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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROHIT CHAUHAN

Appeal 2020-000814
Application 14/921,284
Technology Center 3600

Before ELENI MANTIS-MERCADER, JAMES R. HUGHES, and
LARRY J. HUME, *Administrative Patent Judges*.

HUME, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the Examiner's decision rejecting claims 1–20, which are all rejections pending in the application. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the term “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as MasterCard International Incorporated. Appeal Br. 2.

STATEMENT OF THE CASE²

The claims are directed to a biometric verification systems and methods for payment transactions. *See* Spec. (Title). In particular, Appellant’s disclosed embodiments and claimed invention relate to “systems and methods described herein [that] provide a framework to identify people who attempt to make ATM and/or merchant POS transactions based on biometric information (that is not stored or transmitted over a network) and information associated with payment accounts.” Spec. 4:19–22.

Exemplary Claims

Claim 11, reproduced below, is representative of the subject matter on Appeal (*emphasis* added to contested prior-art limitation):

11. A computer-implemented method, comprising:
 - reading, by a point of sale device, biometric information of the user;
 - executing, by the point of sale device, an encryption algorithm on the biometric information read from the user to create a token key value, said token key value being a character string generated by applying the encryption algorithm to the biometric information;
 - receiving, by the point of sale device from the user, a personal identification number value;
 - transmitting the token key value and the personal identification number value from the point of sale device to an authentication server;

² Our decision relies upon Appellant’s Appeal Brief (“Appeal Br.,” filed July 2, 2019); Reply Brief (“Reply Br.,” filed Nov. 8, 2019); Examiner’s Answer (“Ans.,” mailed Sept. 9, 2019); Final Office Action (“Final Act.,” mailed Nov. 29, 2018); and the original Specification (“Spec.,” filed Oct. 23, 2015).

receiving the token key value and the personal identification number value at the authentication server;

determining that the received token key value and the personal identification number value match a reference token key value and a reference personal identification number value in a user database; said determining not including decrypting said received token key value; and

transmitting a signal, from the authentication server to the point of sale device, indicating that the received token key value and the personal identification number value match the reference token key value and the verified personal identification number value in the registered user database.

REFERENCES

The prior art relied upon by the Examiner as evidence is:

Name	Reference	Date
von Mueller et al. (“von Mueller”)	US 2008/0091944 A1	Apr. 17, 2008
Yi et al. (“Yi”)	US 2015/0026479 A1	Jan. 22, 2015
Hu et al. (“Hu”)	US 2015/0066651 A1	Mar. 5, 2015
Webber et al. (“Webber”)	US 9,330,511 B2	May 3, 2016

REJECTIONS

R1. Claims 1–20 stand rejected under 35 U.S.C. § 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or abstract idea) without significantly more. Ans. 11–14; *see also* Final Act. 2–7.

R2. Claims 1–4, 6–14, and 16–20 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over the combination of von Mueller, Yi, and Webber. Final Act. 8.

R3. Claims 5 and 15 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over the combination of von Mueller, Yi, Webber, and Hu. Final Act. 16.

CLAIM GROUPING

Based on Appellant’s arguments (Appeal Br. 7–13) and our discretion under 37 C.F.R. § 41.37(c)(1)(iv), we decide the appeal of patent-ineligible subject matter Rejection R1 of claims 1–20 on the basis of representative claim 11; and we decide the appeal of obviousness Rejection R2 of claims 1–4, 6–14, and 16–20 on the basis of representative claim 11.

Remaining claims 5 and 15 in Rejection R3, not argued separately, stand or fall with the respective independent claim from which they depend.³

ISSUES AND ANALYSIS

In reaching this decision, we consider all evidence presented and all arguments actually made by Appellant. To the extent Appellant has not advanced separate, substantive arguments for particular claims, or other issues, such arguments are waived. 37 C.F.R. § 41.37(c)(1)(iv).

We agree with particular arguments made by Appellant with respect to Rejection R1 of claims 1–20 under 35 U.S.C. § 101.

³ “Notwithstanding any other provision of this paragraph, the failure of appellant to separately argue claims which appellant has grouped together shall constitute a waiver of any argument that the Board must consider the patentability of any grouped claim separately.” 37 C.F.R. § 41.37(c)(1)(iv). In addition, when Appellant does not separately argue the patentability of dependent claims, the claims stand or fall with the claims from which they depend. *In re King*, 801 F.2d 1324, 1325 (Fed. Cir. 1986).

However, we disagree with Appellant’s arguments with respect to the obviousness rejection of claim 11 (Rejection R2) and, unless otherwise noted, we incorporate by reference herein and adopt as our own: (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken, and (2) the reasons and rebuttals set forth in the Examiner’s Answer in response to Appellant’s arguments. We highlight and address specific findings and arguments regarding claim 11 for emphasis as follows.

1. § 101 Rejection R1 of Claims 1–20

Issue 1

Appellant argues (Appeal Br. 7–10; Reply Br. 2–3) the Examiner’s rejection of claim 11 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter is in error. These contentions present us with the following issue:

Under the USPTO’s Revised Guidance, informed by our governing case law concerning 35 U.S.C. § 101, is claim 11 patent-ineligible under § 101?

Principles of Law

A. 35 U.S.C. § 101

An invention is patent-eligible if it is a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101.⁴ However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include

⁴ This threshold analysis of whether a claim is directed to one of the four statutory categories of invention, i.e., a process, machine, manufacture, or composition of matter, is referred to as “*Step 1*” in the USPTO’s patent-eligibility analysis under § 101. MPEP § 2106.

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 *Mayo*, 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, 67 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diehr*, 450 U.S. at 191); “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))).

Abstract ideas may include, but are not limited to, fundamental economic practices, methods of organizing human activities, and mathematical formulas or relationships. *Alice*, 573 U.S. at 217–21. Under this guidance, we must therefore ensure at step one that we articulate what the claims are directed to with enough specificity to ensure the step one inquiry is meaningful. *Id.* at 217 (“[W]e tread carefully in construing this exclusionary principle lest it swallow all of patent law.”).

Examples of claims that do not recite mental processes because they cannot be practically performed in the human mind include: (a) a claim to a method for calculating an absolute position of a GPS receiver and an absolute time of reception of satellite signals, where the claimed GPS receiver calculated pseudoranges that estimated the distance from the GPS receiver to a plurality of satellites, *SiRF Technology, Inc. v. International Trade Commission*, 601 F.3d 1319, 1331–33 (Fed. Cir. 2010); (b) a claim to detecting suspicious activity by using network monitors and analyzing network packets, *SRI Int’l, Inc. v. Cisco Systems, Inc.*, 930 F.3d 1295, 1304 (Fed. Cir. 2019); (c) a claim to a specific data encryption method for computer communication involving a several-step manipulation of data, *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016) (distinguishing *TQP Development, LLC v. Intuit Inc.*, 2014 WL 651935 (E.D. Tex. Feb. 19, 2014)) (the specific data encryption method “could not conceivably be performed in the human mind or with pencil and paper”). While a claim limitation to a process that “can be performed in the human mind, or by a human using a pen and paper” qualifies as a mental process, a claim limitation that “could not, as a practical matter, be

performed entirely in a human’s mind” (even if aided with pen and paper) would not qualify as a mental process.⁵

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held “[a] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula.” *Diehr*, 450 U.S. at 187; *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.* (citation omitted) (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 omitted). “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that

⁵ *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372, 1375–76 (Fed. Cir. 2011) (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)).

the [claim] is more than a drafting effort designed to monopolize the [abstract idea].” *Id.* (alterations in original) (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.*

B. USPTO Revised Guidance

The PTO published revised guidance in the Federal Register concerning the application of § 101. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (January 7, 2019) (hereinafter “Revised Guidance”) (<https://www.govinfo.gov/content/pkg/FR-2019-01-07/pdf/2018-28282.pdf>). “All USPTO personnel are, as a matter of internal agency management, expected to follow the guidance.” *Id.* at 51; *see also* October 2019 Update at 1 (*October 2019 Update: Subject Matter Eligibility*) (hereinafter “October 2019 Update”).

Under the Revised 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);⁶ and

(2) additional elements that integrate the judicial exception into a practical application (*see* Manual for Patent Examining Procedure (“MPEP”) §§ 2106.05(a)–(c), (e)–(h)).⁷

See Revised Guidance 52–53.

⁶ Referred to as “*Revised Step 2A, Prong 1*” in the Revised Guidance (hereinafter “*Step 2A(i)*”).

⁷ Referred to as “*Revised Step 2A, Prong 2*” in the Revised Guidance (hereinafter “*Step 2A(ii)*”).

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.⁸

See Revised Guidance 56.

Step 2A(i) – Abstract Idea

Informed by our judicial precedent, the Revised Guidance extracts and synthesizes key concepts identified by the courts as abstract ideas to explain that the abstract idea exception includes the following groupings of subject matter, when recited as such in a claim limitation:

(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).

⁸ Items (3) and (4) continue to be collectively referred to as “*Step 2B*” of the Supreme Court’s two-step framework, described in *Mayo* and *Alice*.

Revised Guidance 52 (footnotes omitted).

Under the Revised Guidance, if the claim does not recite a judicial exception (a law of nature, natural phenomenon, or subject matter within the enumerated groupings of abstract ideas above), then the claim is patent-eligible at *Step 2A(i)*. This determination concludes the eligibility analysis, except in situations identified in the Revised Guidance.⁹

However, if the claim recites a judicial exception (i.e., an abstract idea enumerated above, a law of nature, or a natural phenomenon), the claim requires further analysis for a practical application of the judicial exception in *Step 2A(ii)*.

Step 2A(ii) – Practical Application

If a claim recites a judicial exception in *Step 2A(i)*, we determine whether the recited judicial exception is integrated into a practical application of that exception in *Step 2A(ii)* 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.

⁹ In the rare circumstance in which an examiner believes a claim limitation that does not fall within the enumerated groupings of abstract ideas should nonetheless be treated as reciting an abstract idea, the procedure described in of the Guidance for analyzing the claim should be followed. *See* Revised Guidance, Section III.C.

The seven identified “practical application” sections of the MPEP,¹⁰ cited in the Revised Guidance under *Step 2A(ii)*, are:

- (1) MPEP § 2106.05(a) Improvements to the Functioning of a Computer or To Any Other Technology or Technical Field
- (2) MPEP § 2106.05(b) Particular Machine
- (3) MPEP § 2106.05(c) Particular Transformation
- (4) MPEP § 2106.05(e) Other Meaningful Limitations
- (5) MPEP § 2106.05(f) Mere Instructions To Apply An Exception
- (6) MPEP § 2106.05(g) Insignificant Extra-Solution Activity
- (7) MPEP § 2106.05(h) Field of Use and Technological Environment

See Revised Guidance 55.

If the recited judicial exception is integrated into a practical application as determined under one or more of the MPEP sections cited above, then the claim is not directed to the judicial exception, and the patent-eligibility inquiry ends. *See id.* at 54. If not, then analysis proceeds to *Step 2B*.

Step 2B – “Inventive Concept” or “Significantly More”

Under our reviewing courts’ precedent, it is possible that a claim that does not “integrate” a recited judicial exception under *Step 2A(ii)* is nonetheless patent eligible. For example, the claim may recite additional

¹⁰ *See* MPEP §§ 2106.05(a)–(c), (e)–(h). Citations to the MPEP herein refer to revision [R-08.2017]. Sections 2106.05(a), (b), (c), and (e) are indicative of integration into a practical application, while §§ 2106.05(f), (g), and (h) relate to limitations that are not indicative of integration into a practical application.

elements that render the claim patent eligible even though one or more claim elements may recite a judicial exception.¹¹ The Federal Circuit has held claims eligible at the second step of the *Alice/Mayo* test (USPTO *Step 2B*) because the additional elements recited in the claims provided “significantly more” than the recited judicial exception (e.g., because the additional elements were unconventional in combination).¹² Therefore, if a claim has been determined to be directed to a judicial exception under *Revised Step 2A*, we must also evaluate the additional elements individually and in combination under *Step 2B* to determine whether they provide an inventive concept (i.e., whether the additional elements amount to significantly more than the exception itself).¹³

Under the Revised Guidance, we must consider in *Step 2B* 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

¹¹ See, e.g., *Diehr*, 450 U.S. at 187.

¹² See, e.g., *Amdocs, Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1300, 1304 (Fed. Cir. 2016); *BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1349–52 (Fed. Cir. 2016); *DDR Holdings v. Hotels.com, L.P.*, 773 F.3d 1245, 1257–59 (Fed. Cir. 2014).

¹³ The patent eligibility inquiry may contain underlying issues of fact. *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1325 (Fed. Cir. 2016). In particular, “[t]he 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).

at a high level of generality, to the judicial exception, which is indicative that an inventive concept may not be present.” *See* Revised Guidance, Section III.B.¹⁴

In the *Step 2B* analysis, an additional element (or combination of elements) is not well-understood, routine or conventional unless the examiner finds an evidentiary basis, and expressly supports a rejection in writing with, one or more of the following:

1. A citation to an express statement in the specification or to a statement made by an applicant during prosecution that demonstrates the well-understood, routine, conventional nature of the additional element(s). . . .
2. A citation to one or more of the court decisions discussed in MPEP § 2106.05(d)(II) as noting the well-understood, routine, conventional nature of the additional element(s).
3. A citation to a publication that demonstrates the well-understood, routine, conventional nature of the additional element(s). . . .
4. A statement that the examiner is taking official notice of the well-understood, routine, conventional nature of the additional element(s). . . .

¹⁴ In accordance with existing *Step 2B* guidance, an Examiner’s finding that an additional element (or combination of elements) is well understood, routine, conventional activity must be supported with at least one of the four specific types of evidence required by the USPTO *Berkheimer* Memorandum, as shown above. For more information concerning evaluation of well-understood, routine, conventional activity, *see* MPEP § 2106.05(d), as modified by the USPTO *Berkheimer* Memorandum (USPTO Commissioner for Patents Memorandum dated Apr. 19, 2018, “Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (*Berkheimer v. HP, Inc.*)” (hereinafter “*Berkheimer Memo*”).

See Berkheimer Memo 3–4.

If the Examiner or the Board determines under *Step 2B* that the element (or combination of elements) amounts to significantly more than the exception itself, the claim is eligible, thereby concluding the eligibility analysis.

However, if a determination is made that the element and combination of elements do not amount to significantly more than the exception itself, the claim is ineligible under *Step 2B*, and the claim should be rejected for lack of subject matter eligibility.

Analysis

Based upon our review of the record, we find a preponderance of the evidence supports particular arguments advanced by Appellant with respect to claims 1–20 for the specific reasons discussed below. We highlight and address specific findings and arguments regarding claim 11 for emphasis as follows.

Step 1 – Statutory Category

Claim 11, as a method claim, recites one of the enumerated categories of eligible subject matter in 35 U.S.C. § 101. Therefore, the issue before us is whether it is directed to a judicial exception without significantly more.

Step 2A(i): Does the Claim Recite a Judicial Exception?

Under the Revised Guidance, the Examiner determined claims 1–20 are directed to the abstract idea “of a commercial transaction that is part of a certain methods of organizing human activity.” Ans. 12; *contrast with* Final Act. 4 (“Claims 1 and 11 were found to be directed to the concept of ‘a

multi-credential authentication process” and Final Act. 6 (“The concept as described defines a judicial exception, an abstract idea of ‘An Idea of Itself’, which is similar to the concepts found by the courts to be abstract, such as ‘Collecting information, analyzing it, and displaying certain results of the collection and analysis’ (*Electric Power Group*) and very closely related to ‘Providing restricted access to resources’ (*Prism Techs.*)” We disagree with the Examiner’s conclusion, as discussed below. We evaluate, *de novo*, whether claim 11 recites an abstract idea based upon the Revised Guidance.

The Examiner continues to rely upon analysis pertinent under the previous subject matter eligibility guidance, as well as attempting to fit that analysis under the current Revised Guidance. *See* Ans. 6 (“The abstract concept of a ‘multi credential authentication process’ is found in the recited limitations, where the biometric information of a user is scanned and a PIN is entered. The abstract idea of authentication was defined as An Idea of Itself, which was still part of the analysis of Step 2A in the previous guidance, and which fits as a similar process to the process in the case of *Electric Power Group* (Collecting information, analyzing it, and displaying certain results of the collection and analysis).”). Ans. 6.

In response to the Examiner’s conclusion in the Answer (cited above) that the claims are directed to the abstract idea of a “multi-credential authentication process,” Appellant contends:

In coming to this conclusion, however, the Examiner cites and relies upon numerous technologically-based claim elements, including “reading biometric information (by a point of sale device)”, “receiving a PIN (by the point of sale device)”, “executing an encryption algorithm”, and “sending a signal (to indicate verification)”. Only by completely ignoring the content

of these claim limitations can the Examiner reach a conclusion that the claims are directed to “abstract” subject matter. The Examiner's own analysis undermines his conclusion, and should lead to the result that the claims are held patent-eligible.

Reply Br. 2 (citing Ans. 5–6). With respect to “the Examiner’s purported application of the January 2019 guidance, the Examiner concludes-as to ‘Prong One’ of Step 2A-that the claims are directed to the alleged abstract idea of a ‘commercial transaction’ The Examiner reaches this erroneous conclusion only by ignoring numerous technologically-based claim elements.” Reply Br. 3.

For the reasons discussed below, we disagree with the Examiner’s conclusion that the claimed invention is directed to an abstract idea, particularly the abstract idea of a commercial transaction.

We conclude various limitations in claim 11 may be construed as reciting post or extra-solution activity as delineated in the Revised Guidance, e.g., “reading . . . biometric information of the user” and “receiving . . . from the user, a personal identification number value” (data gathering); and “transmitting the token key value and the personal identification number value from the point of sale device to an authentication server” (extra-solution activity, i.e., a computer sends and receives data).

However, given the October 2019 Update to the Revised Guidance, based upon relevant case law, we conclude as a matter of claim construction, that claim 11 is not directed to the abstract idea of a certain methods of organizing human activity in the form of a commercial interaction, but instead is directed to the non-abstract idea of an improved encryption and

authentication system, that happens to be carried out in the context of a point-of-sale (POS) system.

In particular, we reach our conclusion of non-abstractness of claim 11 as a whole because we determine that the recitations of “executing, by the point of sale device, an encryption algorithm on the biometric information read from the user to create a token key value, said token key value being a character string generated by applying the encryption algorithm to the biometric information,” and “determining that the received token key value and the personal identification number value match a reference token key value and a reference personal identification number value in a user database; said determining not including decrypting said received token key value” recite non-abstract, technology based, concrete implementations of encryption techniques that could not reasonably be construed as being performed in the human mind or by pen and paper as a mental process. *See Synopsys*, 839 F.3d at 1149 (distinguishing *TQP Development*, 2014 WL 651935, at *4) (the specific data encryption method “could not conceivably be performed in the human mind or with pencil and paper”). While a claim limitation to a process that “can be performed in the human mind, or by a human using a pen and paper” qualifies as a mental process, a claim limitation that “could not, as a practical matter, be performed entirely in a human’s mind” (even if aided with pen and paper) would not qualify as a mental process.¹⁵

¹⁵ *CyberSource*, 654 F.3d at 1372, 1375–76 (distinguishing *Research Corp. Techs.*, 627 F.3d 859, and *SiRF Tech.*, 601 F.3d 1319).

Accordingly, based upon the claim language, in light of the Specification (*e.g.*, *see* Spec. 19 (Abstract)), we conclude claim 11 is directed to the non-abstract idea of an improved encryption and authentication system, and not the abstract idea of a commercial interaction as determined by the Examiner in the Answer. We reach a similar conclusion with respect to independent system claim 1 which is of commensurate scope to method claim 11.

Because the claim does not recite a judicial exception (a law of nature, natural phenomenon, or subject matter within the enumerated groupings of abstract ideas above), in accordance with the Revised Guidance as amplified by the October 2019 Update, we conclude the claim is patent-eligible at *Step 2A(i)*. This determination concludes the eligibility analysis. Thus, we do not affirm the Examiner's rejection of claims 1–20 under 35 U.S.C. § 101.

2. § 103(a) Rejection R2 of Claims 1–4, 6–14, and 16–20

Issue 2

Appellant argues (Appeal Br. 11–13; Reply Br. 3–4) the Examiner's rejection of claim 11 under 35 U.S.C. § 103(a) as being obvious over the combination of von Mueller, Yi, and Webber is in error. These contentions present us with the following issue:

Did the Examiner err in finding the cited prior art combination teaches or suggests a computer-implemented method that includes, *inter alia*, the step of “determining that the received token key value and the personal identification number value match a reference token key value and a reference personal identification number value in a user database; *said*

determining not including decrypting said received token key value,” as recited in claim 11 (emphasis added)?

Analysis

The Examiner finds (Final Act. 9) von Mueller in paragraph 225 teaches or suggests “determining that the received token key value and the personal identification number value match a reference token key value and a reference personal identification number value in a user database (interpreted as comparing received data with stored data for a match . . .),” and finds Webber teaches or suggests matching without decryption, i.e., “Webber does teach determining a match without decrypting said received token key value (before carrying out this process and as a double security check, the previously stored fingerprint template is also encrypted with the newly derived encryption key and, utilising compare module 168, it is compared with encrypted fingerprint templates stored in the Blocks 1 to *n* of the encrypted template register 190, to determine if a match can be found.)” Final Act. 12 (quoting Webber 16:52–17:22) (original quotes omitted).

Appellant admits Webber’s teaching of comparison of data in encrypted form. Appeal Br. 12 (“To add additional security, the current fingerprint scan template and the template stored in the verification device database are compared in encrypted form.”). However, Appellant contends “the Examiner departs from what would reasonably be understood from the prior art—taken as a whole—by a person of ordinary skill.” Appeal Br. 11.

Instead, Appellant argues the Examiner’s reference combination is based upon impermissible hindsight. Appeal Br. 12 (“the proposed combination of Von [sic] Mueller with both Yi and Webber is not logical or

supported by the teachings of the references, and further is based on hindsight derived from the teachings of the present application.”).¹⁶ “[T]he Examiner states it would have been ‘an obvious security feature to preserve the biometric information, including lack of transmission of keys.’ However, these advantages are not stated in Webber or in the other references. Rather, it is a teaching of the present application, that storing the reference token key as an encrypted version of the biometric information, never to be decrypted, enhances security of the biometric-based authentication system.” *Id.*

In Webber, the fingerprint reader is associated with a modem in the verification device 10, and all the storage of biometric information, including encrypted versions thereof, is local in the verification device 10--and would not be subject to the risks addressed in the present application. By contrast, both Von [sic] Mueller and Yi involve authentication by a remote facility. Yi, which is more pertinent than Webber, explicitly teaches decrypting the biometric information to be authenticated. The context of Webber is so different from that of the Yi reference that those who are skilled in the art would have no reason to

¹⁶ Appellant further alleges, in a conclusory fashion, without analysis or evidence that “Webber essentially teaches away from Yi, in that Webber teaches local fingerprint verification employing a user-dedicated verification device, whereas Yi teaches central storage of biometric reference data. One of ordinary skill, approaching Von Mueller, Yi and Webber, might select Yi’s approach to biometric verification, or Webber’s, but would have no reason to combine both references with Von [sic] Mueller, unless guided by hindsight from the teachings of this present application.” Appeal Br. 13. Attorney arguments and conclusory statements that are unsupported by factual evidence are entitled to little probative value. *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997); *see also In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984). “Argument in the brief does not take the place of evidence in the record.” *In re Schulze*, 346 F.2d 600, 602 (CCPA 1965) (citing *In re Cole*, 326 F.2d 769, 773 (CCPA 1964)).

apply the extra security check of Webber to the contexts of Von [sic] Mueller and Yi, and-unless guided by hindsight from the present application-would have no reason to believe that the benefits asserted by the Examiner would result from the proposed combination.

Id.

The Examiner clearly reiterates the teachings relied upon in each of the von Mueller, Yi, and Webber references, and recaps the motivational reasons for combining von Mueller with Yi, and for combining Webber with von Mueller/Yi. Final Act. 8–12; Ans. 16–17. In particular, the Examiner identifies that von Mueller in view of Yi lacks a teaching or suggestion of performing an authorization by “determining a match between received data and stored data, without decrypting the token key value,” but confirms the finding that Webber teaches comparison of received encrypted fingerprints with stored encrypted fingerprint templates. Ans. 16 (citing Webber 16:52–17:22).

We agree with the Examiner’s finding that the combination of von Mueller, Yi, and Webber teaches or suggests the disputed limitation, as recited in claim 11, and we disagree with Appellant’s contention that the combination of von Mueller with Yi and Webber is based upon hindsight reasoning, and add the following for emphasis.

First, as explained in *In re McLaughlin*:

Any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant’s disclosure, such a reconstruction is proper.

In re McLaughlin, 443 F.2d 1392, 1395 (CCPA 1971).

We agree because our review of the record establishes that the Examiner's case for obviousness is only based on knowledge which was within the level of ordinary skill at the time of Appellant's invention and does not include knowledge gleaned only from Appellant's disclosure.

Second, the Examiner identifies the relevant portions of each of the references relied on throughout the Examiner's Answer. See Final Act. 8–12; Ans. 16–17. To the extent that the Examiner relies on the knowledge of one of ordinary skill in the art to combine the teachings of the references, this practice is consistent with current case law. For example, the Supreme Court explains:

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. *See In re Kahn*, 441 F.3d 977, 988 (C.A.Fed.2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”). As our precedents make clear, however, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

KSR Int'l Co. v. Teleflex, Inc., 550 U.S. 398, 418 (2007).

In this case, the Examiner's conclusions of obviousness are clearly articulated and are based on detailed factual findings that are supported by

the references of record. *See* Final Act. 8–12; Ans. 16–17. Thus, we agree with the Examiner’s findings and conclusions.

With further regard to Appellant’s contention that there is no motivation to combine the references except by impermissible hindsight, we disagree because the Supreme Court stated that an explicitly stated motivation to combine the references is seen as “helpful insight,” *KSR*, 550 U.S. at 418, but that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results. *Id.* at 416.

Moreover, Appellant has not demonstrated that the Examiner’s proffered combination of references would have been “uniquely challenging or difficult for one of ordinary skill in the art.” *See Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 418). Nor has Appellant provided objective evidence of secondary considerations which our reviewing court guides “operates as a beneficial check on hindsight.” *Cheese Sys., Inc. v. Tetra Pak Cheese and Powder Sys.*, 725 F.3d 1341, 1352 (Fed. Cir. 2013).

Based upon the findings above, on this record, we are not persuaded of error in the Examiner’s reliance on the cited prior art combination to teach or suggest the disputed limitation of claim 11, nor do we find error in the Examiner’s resulting legal conclusion of obviousness. Therefore, we sustain the Examiner’s obviousness rejection of independent claim 11, and grouped claims 1–10 and 12–20 which fall therewith. *See Claim Grouping, supra.*

3. § 103(a) Rejection R3 of Claims 5, 15

In view of the lack of *any* arguments directed to obviousness Rejection R3 of claims 5 and 15 under § 103(a), we sustain the Examiner's rejection of these claims. Arguments not made are waived.

REPLY BRIEF

To the extent Appellant *may* advance new arguments in the Reply Brief (Reply Br. 2–4) not in response to a shift in the Examiner's position in the Answer, arguments raised in a Reply Brief that were not raised in the Appeal Brief or are not responsive to arguments raised in the Examiner's Answer will not be considered except for good cause (*see* 37 C.F.R. § 41.41(b)(2)), which Appellant has not shown.

CONCLUSIONS

(1) Under our Revised Guidance, governed by relevant case law, claims 1–20 are patent-eligible under 35 U.S.C. § 101, and we do not sustain the rejection.

(2) The Examiner did not err with respect to obviousness Rejections R2 and R3 of claims 1–20 under 35 U.S.C. § 103(a) over the cited prior art combinations of record, and we sustain the rejections.

Because we have affirmed at least one ground of rejection with respect to each claim on appeal, we affirm the Examiner's decision. *See* 37 C.F.R. § 41.50(a)(1).

DECISION SUMMARY

Claims Rejected	35 U.S.C. §	Basis / References	Affirmed	Reversed
1–20	101	Subject Matter Eligibility		1–20
1–4, 6–14, 16–20	103(a)	Obviousness von Mueller, Yi, Webber	1–4, 6–14, 16–20	
5, 15	103(a)	Obviousness von Mueller, Yi, Webber, Hu	5, 15	
Overall Outcome			1–20	

FINALITY AND 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)(1)(iv). See 37 C.F.R. § 41.50(f).

AFFIRMED