UNITED STATES PATENT AND TRADEMARK OFFICE

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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 CHANGJIE WANG and FULONG MA

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Appeal 2018-000856
Application 12/666,403
Technology Center 3600

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Before ST. JOHN COURTENAY III, LARRY J. HUME, and
JOYCE CRAIG, *Administrative Patent Judges*.

CRAIG, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants[1] appeal under 35 U.S.C. § 134(a) from the Examiner's
non-final rejection of claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26,
which are all of the claims pending in this application. Claims 4, 7, 12, 14,
20, and 24 are canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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[1] According to Appellants, the real party in interest is Koninklijke Philips
N.V. App. Br. 1.

INVENTION

Appellants' invention relates to applied cryptography, particularly to a method of generating a transaction pseudonym used for secure authentication. Spec. 1. Claim 1 is illustrative and reads as follows:

1.   A system for authenticating electronic prescriptions, the system comprising:
     at least one processor for:
     registering a first participant at a first privacy officer, the registering including generating a first pseudonym uniquely identifying the first participant;
     registering the first participant at a second privacy officer independent of the first privacy officer, the registering including uniquely mapping a registration key shared between only the first participant and the second privacy officer to the first pseudonym;
     generating a transaction pseudonym based on the first pseudonym, a transaction number and the registration key;
     generating a signature of the first participant using the generated transaction pseudonym;
     acquiring an electronic prescription for authentication, the electronic prescription comprising a transaction number, the first pseudonym, and the signature of the first participant;
     verifying the acquired electronic prescription at the second privacy officer, the verifying including verifying the first participant's registration, and the authenticity of the signature, based on the registration key and the transaction pseudonym; and
     sending all acknowledgement of the authenticity of the signature to a pharmacy fulfilling the electronic prescription, the acknowledgment including checking a history record of the first participant associated with a plurality of prescriptions having the first pseudonym, the first participant remaining anonymous.

REJECTIONS

Claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to a judicial exception, without significantly more. Non-Final Act. 3, 6.

Claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Ateniese et al., *Anonymous E-Prescriptions*, Johns Hopkins University, Dept. Computer Science, 2002 ("Ateniese"), Yang et al., *A Smart-Card-Enabled Privacy Preserving E-Prescription System*, IEEE Transactions on Information Technology in Biomedicine Vol. 8, No. 1, Mar. 2004 ("Yang"), and Obrea et al. (US 2008/0112615 A1; published May 15, 2008) ("Obrea"). Non-Final Act. 9.

Rejection of Claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26
under 35 U.S.C. § 101

The Examiner concluded independent claims 1, 9, 16, and 17 are directed to an encryption protocol or an algorithm for filling prescriptions automated by a processor, and dependent claims 2, 3, 5, 6, 8, 10, 11, 13, 15, 18, 19, 21–23, 25, and 26 are directed to an encryption protocol or an *mathematical* algorithm for filling prescriptions automated by a processor as an abstract idea. Non-Final Act. 4 (emphasis added).

Appellants argue the Examiner erred by incorrectly defining an abstract idea. App. Br. 24. Appellants further argue the Examiner erred because the present claims do not claim an end result, but rather claim only a limited and specific apparatus or method for achieving the end result, and hence are not directed to an abstract idea. *Id.*

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. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012) (brackets in original) (citing *Diamond v. Diehr*, 450 U.S. 175, 185 (1981)). 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 Corp. v. CLS Bank Int'l*, 573 U.S. 208, 217–18 (2014) (citing *May*, 566 U.S. at 75–77). 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, 193 (1981)); "tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores" (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S.

(15 How.) 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 (internal 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, 84 Fed. Reg. 50, 2019 Revised Patent Subject Matter Eligibility Guidance ("2019 Guidance"). 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 ("Prong Two") (see MPEP § 2106.05(a)–(c), (e)–(h)) (9th ed. 2018).

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 2019 Guidance.

Step 2A, Prong One – Recited Judicial Exception

Step 2A of the 2019 Guidance is a two-prong inquiry. In Prong One we evaluate whether the claim recites a judicial exception. Under Supreme Court precedent, claims directed purely to an abstract idea are patent in-eligible. As set forth in the 2019 Guidance, which extracts and synthesizes key concepts identified by the courts, abstract ideas include (1) mathematical concepts, (2) certain methods of organizing human activity, and (3) mental processes.

Claim 1 recites "at least one processor for" performing the functions of:

> registering a first participant at a first privacy officer, the registering including generating a first pseudonym uniquely identifying the first participant;
> registering the first participant at a second privacy officer independent of the first privacy officer, the registering including uniquely mapping a registration key shared between only the first participant and the second privacy officer to the first pseudonym;
> generating a transaction pseudonym based on the first pseudonym, a transaction number and the registration key;
> generating a signature of the first participant using the generated transaction pseudonym;
> acquiring an electronic prescription for authentication, the electronic prescription comprising a transaction number, the first pseudonym, and the signature of the first participant;
> verifying the acquired electronic prescription at the second privacy officer, the verifying including verifying the first participant's registration, and the authenticity of the signature, based on the registration key and the transaction pseudonym; and
> sending all acknowledgement of the authenticity of the signature to a pharmacy fulfilling the electronic prescription, the acknowledgment including checking a history record of the first participant associated with a plurality of prescriptions having the first pseudonym, the first participant remaining anonymous.

These limitations, under their broadest reasonable interpretation, recite authenticating a doctor's signature for a pharmacy filling an electronic prescription, which is a commercial interaction. For example, registering a doctor's signature to verify the authenticity of the signature for a pharmacy fulfilling an electronic prescription would occur in a commercial interactions between the doctor and the privacy officers and authenticating system. Thus, *"registering a first participant at a first . . . and second privacy*

officer" and "*generating a signature of the first participant*" are activities that would take place when authenticating a doctor's signature in a commercial interaction. Furthermore, "*acquiring an electronic prescription for authentication,*" "*verifying the acquired electronic prescription,*" and "*sending an acknowledgement of the authenticity of the signature to a pharmacy fulfilling the electronic prescription*" are activities that organize human activity in commercial interactions between a doctor and a pharmacy filling a prescription for a consumer.

The claims recite commercial interactions in which a doctor's signature is authenticated as part of the process of fulfilling an electronic prescription. Accordingly, we conclude the claims recite commercial interactions, which is one of certain methods of organizing human activity, and, thus, an abstract idea.

Because we conclude the claims recite an abstract idea, we proceed to Prong Two to determine whether the claims recite any additional elements beyond the abstract idea, and evaluate those elements to determine whether they integrate the exception into a practical application.

Step 2A, Prong Two – Practical Application

If a claim recites a judicial exception, in Prong Two we determine whether the recited judicial exception is integrated into a practical application of that exception by: (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception(s); and (b) evaluating those additional elements individually and in combination to determine whether they integrate the exception into a practical application. If the recited judicial exception is integrated into a practical application, the claim is not directed to the judicial exception.

Here, claim 1 recites the additional element of "*at least one processor.*" Considering claim 1 as a whole, this additional element does not apply or use the abstract idea in a meaningful way such that the claim as a whole is more than a drafting effort designed to monopolize the exception. In particular, we are not persuaded that claim 1 improves the functioning of the computer itself or any other technology or technical field. MPEP § 2106.05(a). In reviewing the record, we find the claims on appeal are silent regarding specific limitations directed to an *improved* computer system, processor, memory, network, database, or Internet. Therefore, we find Appellants' claimed invention does not provide a solution "necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks," such as considered by the court in *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014) (emphasis added).

We are also not persuaded by Appellants' argument that "the claims are directed to a specific implementation of a solution to a problem." App. Br. 25 (citing *Enfish LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016)). Appellants argue the claims "solve problems arising in the realm of cryptography technology" and, in particular, "to generating a transaction pseudonym for secure authentication." *Id.* at 27.

Appellants' reliance on *Enfish* is misplaced. In *Enfish*, the claims were directed to an improved database architecture, i.e., a self-referential table—"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. Appellants' claim 1 does not improve the performance of a computer or solve a problem specific to computers or computer networks. Appellants'

Specification and arguments do not demonstrate the claims "improve the way a computer stores and retrieves data in memory," as the claims in *Enfish* did via a "self-referential table for a computer database." *See Enfish*, 822 F.3d at 1336, 1339. Instead, the claims are merely directed to economic or other tasks for which a computer is used in its ordinary capacity, and such capacities are commercial in nature, and amount to improvement to business aspects, rather than technical aspects of the invention.

For the reasons discussed above, we conclude Appellants' claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26 invoke generic computer components merely as a tool in which the computer instructions apply the judicial exception and, thus, the abstract idea is not integrated into a practical application.

Step 2B – Inventive Concept

Having determined the independent claims are directed to an abstract idea that is not integrated into a practical application, we now evaluate whether the additional elements add a specific limitation that is not well-understood, routine, or 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, to the abstract idea. *See* 2019 Guidance.

Here, the Examiner determined, and we agree, that the only element beyond the abstract idea—at least one processor—is well-understood, routine, and conventional, and used to perform generic computer functions (Non-Final Act. 5). The Examiner's determination is supported by Appellants' Specification (*see, e.g.*, Spec. p. 15, l. 20–p. 16, l. 6, although we note Appellants' Specification does not describe a processor *per se*).

The Federal Circuit, in accordance with *Alice*, has "repeatedly recognized the absence of a genuine dispute as to eligibility" where claims have been defended as involving an inventive concept based "merely on the idea of using existing computers or the Internet to carry out conventional processes, with no alteration of computer functionality." *Berkheimer v. HP Inc.*, 890 F.3d 1369, 1373 (Fed. Cir. 2018) (Moore, J., concurring).

For these reasons, we determine the claims do not recite an inventive concept because they simply append well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the abstract idea.

For these reasons, we are not persuaded the Examiner erred in rejecting claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26 under § 101.

Accordingly, we affirm the Examiner's § 101 rejection claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26.

Rejection of Claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26
under 35 U.S.C. § 103(a)

The Examiner rejected claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26 as obvious over the combined teachings and suggestions of Ateniese, Yang, and Obrea. Non-Final Act. 9.

Appellants contend the cited portions of the references do not teach or suggest the limitation "generating a transaction pseudonym based on the first pseudonym, a transaction number and the registration key," recited in claim 1. App. Br. 10.

We are persuaded that the Examiner erred. The Examiner found Ateniese's doctor's health care provider organization issuing the doctor a

11

pseudonym and a signature certificate and the doctor concatenating the prescription token with the patient's pseudonym token teaches or suggests the disputed limitation. Ateniese 5.2, 5.3. However, Ateniese's pseudonym is used to issue anonymous, unlinkable signatures. *Id.* In contrast, the claimed system generates a transaction pseudonym based on three variables: the first pseudonym, a transaction number and the registration key. The cited teachings or suggestions of Ateniese do not explain how and if a transaction pseudonym is generated based on three variables: a first pseudonym, a transaction number and a registration key, and the Examiner has not sufficiently explained how Ateniese teaches or suggests the recited limitation.

For these reasons, we are persuaded the Examiner erred in rejecting claim 1 as obvious. The disputed "generating a transaction pseudonym" limitation is also recited in the remaining independent claims 9, 16, and 17. Because we reverse all independent claims, we also reverse all claims that depend therefrom. Accordingly, we do not sustain the Examiner's § 103(a) rejection of claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26.

DECISION

We affirm the Examiner's decision rejecting claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26 under § 101.

We reverse the Examiner's rejection of claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26 under 35 U.S.C. § 103(a).

Because we affirm at least one ground of rejection with respect to each claim on appeal, the Examiner's decision rejecting claims 1–3, 5, 6, 8–11, 13, 15–19, 21–23, 25, and 26 is affirmed. *See* 37 C.F.R. § 41.50(a)(1).

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). *See* 37 C.F.R. § 41.50(f).

<p align="center">AFFIRMED</p>