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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* THOMAS SEILER and ANDREAS JAROSCH

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Appeal 2019-003968  
Application 15/457,606<sup>1</sup>  
Technology Center 2400

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Before MARC S. HOFF, BARBARA A. PARVIS and JASON J. CHUNG,  
*Administrative Patent Judges.*

HOFF, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134 from a Final Rejection of claims 21-38.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Appellant's invention system and method to reduce detectability of an encryption key used in a communication network. One or more bits, determined at random, are selected for the introduction of bit errors (by inverting the bits) into the message prior to transmission. Abstract.

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<sup>1</sup> Appellant states that the real party in interest is Swisscom AG. Appeal. Br. 2.

<sup>2</sup> Claims 1-20 have been cancelled.

Claim 21 is reproduced below:

21. A method comprising:  
selecting one or more bits in an encrypted message; and  
applying an adjustment to the encrypted message prior to  
transmitting the message to introduce bit errors in the message;  
wherein:

the adjustment is configured to affect the one or  
more selected bits; and the one or more bits are selected  
and the adjustment is configured such that there is no  
sequence of consecutive bits in the encrypted message  
that has a length that is greater than or equal to a defined  
threshold value and that is free of bit errors.

Claims 21-38 stand rejected under 35 U.S.C. § 101 as being directed  
to patent-ineligible subject matter. Non-Final Act. 3.

Throughout this decision, we make reference to the Appeal Brief  
("Appeal Br.," filed Dec. 31, 2018, the Reply Brief ("Reply Br.," filed  
Apr.22, 2019) and the Examiner's Answer ("Ans.," mailed Feb. 21, 2019 for  
their respective details.

### ISSUES

1. Does the claimed invention recite an abstract idea?
2. Is the recited abstract idea integrated into a practical application?
3. Do the claims recite additional elements that transform the nature of  
the claims into a patent-eligible application of an abstract idea?

### 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.  
However, the Supreme Court has long interpreted 35 U.S.C. § 101 to  
include implicit exceptions: "[I]aws of nature, natural phenomena, and

abstract ideas” are not patentable. *See, 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, 192 (1981)); “tanning, dyeing, making waterproof 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 at 176; *see also id.* at 192 (“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.*

In January 2019, the PTO published revised guidance on the application of § 101. USPTO’s January 7, 2019 Memorandum, 2019

*Revised Patent Subject Matter Eligibility Guidance* (“Memorandum”).<sup>3</sup>  
84 Fed. Reg. 50. Under that 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 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* Memorandum.

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<sup>3</sup> In response to received public comments, the Office issued further guidance on October 17, 2019, clarifying the 2019 Revised Guidance. USPTO, October 2019 Update: Subject Matter Eligibility (available at [https://www.uspto.gov/sites/default/files/documents/peg\\_oct\\_2019\\_update.pdf](https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf)).

## ANALYSIS

### SECTION 101 REJECTION

Appellant argues the rejected claims as a single unit. We select claim 21 as representative of the claims under appeal, pursuant to our authority under 37 C.F.R. § 41.37(c)(1)(vii).

Representative claim 21 recites the following limitations. Aspects of the claimed abstract idea are indicated in italics.

21. A method comprising:

*selecting one or more bits in an encrypted message; and  
applying an adjustment to the encrypted message prior to  
transmitting the message to introduce bit errors in the message;*  
wherein:

the adjustment is *configured to affect the one or more  
selected bits;* and

*the one or more bits are selected and the adjustment is  
configured such that there is no sequence of consecutive bits in  
the encrypted message that has a length that is greater than or  
equal to a defined threshold value and that is free of bit errors.*

These limitations, under the broadest reasonable interpretation, constitute a plurality of steps to “introduce bit errors” into a message by changing (adjusting) certain selected bits of a message, such that no sequence of consecutive bits beyond a threshold length is free of a bit error.

The Memorandum recognizes that certain groupings of subject matter have been determined by the courts to constitute judicially excepted abstract ideas: (a) mathematical concepts, (b) certain methods of organizing human activity, and (c) mental processes. Memorandum, 84 Fed. Reg. at 52. 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.<sup>4</sup> We determine that the claim steps — selecting one or more bits of a message, adjusting those bits (which introduces bit errors

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<sup>4</sup> See *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1318 (Fed. Cir. 2016) (“[W]ith the exception of generic computer implemented steps, there is nothing in the claims themselves that foreclose them from being performed by a human, mentally or with pen and paper.”); *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1324 (Fed. Cir. 2016) (holding that computer-implemented method for “anonymous loan shopping” was an abstract idea because it could be “performed by humans without a computer”); *Versata Dev. Grp. 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.”); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375, 1372 (Fed. Cir. 2011) (holding that the incidental use of “computer” or “computer readable medium” does not make a claim otherwise directed to process that “can be performed in the human mind, or by a human using a pen and paper” patent eligible); *id.* at 1376 (distinguishing *Research Corp. Techs. v. Microsoft Corp.*, 627 F.3d 859 (Fed. Cir. 2010), and *SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319 (Fed. Cir. 2010), as directed to inventions that “could not, as a practical matter, be performed entirely in a human’s mind”). *Mayo*, 566 U.S. at 71 (“[M]ental processes[] and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work” (quoting *Benson*, 409 U.S. at 67)); *Flook*, 437 U.S. at 589 (same); *Benson*, 409 U.S. at 67, 65 (noting that the claimed “conversion of [binary-coded decimal] numerals to pure binary numerals can be done mentally,” *i.e.*, “as a person would do it by head and hand.”); *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1139, (Fed. Cir. 2016) (holding that claims to the mental process of “translating a functional description of a logic circuit into a hardware component description of the logic circuit” are directed to an abstract idea, because the claims “read on an individual performing the claimed steps mentally or with pencil and paper”); *In re BRCA1 & BRCA2-Based Hereditary Cancer Test Patent Litig.*, 774 F.3d 755, 763 (Fed. Cir. 2014) (concluding that concept of “comparing BRCA sequences and determining the existence of alterations” is an “abstract mental process”); *In re Brown*, 645 F. App’x 1014, 1017 (Fed. Cir. 2016) (non-precedential) (claim limitations “encompass the mere

into the message), the bits to be adjusted selected such that no sequence of consecutive bits longer than a certain threshold value is free of a bit error -- constitute steps that may be performed in the mind. We regard the step of transmitting the adjusted message to constitute extra-solution activity.

Appellant argues that none of the claims is directed to an abstract idea. Reply Br. 8. Appellant contends that the steps of the claimed invention “are not and cannot be performed in the human mind.” Reply Br. 11.

Appellant argues that each of the claims applies “a particular scheme for manipulating bits in encrypted messages,” and that “manipulating messages and transmitting them is something that a human cannot do.” Appellant’s arguments are not persuasive. First, representative claim 21 recites no limitations that cannot be performed in the human mind. Second, manipulating and transmitting messages are, under the broadest reasonable interpretation of the terms, steps performable by a human being.

Accordingly, we conclude that the claims recite a mental process, one of the categories of abstract ideas recognized in the Memorandum. 84 Fed. Reg. at 52. We, thus, conclude that the claims recite an abstract idea.

#### INTEGRATED INTO A PRACTICAL APPLICATION

We next evaluate whether the claims integrate the identified abstract idea of comparing attributes from transaction information against norms of behavior, in order to identify users who diverge from such norms as

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idea of applying different known hair styles to balance one’s head. Identifying head shape and applying hair designs accordingly is an abstract idea capable, as the Board notes, of being performed entirely in one’s mind”).

potential problem users, into a practical application. *See* Memorandum, 84 Fed. Reg. at 51. We consider whether there are any additional elements beyond the abstract ideas that, individually or in combination, “integrate the [abstract ideas] into a practical application, using one or more of the considerations laid out by the Supreme Court and the Federal Circuit.” *Id.* at 54–55.

The Memorandum provides exemplary considerations that are indicative that an additional element may have integrated the exception (i.e., the abstract idea recited in the claim) into a practical application:

- (i) an improvement to the functioning of a computer;
- (ii) an improvement to another technology or technical field;
- (iii) an application of the abstract idea with, or by use of, a particular machine;
- (iv) a transformation or reduction of a particular article to a different state or thing; or
- (v) other meaningful limitations beyond generally linking the use of the abstract idea to a particular technological environment.

*See* Memorandum, 84 FR at 55; MPEP §§ 2106.05(a)–(c), (e)–(h).

Appellant argues that each of the appealed claims “sufficiently integrate and limit such exception [i.e., the identified abstract idea] into a particular practical application – namely, for use in securing encrypted messages for transmittal between communication devices.” Reply Br. 13. Appellant’s argument is not persuasive. Appellant presents no evidence in support of this argument, and identifies no additional element or elements in the claims that would integrate the exception into a practical application.

Appellant contends that even if the claimed invention were characterized as a mental process, as the Examiner determined, each of the claims “goes well beyond a mere ‘abstract idea’ because each claim “recites

a specific and practical application for securely communicating data in networks.” Reply Br. 8. We are not persuaded by Appellant’s argument. Representative claim 21 recites no technological structure. The entirety of the claim limitations may be performed within the human mind, or by a person using pencil and paper.

In response to Appellant’s argument (Reply Br. 7) that the claims do not preempt all possible implementations of an abstract idea, we note that lack of preemption will not demonstrate patent eligibility. “Where 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.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015). We conclude that the claims do not recite additional elements that integrate the recited abstract idea of introducing bit errors into an encrypted message, by adjusting certain bits of the message, into a practical application under the considerations set forth by the Supreme Court and the Federal Circuit.

#### INVENTIVE CONCEPT

Last, we consider whether claims 21-38 express an inventive concept, i.e., whether any additional claim elements “transform the nature of the claim’ into a patent-eligible application.” *Alice*, 573 U.S. at 217 (quoting *Mayo*, 566 U.S. at 78, 79). This requires us to evaluate whether the additional claim elements add “a specific limitation or combination of limitations that are not well-understood, routine, and conventional activity in the field” or “simply append[] well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality.” Memorandum, 84 Fed. Reg. at 50, 56.

“The question of whether a claim element or combination of elements is well-understood, routine, and conventional to a skilled artisan in the relevant field is a question of fact.” *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1368 (Fed. Cir. 2018).

Appellant argues that the claims recite an inventive concept including specific limitations that are not well-understood, routine, or conventional, because the Examiner did not apply prior art against the claims. Reply Br. 9, 15. We are not persuaded by this argument. Subject matter eligibility under 35 U.S.C. § 101 is an inquiry distinct from the question of anticipation or obviousness. *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1315 (Fed. Cir. 2016). The presence or absence of a prior art rejection does not impact a determination concerning patent eligibility under § 101.

Further, to establish patent eligibility through the showing of an inventive concept, Appellant must identify additional elements, beyond the recited abstract idea, that are not well-understood, routine or conventional. Appellant has not made such a showing.

Appellant argues that the Examiner failed to individually address each of the dependent claims, each of which is alleged to add limitations to the base claim which amount to significantly more than any applicable judicial exception. Reply Br. 16. Appellant’s argument is not persuasive. Appellant presents no separate argument directed to any dependent claim being patent-eligible. In the absence of such separate argument, the Board has selected independent claim 21 as a representative claim, and claims 22-38 stand or fall under § 101 with claim 21. *See* 37 CFR 41.37(c)(1)(iv).

SUBJECT MATTER ELIGIBILITY - CONCLUSION

We conclude that the claims recite a process of introducing bit errors into an encrypted message by adjusting certain bits of the message, which we determine to constitute a mental process, one of the categories of invention found by the courts to constitute an abstract idea.

We further conclude that the claims do not integrate the identified abstract idea into a practical application.

We further conclude that the claimed invention does not recite additional claim elements that transform the nature of the claim into a patent-eligible application of an abstract idea.

Accordingly, we sustain the Examiner's 35 U.S.C. § 101 rejection of claims 21-38.

CONCLUSIONS

1. The claimed invention recites an abstract idea.
2. The recited abstract idea is not integrated into a practical application.
3. The claims do not recite additional elements that transform the nature of the claims into a patent-eligible application of an abstract idea.

DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/ Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
21-38	101	Patent Eligible Subject Matter	21-38	
<b>Overall Outcome</b>			21-38	

ORDER

The Examiner's decision to reject claims 21-38 under 35 U.S.C. § 101 is affirmed.

TIME PERIOD FOR RESPONSE

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

AFFIRMED