App. Br. 3–4), i.e., "'reduc[es] the possibility of memory error[s] when a data mask is present'" (*id.* at 4 (*citing* Spec. 4:36–37)). Appellant further contends that "the present claims are particularly directed to improving the functionality of a computer and do not simply invoke a computer as a tool" (*id.* at 6).

However, Appellant's Specification merely states that "there is provided a memory error correction method, mainly for solving the problem that [is] due to the presence of a data mask in the existing ECC encoding process" (Spec. 1), "wherein the parity bit is used to achieve detection and error correction of data writing, and the flag bit is used to express whether a data mask is present or absent" (*id.* at 2). In other words, Appellant's claimed invention generates a parity and flag bit, then uses the same to detect and correct errors in data, i.e., simply to invoke computer components as tools to generate and process data.

In exemplary contrast, the claims at issue in *Enfish* were directed to a specific type of data structure, i.e., a self-referential table for a computer database, designed to improve the way a computer carries out its basic functions of storing and retrieving data. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016). In rejecting a § 101 challenge, the court in *Enfish* held that "the plain focus of the claims is on an improvement to computer functionality itself, not on economic or other tasks for which a computer is used in its ordinary capacity." *Id.* at 1336.

Here, Appellant does not point to anything in the claim that resembles the inventive self-referential data structure at issue in *Enfish*. Appellant also does not direct our attention to anything in the Specification to indicate that

the invention provides an improvement in the computer's technical functionality, as opposed to a general link of the use of an abstract idea to a particular technological environment.

Instead, the claimed parity and flag bits improve encoding tasks (*see* Spec. 1–2). As noted *supra*, such task are abstract, as our reviewing court has held that encoding and decoding image data is abstract. *See RecogniCorp, LLC v. Nintendo Co., Ltd.*, 855 F.3d 1322, 1326 (Fed. Cir. 2017) ("the abstract idea of encoding and decoding image data"); *see also Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340–41 (Fed. Cir. 2017) (organizing, displaying, and manipulating data encoded for human — and machine — readability is directed to an abstract concept); *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014). Accordingly, we agree with the Examiner that claim 1 is directed to an abstract idea. *See* Ans. 4–5.

That is, here the arguably innovative technique of the appealed claims is inextricably a part of the abstract idea of generating parity and flag bits and using the same to detect and correct information, i.e., mental processes. Moreover, nothing in the claims, understood in light of the Specification, requires anything other than an off-the-shelf, conventional computer used for collecting and processing/analyzing various information/data. Therefore, unlike *Enfish*, the claims are directed not to improvement in computer capabilities, but to the results of applying an abstract idea.

For at least the reason noted *supra*, we determine that claim 1 (1) recites a judicial exception and (2) does not integrate that exception into a practical application.

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

Turning to the second step of the *Alice* inquiry, we now look to whether claim 22 contains any "inventive concept" or adds anything "significantly more" to transform the abstract concept into a patent-eligible application. *Alice*, 573 U.S. at 216. As recognized by the Revised Guidance, an "inventive concept" under *Alice* step 2 can be evaluated based on whether an additional element or combination of elements:

(1) "adds a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field, which is indicative that an inventive concept may be present;" or

(2) "simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception, which is indicative that an inventive concept may not be present."

See Revised Guidance, 84 Fed. Reg. at 56; *see* MPEP § 2106.05(d).

Appellant contends that "the claims do not merely recite an abstract idea 'with the requirement to perform it [by a computer], or to perform it on a set of generic computer components[,]' [n]or do the claims preempt all ways of [operating computer memory.] [R]ather, they recite a specific, discrete implementation of processes for operating computer memory" (App. Br. 12).

We find no element or combination of elements recited in Appellant's claim 22 that contains any "inventive concept" or adds anything "significantly more" to transform the abstract concept into a patent-eligible application. Appellant has not adequately explained how claim 22 is performed such that it is not a routine and conventional function of a generic computer. Furthermore, a finding of novelty or non-obviousness does not

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require the conclusion that the claimed subject matter is patent-eligible. Although the second step in the *Mayo/Alice* framework is termed a search for an "inventive concept," the analysis is not an evaluation of novelty or non-obviousness, but, rather, is 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 216. "Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry." *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 591 (2013). A novel and non-obvious claim directed to a purely abstract idea is, nonetheless, patent-ineligible. *See Mayo*, 566 U.S. at 90; *see also Diamond v. Diehr*, 450 U.S. 175, 188–89 (1981) ("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.").

Because Appellant's independent claim 22 is directed to a patent-ineligible abstract concept, does not include additional elements that integrate the judicial exception into a practical application, and does not add a specific limitation beyond the judicial exception that is not "well-understood, routine, and conventional," we sustain the Examiner's rejection of the claims 22–43 under 35 U.S.C. § 101 as being directed to non-statutory subject matter in light of *Alice*, its' progeny, and the Revised Guidance.

DECISION

We affirm the Examiner's § 101 rejection.

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