

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NAUTILUS HYOSUNG INC.,
Petitioner,

v.

DIEBOLD NIXDORF, INC.,
Patent Owner.

Case CBM2016-00034
Patent 7,314,163 B1

Before BARBARA A. BENOIT, GEORGIANNA W. BRADEN, and
KERRY BEGLEY, *Administrative Patent Judges*.

BENOIT, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 328(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

This is a covered business method (“CBM”) patent review, under § 18 of the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284, 331 (2011).¹ We have jurisdiction to hear this review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 328(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–24 of U.S. Patent No. 7,314,163 B1 (Ex. 1001, “the ’163 patent” or “the challenged patent”) are unpatentable.

A. *Procedural History*

Nautilus Hyosung Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting a covered business method patent review of claims 1–24 (the “challenged claims”) of the ’163 patent, owned by Diebold Nixdorf, Inc.² (“Patent Owner”). We instituted a covered business method patent review for the challenged claims of the ’163 patent. Paper 9 (“Inst. Dec.”), 44.

¹ See *GTNX, Inc. v. INTTRA, Inc.*, 789 F.3d 1309, 1310 (Fed. Cir. 2015) (describing transitional program for review of covered business method patent under 35 U.S.C. §§ 321–29, pursuant to the AIA).

² Patent Owner informed the Board of a name change from Diebold, Inc. to Diebold Nixdorf, Inc. and that real party-in-interest Diebold Self-Service Systems Division of Diebold, Inc. would be referred to as Diebold Self-Service Systems Division of Diebold Nixdorf, Inc. Paper 18 (Updated Patent Owner Mandatory Notice). Patent Owner indicated that the renaming “does not at this time reflect any change in corporate structure and does not presently involve the addition or removal of any real party-in-interest.” *Id.*

Subsequent to institution, Patent Owner filed a Patent Owner Response (Paper 16, “PO Resp.”), to which Petitioner filed a Reply (Paper 19), which was corrected on the same day (Paper 21, “Reply”). An oral hearing was held and a transcript of the hearing has been entered into the record. Paper 32 (“Tr.”).

B. Related Matters

As required by 37 C.F.R. § 42.8(b)(2), each party identifies various judicial or administrative matters that would affect or be affected by a decision in this proceeding. Pet. 2; Paper 5 (Patent Owner’s Mandatory Notices). Petitioner and Patent Owner represent that the challenged patent is being asserted against Petitioner in an United States district court proceeding—*Diebold, Inc. v. Nautilus Hyosung Inc.*, No. 1:15-cv-2153 (N.D. Ohio)—and an United States International Trade Commission (“ITC”) investigation—*In the Matter of Certain Automated Teller Machines, ATM Modules, Components Thereof, and Products Containing Same*, No. 337-TA-972.³ Pet. 2, Paper 5.

³ In the ITC investigation, the Administrative Law Judge made a determination regarding whether claims 20–24 of the ’163 patent were directed to ineligible subject matter under 35 U.S.C. § 101. Ex. 1026, 27. An issue arose during the oral hearing for this covered business method patent review regarding what effect, if any, the ruling in the ITC investigation should have on this proceeding. Tr. 36:8–20, 37:19–38:2, 41:10–42:4. Subsequently, we gave the parties an opportunity to brief the issue. Paper 28 (“Order”); Paper 29 (“Petitioner’s Br.”); Paper 30 (“Patent

C. The Challenged Patent

The '163 patent is titled “Check Accepting and Cash Dispensing Automated Bank Machine System and Method.” Ex. 1001, [54]. The patent issued from an application filed on April 16, 2007, which claimed through a series of various applications the benefit of the filing date of November 27, 2000. *Id.* at [45], 1:8–32.

1. The Written Description

The challenged patent describes techniques for an automated banking machine that accepts check deposits. Ex. 1001, Abstract. A check imaging device of the automated banking machine generates a digital image of a check deposited by a customer. *Id.* The automated banking machine modifies the check image data to produce a modified check image that excludes sensitive check information, such as the customer’s account number in the check’s magnetic link character recognition (or micr) line. *Id.*; *see also* Ex. 1009, 4:14–15 (describing a micr line as typically including a code identifying the issuing bank, the account number, and the check number). Figure 1 is reproduced below.

Owner’s Br.”). Both parties agree, as do we, that the ITC ruling does not have a preclusive effect on this proceeding. *Texas Instruments Inc. v. United States Int’l Trade Comm’n*, 851 F.2d 342 (Fed. Cir. 1988) (holding “decisions of the ITC involving patent issues have no preclusive effect in other forums”); *see Tandon Corp. v. United States Int’l Trade Comm’n*, 831 F.2d 1017, 1019 (Fed. Cir. 1987) (holding ITC’s determinations regarding patent issues should be given no res judicata or collateral estoppel effect); Patent Owner Br. 2; Petitioner’s Br. 2.

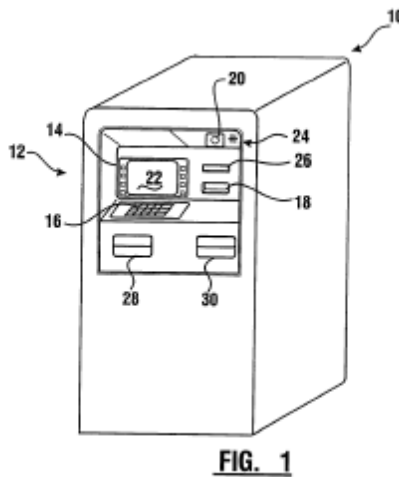


Figure 1 shows exemplary automated banking machine 10 that accepts deposits. *Id.* at 10:8–10, 13:15–19. Automated banking machine 10 includes function buttons 14 through which a customer provides inputs to the machine. *Id.* at 13:23–28. In an exemplary embodiment, automated banking machine 10 includes a cash dispensing mechanism that dispenses cash to a customer through cash outlet 28. *Id.* at 14:4–9. The exemplary embodiment further includes deposit accepting opening 30 “to accept deposits in the form of sheets, envelopes, and other items.” *Id.* at 14:9–14. Automated banking machine 10 also includes a printer to provide receipts. *Id.* at 13:54–57. As shown in Figure 1, automated banking machine 10 includes printer outlet 26. Figure 72 is reproduced below.

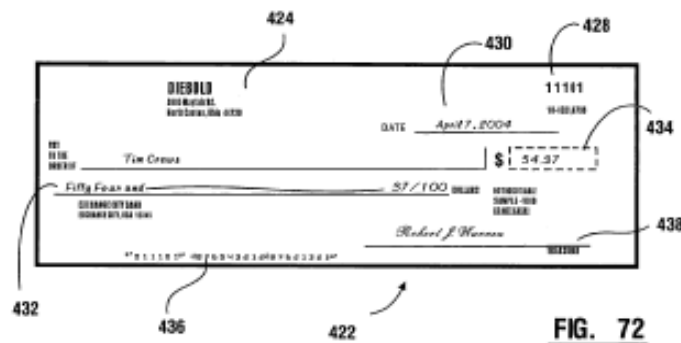


Figure 72 is a representation of a front side of check 422. *Id.* at 12:54–55. The front side of check 422 includes payor name 424, payee name, check number data 428, date data 430, legal amount 432, courtesy amount 434, micr line 436, and authorized signature of payor 438.

2. Illustrative Claims

Petitioner challenges all twenty-four claims⁴ of the challenged patent. Claims 1, 20, and 24 are independent claims. Claims 1 and 20 as well as claim 4, which depends ultimately from claim 1, are illustrative of the claimed subject matter:

1. A method comprising:

- (a) operating a machine to generate check image data corresponding to at least one side of a check, wherein the at least one side includes visual features, wherein the check image data includes visual feature data corresponding to the visual features, wherein the machine includes a check imaging device and at least

⁴ We understand that “data” is plural for “datum.” We follow the practice of the challenged patent and parties in referring to “data” as singular and do so for consistency.

one processor in operative connection with the check imaging device; and

(b) operating the machine to modify the check image data generated in step (a) to produce modified check image data, wherein at least some visual feature data included in the check image data is not included in the modified check image data.

4. The method according to claim 3 wherein the machine comprises an automated banking machine including a cash dispenser, wherein step (c) includes operating the automated banking machine to receive the at least one check from a user of the automated banking machine during a check cashing transaction, and further comprising (d) operating the machine to dispense cash during the check cashing transaction.

Ex. 1001, 70:33–46, 70:58–65.

20. A method comprising:

(a) operating a check imaging device of a cash dispensing machine to image check data on a check, wherein the check data includes micr line data and signature data, wherein the machine includes least one processor in operative connection with the check imaging device;

(b) generating check image data corresponding to check data imaged in step (a), wherein the check image data includes micr line image data representative of the micr line data, wherein the check image data includes signature image data representative of the signature data; and

(c) modifying the check image data generated in step (b) to produce modified check image data, wherein at least a portion of the micr line image data included in the check image data is not included in the modified check image data.

Id. at 72:26–42.

D. Covered Business Method Patent

AIA section 18 establishes a post-grant review proceeding “for review of the validity of covered business method patents.” § 18(a)(1). The statute defines a “covered business method patent” as “a patent that claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service, except that the term does not include patents for technological inventions.” AIA § 18(d)(1); *see* 37 C.F.R. § 42.301. In other words, only patents that claim “a financial activity element” are eligible for covered business method patent reviews and only if the patent is not for a technological invention. *Secure Axxess, LLC v. PNC Bank Nat’l Ass’n*, 848 F.3d 1370, 1381 (Fed. Cir. 2017) (“Necessarily, the statutory definition of a CBM patent requires that the patent have a claim that contains, however phrased, a financial activity element”); *see also id.* at 1377 (“The statutory definition by its terms makes what a patent ‘claims’ determinative of the threshold requirement for coming within the defined class.”). A patent need have only one claim directed to a covered business method to be eligible for review. *Id.* at 1381 (requiring “a claim”); *see* Transitional Program for Covered Business Method Patents--Definitions of Covered Business Method Patent and Technological Invention; Final Rule, 77 Fed. Reg. 48,734, 48,736 (Aug. 14, 2012); *see also Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1326–27 (Fed. Cir. 2015) (accepting single claim analysis to determine whether to institute a covered business method patent review).

In our Decision to Institute, we determined, as a threshold matter in considering whether to institute a review, that the challenged patent is eligible for a covered business method patent review. Inst. Dec. 8–14; *see* AIA § 18(a)(1)(E) (“[t]he Director may institute a transitional proceeding [under § 18] only for a patent that is a covered business method patent.”).

More specifically, we determined that the challenged patent claims a method or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service. Inst. Dec. 9–10. As noted in our Decision to Institute, claim 1 recites “operating a machine to generate check image data corresponding to . . . one side of a check.” Ex. 1001, 70:34–41; Inst. Dec. 10. Claim 4 additionally limits the claimed machine to “an automated banking machine including a cash dispenser” and requires “operating the [automated banking] machine to dispense cash during the check cashing transaction.” Ex. 1001, 70:58–65; Inst. Dec. 10 (quoting claim 4).

We also concluded that the technological features of the claimed steps were directed to using known technologies and so did not fall within the technological invention exception. Inst. Dec. 12 (citing 77 Fed. Reg. at 48,764 (indicating use of known technologies does not render a patent a technological invention)); *see also id.* at 13 (“The subject matter of claim 4, as a whole, does not require any specific, unconventional software, computer equipment, processing capabilities, or other technological features to produce the required functional result.”). In concluding claim 4 requires only the use of known prior art technology, we relied on indications in the

Specification of the challenged patent regarding automated banking machines. *Id.* at 13 (“Moreover, the Specification indicates that ‘[a]utomated banking machines are known in the prior art’ and ‘are commonly used to carryout transactions such as dispensing cash . . . and/or receiving deposits from users.’ [Ex. 1001,] 1:44–47. The Specification also indicates, in its ‘background art’ section, that imaging devices may be used to process deposited checks or other instruments. *Id.* at 1:42, 2:60–61; *see also id.* at 2:30–31 (indicating a deposited check is a type of instrument).”). We further concluded, based on statements in the Specification, that the purpose of the claimed subject matter is to address the business problem of reducing the risk of fraud by removing sensitive information from an image of a check. Inst. Dec. 13 (quoting Ex. 1001, 35:17–22).

After institution of the covered business method patent review, Patent Owner did not contest whether the challenged patent is a covered business method patent. *See generally* PO Resp. Having reviewed afresh the challenged claims and supporting Specification, we conclude that our initial finding in the Decision to Institute was correct. Specifically, we conclude that the ’163 patent is eligible for a covered business method patent review.

E. Instituted Grounds of Unpatentability

We instituted a covered business method patent review of the challenged patent based on the following grounds set forth by Petitioner in its Petition.

Basis ⁵	Challenged Claim(s)	Reference(s)
§ 101	1–24	
§ 102	1–3 and 5	Riach ⁶
§ 103	1–3, 5, and 13–24	Riach and Graf ⁷
§ 103	4	Riach, Graf, and Gustin ⁸
§ 103	16–18	Riach, Graf, and Anderson ⁹

Inst. Dec. 43–44.

II. DISCUSSION

To prevail in challenging claims 1–24 of the ’163 patent, Petitioner must demonstrate by a preponderance of the evidence that the claims are unpatentable. 35 U.S.C. § 326(e); 37 C.F.R. § 42.1(d).

A. Claim Construction

In a covered business method patent review, a claim in an unexpired patent shall be given its broadest reasonable construction, in light of the specification of the patent in which it appears. 37 C.F.R. § 42.300(b);

⁵ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Because the challenged patent was filed before March 16, 2013, we refer to the pre-AIA version of §§ 102 and 103 in this decision.

⁶ U.S. Patent No. 5,751,842, issued May 12, 1998 (Ex. 1008, “Riach”).

⁷ U.S. Patent No. 5,631,984, issued May 20, 1997 (Ex. 1009, “Graf”).

⁸ U.S. Patent No. 5,897,625, issued Apr. 27, 1999 (Ex. 1010, “Gustin”).

⁹ U.S. Patent No. 5,581,682, issued Dec. 3, 1996 (Ex. 1019, “Anderson”).

see *Versata Dev. Grp.*, 793 F.3d at 1328 (affirming use of broadest reasonable construction standard in a covered business method patent review); cf. *In re Cuozzo Speed Techs., LLC*, LLC v. Lee, 136 S. Ct. 2131, 2144 (2016) (regarding a similar broadest reasonable construction standard for an *inter partes* review, the Supreme Court held that 37 C.F.R. § 42.100(b) “represents a reasonable exercise of the rulemaking authority that Congress delegated to the Patent Office”). Under the broadest reasonable construction standard, claim terms are presumed to be given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). To rebut this presumption by acting as a lexicographer, the patentee must give the term a particular meaning in the specification with “reasonable clarity, deliberateness, and precision.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In addition, the broadest reasonable construction of a claim term cannot be so broad that the construction is unreasonable under general claim construction principles. *Microsoft Corp. v. Proxyconn, Inc.*, 789 F.3d 1292, 1298 (Fed. Cir. 2015) (discussing broadest reasonable construction in the context of an *inter partes* review). We construe the challenged claims according to these principles.

1. “*Modifying the check image data . . . to produce modified check image data*”

A central issue in this proceeding is the scope of “modifying the check image data . . . to produce modified check image data” having certain characteristics, required by independent claims 1 and 20. Ex. 1001, 72:38–

42 (claim 20, step (c) reciting “modifying the check image data . . . to produce modified check image data” having certain characteristics); *id.* at 70:42–64 (claim 1, step (b) reciting “to modify the check image data . . . to produce modified check image data” having certain characteristics).

As made clear by its contentions regarding the asserted prior art in its Petition and expressly in its Reply, Petitioner contends that “modifying . . . to produce” encompasses copying a portion of the original check image data to create a new image—the recited modified image. Pet. 30 (indicating a prior art reference describes that “[t]he modified image that is extracted . . . excludes other portions of the original image of the check.”); Pet. 44 (contending that the asserted reference “produces a [new] image . . . that includes a blank region as modified . . . data in place of the original [data] image in the full check image”); Reply 3 (asserting that “[a]ny operation that processes original image data to produce different image data should be considered ‘modifying’ the original image data” and so would include changing, altering, “limiting, reducing, redacting, cropping, omitting, or extracting/copying some, but not all, of a check image”); Reply 3–6.

Patent Owner, however, contends that “modifying” in claim 20 means changing or altering and precludes making an exact copy. PO Resp. 8–10 (“When an image or a portion of an image is copied, a person of ordinary skill in the art would understand that the image data is replicated exactly. This process does not change the original image data, and, because the copy is exact, the copied image data is also not changed unless some additional

processing is performed. Thus, copying is not modifying.”) (citations omitted).

In the Decision to Institute, we did not expressly construe any terms. Inst. Dec. 8. In the context of determining whether one of Petitioner’s asserted grounds met the threshold required for institution, we determined that, based on the pre-institution record, claim 1 did not preclude producing modified check image data by copying some, but not all, portions of the generated check image data. *Id.* at 28.

We begin our analysis with the language of the claims themselves. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (“It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” (quotation marks and citation omitted)). Independent claims 1 and 20 do not specify how modifying the original check image data to produce the modified data is to be performed. Rather, independent claims 1 and 20 each describe the result of the modification—producing a modified check image data that does “not include” some types of data included in the original check image data. Claim 20 requires that the modified check image data not include “at least a portion of the micr line image data,” whereas claim 1 requires that the modified check image data not include “at least some visual feature data.” Ex. 1001, 72:38–42 (claim 20 reciting “wherein at least a portion of the micr line image data included in the check image data is not included in the modified check image data”); *id.* at 70:42–46 (claim 1 reciting “wherein at least some visual feature data included in the check image data is not

included in the modified check image data”); *see id.* at 72:61–64 (claim 24 reciting an “article of computer readable media bear instructions . . . to carry out the method steps recited in claim 20”).

Other claims—claims 6 and 11–13—similarly specify the results of the required modification without specifying how the modification is to be performed. Rather than specifying that some data “is not included” in the modified check image data as in independent claims 1 and 20, however, claims 6 and 11–13 specify that certain data of the “modified check image data” “differ from the original” data in the modified check image. For example, claim 13 requires that the modified micr line image data differs from the original micr line image data included in the modified check image data. *Id.* at 71:52–59 (claim 13 reciting “wherein [modifying the check image data] includes modifying the original micr line image data to produce modified micr line image data, wherein the modified micr line image data differs from the original micr line image data”). Similarly, claim 6 requires that modified signature image data “differs from” the original signature image data included in the check image data. Ex. 1001, 71:7–12 (claim 6 reciting “wherein the check image data includes original signature image data corresponding to the signature, wherein [modifying the check image data] includes modifying the original signature image data to produce modified signature image data, wherein the modified signature image data differs from the original signature image data”). Along these lines, claims 11 and 12 each require the modified check writer (or endorser) signature image data “differs from” the original check writer (or endorser)

signature image data included in the check image data. *Id.* at 71:34–41 (claim 11 reciting “wherein the check image data includes original *check writer signature* image data corresponding to the check writer signature, wherein [modifying the check image data] includes modifying the original check writer signature image data to produce modified check writer signature image data, wherein the modified check writer signature image data differs from the original check writer signature image data”) (emphasis added); *id.* at 71:44–51 (claim 12 reciting “wherein [modifying the check image data] includes modifying the original *check endorser signature* image data to produce modified check endorser signature image data, wherein the modified check endorser signature image data differs from the original check endorser signature image data”) (emphasis added).

In contrast to the claims that require a result but not a manner of modifying, other claims specify the manner of modifying the check image data. Claims 8–11 and 16–18 require, by additionally reciting or through dependency, “step (b) includes producing the modified . . . data *by masking the original . . . image data.*” Ex. 1001, 71:20–31 (claims 8–10), 72:5–16 (claims 16–18). Claims 10 and 18 each additionally require a particular way of modifying the modified image data—“modifying the modified . . . image data *by removing* the at least one masking image from the modified . . . image data.” *Id.* at 71:29–31, 72:14–16.

Notably, claim 19 specifies a manner of modifying that involves “changing” at least some of the original image data to produce modified image data. *Id.* at 72:19–25 (claim 19 reciting “wherein the check image

data includes original character image data corresponding to the characters [of the visual feature imaged], wherein [modifying the check image data] includes changing at least one character in the original character image data to produce modified character image data”).

We next turn to the Specification regarding its descriptions of “modifying.” 37 C.F.R. § 42.300(b) (“In a covered business method patent review, a claim in an unexpired patent shall be given its broadest reasonable construction, *in light of the specification of the patent* in which it appears.”) (emphasis added). The Specification does not set forth a particular meaning for “modifying” that has requisite clarity, deliberativeness, or precision to overcome the presumption that a term is to be given its ordinary and customary meaning. *Paulsen*, 30 F.3d at 1480. The Specification describes the purpose of not including “the actual data of the original check”—to address the business problem of “reduc[ing] the risk that sensitive information included in an image of a check will be subject to unwanted disclosure.” Ex. 1001, 35:17–22.

The Specification indicates that “[t]he modification of the image data . . . results in the particular visual feature being different when an image of the check is printed by a receipt printer.” *Id.* at 35:39–43. The Specification also describes one of “a number of ways” to make at least a portion of the micr line unreadable by “having the computer modify the image data to mask the micr line so that at least a portion of the micr line is not visible by having an image overlying the micr line.” *Id.* at 35:47–54. The Specification continues by describing an “example applying a graphic

such as a black box so that it is printed in the area where the micr line would normally appear.” *Id.* at 35:54–57.

Moreover, the Specification expressly indicates that “[o]f course, these approaches are merely exemplary.” *Id.* at 36:9–10. The Specification further includes broad language that the written description includes exemplary embodiments and “the invention is not limited to the features shown or described.” *Id.* at 70:11–17. Accordingly, the Specification does not limit the manner of modifying but presents some examples of doing so.

Thus, the plain language of the claims, when read in light of the Specification, indicates that “modifying the check image data . . . to produce modified check image data” having certain characteristics, as required by independent claims 1 and 20, encompasses copying a portion (but not all) of the original check image data to create a new image—the recited modified image. This is because modifying by copying a portion of the original data to produce the required result—modified check image data excluding certain types of data in the original check image data—changes or alters the original image data in that the modified image is different from the original image.

This understanding also is supported by the ordinary and customary meaning of “modifying” as set forth by the parties. Patent Owner proffers a general dictionary definition of “modifying” as meaning “to change or alter.” Ex. 2006, 3 (defining “modify” as “to change or alter; esp., to change slightly or partially in character, form, etc.”); PO Resp. 8 (citing Ex. 2006, 3). Our understanding is supported further by Petitioner’s proffer of general dictionary definitions of “change” and “alter” as making different.

Ex. 1022, 104 (defining “change” as “to make different; alter”); *id.* at 18 (defining “alter” as “to change; make or become different”); Reply 4 (citing Ex. 1022, 104, 18). Although Patent Owner and Petitioner each select a definition from various dictionary definitions (see Exs. 2006, 1022), the dictionary definitions selected by the parties comport with the Specification’s use of the term “modify.” For example, as noted previously, the Specification indicates that “[t]he *modification of the image data . . .* results in the particular visual feature *being different* when an image of the check is printed by a receipt printer.” Ex. 1001, 35:39–43 (emphasis added).

We note our agreement with Patent Owner that the ordinary and customary meaning of “modifying” requires more than making an exact copy because an exact copy is not changed or altered. PO Resp. 8–10 (citing Ex. 2003 ¶¶ 26–27; Ex. 2006, 4; Ex. 2005, 73:14–74:4); Ex. 2003 ¶¶ 26–27 (Dr. Sorenson testifying that one of ordinary skill in the art “would have understood modifying data to mean changing or altering the data, and that modifying data would not include copying data” because “[w]hen an image or a portion of an image is copied, a person of ordinary skill in the art would understand that the image data is replicated exactly.”); Ex. 2005, 73:14–74:4 (Dr. Alexander testifying that modifying has a “common meaning of changing, reconfiguring”). The claimed modifying, however, accords with Patent Owner’s position that modifying requires more than making an exact copy. The claim requires modifying to produce a certain result that precludes the modified check data being an exact copy of the original check image data—the claim requires that the modified check image data does not

include either a visual feature from the original check image (claim 1) or does not include a portion of the micr line image data that was included in the check image data (claim 20). Thus, the plain language of the claims requires that the modified check image data cannot be an exact copy of the original check image data. The plain language of the claims, however, does not require a particular manner of modifying the check image data.

In sum, based on the plain language of the claims, the Specification providing non-limiting examples of modifying, and the parties' proffered general dictionary definitions as to how one of ordinary skill in the art would understand "modifying," we conclude that "modifying the check image data . . . to produce modified check image data" having certain characteristics, required by independent claims 1 and 20, would encompass copying a portion (but not all) of the original check image data to produce the required modified check image data.

2. "Check image data"

Independent claim 20 recites "(a) operating a check imaging device of a cash dispensing machine to image check data on a check . . . [and] (b) generating check image data corresponding to check data imaged in step (a)." Ex. 1001, 72:27–34. Patent Owner contends that this requires "imag[ing] the check data *of an entire check*" and not merely a portion of a check. PO Resp. 11, 13 ("Image data for part of a check is not image data of a check."). According to Patent Owner, the Specification discloses imaging check data of an entire check, one of ordinary skill in the art would

understand the claim to require imaging an entire check because the claim uses different terms to refer to imaging part of the check, and one of ordinary skill in the art “would understand that an ANSI standard defines what is considered in the art to be a check.” *Id.* at 11–13. In Reply, Petitioner contests Patent Owner’s position and contends that check image data encompasses image data for a portion (but not all) of a check. Reply 6–8.

The claim language does not recite or otherwise expressly require that check image data refers to imaging check data of an entire check. The fact that the claims refer to subsets of check image data, such as “micr line image data” (claim 13), does not restrict the term “check image data” to “check image data representing an entire check” (as Patent Owner contends). *See* PO Resp. 12.

Furthermore, Patent Owner’s position that the entire check must be imaged is undermined by Patent Owner’s counsel purporting, during the oral hearing, that only the “full front side” of the check (and not both sides) is required. *See* Tr. 86:19–22 (Patent Owner’s counsel arguing “that from the claims perspective the full front face of the check needs to be imaged in order to satisfy the purpose of the ’163 patent”); *see also* Tr. 87:2–13 (Patent Owner’s counsel not addressing directly whether the claim encompasses scanning a check that has one corner of the front side folded over so that the corner portion was not scanned). Patent Owner’s position that the full front face must be imaged presented at the oral hearing is difficult to reconcile with its language indicating imaging an “entire check” must be imaged, as

presented in its Response. *See, e.g.*, PO Resp. 12 (“A person of ordinary skill in the art would understand that ‘check image data’ . . . refers to image data for *an entire check*.”), *id.* at 11 (“The check imaging device thus images the check data of an entire check as disclosed in the ’163 patent’s specification (*see e.g.*, Ex. 1001 at 29:46-52; Ex. 2003 at ¶¶ 28–29)”), Ex. 2003 ¶ 29 (Dr. Sorenson testifying that one of ordinary skill in the art “would understand that ‘check image data’ refers to image data for *an entire check*”) (emphasis added).

This is because the Specification of the challenged patent distinguishes “the front side of the check” from “the back side of the check.” *See* Ex. 1001, 12:54–55 (“FIG. 72 is a representation of a front side of an exemplary check.”), 12:63–64 (“FIG. 76 is the back side of the check shown in FIG. 74 with indicia printed thereon.”), Figs. 72, 76. In addition, the claims use language that undermines Patent Owner’s position that the entire check means the full front side of the check. Claim 2 refers to “one side” of the check being imaged; claim 11 refers to the check writer signature (e.g., shown on the front side of the check in Fig. 72); and claim 12 refers to the check endorser signature (e.g., shown on the back side of the check in Fig. 76). Ex. 1001, 70:47–49, 71:32–51, Figs. 72, 76. Thus, Patent Owner’s contention that its arguments regarding “the entire check” should be understood as requiring only a part of a check—the full front face of a two-sided check—undermine its argument that “check image data” should be construed as not permitting imaging “a part of a check.” *See* PO Resp. 11–13.

Also, the portion of the Specification on which Patent Owner relies for its contention that imaging the entire check (and not just a portion) is required is unavailing. Patent Owner relies on the following portion of the Specification:

This optical data comprises an electronic image of the check that is captured through operation of the scanner. . . . The scanning process is continued as the check 158 moves past the analysis module 162 as shown in FIG. 4.

Ex. 1001, 29:46–52 (describing Fig. 23); PO Resp. 11 (citing Ex. 1001, 29:46–52). This description discloses an example of scanning an entire check and does not give the term “check image data” the particular meaning that “check image data” requires imaging an entire check with “reasonable clarity, deliberateness, and precision.” *Paulsen*, 30 F.3d at 1480; see Ex. 2003 ¶¶ 28–29. Moreover, as discussed previously, the Specification includes broad language that further undermines Patent Owner’s position relying on an example from the Specification:

In the foregoing description certain terms have been described in exemplary embodiments for purposes of brevity, clarity and understanding. However, no unnecessary limitations are to be implied therefrom because such terms are used for descriptive purposes and are intended to be broadly construed. Moreover the descriptions and illustrations herein are by way of examples and the invention is not limited to the features shown or described.

Ex. 1001, 70:11–17.

In addition, although Patent Owner cites to declaration testimony by Dr. Sorenson, that testimony does not add additional analysis or evidence

beyond that discussed above, which for the reasons explained we found insufficient to construe the term “check image data” to require check image data representing an entire check (or even a “full front face” of the check as Patent Owner’s counsel asserted at the oral hearing).

Nor does Dr. Sorenson provide evidence to support his conclusory contention that one of ordinary skill in the art “would understand that an ANSI standard defines what is considered in the art to be a check.”

Ex. 2003 ¶ 29; PO Resp. 12 (citing Ex. 2003 ¶ 29). For example, Dr. Sorenson does not identify the particular ANSI standard to which he refers. Thus, we accord Dr. Sorenson’s testimony little weight. 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”).

For these reasons, we do not agree with Patent Owner that the term “check image data” in claim 20 requires check image data that includes the entire check (or even a “full front face” of the check as Patent Owner’s counsel asserted at the oral hearing). Rather, we conclude that “check image data” encompasses both “check image data” that includes a portion of the check and “check image data” that includes the entire check.¹⁰ *See, e.g.*, PO

¹⁰ The parties agreed in the ITC litigation, which did not use the broadest reasonable construction standard, that “check image data” in the ’163 patent should be construed as “digital data that represents an image of a check.” ITC Decision, 3. This construction, however, does not specify expressly whether “the image of a check” requires an image that is of the “full front face” of the check (*see* Tr. 86:19–22), a portion of the check, or an entire check that includes the front and back sides of the check.

Resp. 11 (“The ‘check image data’ and ‘modified check image data’ in Claim 20 should not be interpreted as extending to image data for only part of a check.”). For the same reasons that we do not agree with Patent Owner’s narrow construction of check image data requiring imaging of an entire check, we do not agree with Patent Owner that modified check image data does not encompass image data for part of a check (*Id.* at 11–13).

3. Other Claim Terms

To the extent it is necessary, we discuss other claims terms in the context of analyzing whether the challenged claims are directed to ineligible subject matter and whether the prior art renders the challenged claims unpatentable.

B. Asserted Ground that Claims 1–24 Are Unpatentable Under § 101

Petitioner asserts each of claims 1–24 is unpatentable for being directed to patent-ineligible subject matter under 35 U.S.C. § 101. Pet. 15–29. A challenge under 35 U.S.C. § 101 is a proper ground to present in a covered business method patent review. *See Versata*, 793 F.3d at 1330 (“[T]he PTAB acted within the scope of its authority delineated by Congress in permitting a § 101 challenge under AIA § 18.”). For the reasons discussed below, we agree with Petitioner that claims 1–24 are unpatentable for being directed to patent-ineligible subject matter under 35 U.S.C. § 101.

1. Principles of Law

A patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101. The Supreme Court has held that this statutory provision contains an implicit exception: laws of nature, natural phenomena, and abstract ideas are not patentable. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (“Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”). Notwithstanding that a law of nature or an abstract idea, by itself, is not patentable, the practical application of these concepts may be deserving of patent protection. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293–94 (2012).

The Supreme Court has developed a now-familiar, two-step framework “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice*, 134 S. Ct. at 2355. The first step in the analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts”—laws of nature, natural phenomena, and abstract ideas. *Id.* Often when considering whether an invention involving the electrical, computer, or software arts is directed to a patent-ineligible concept, the inquiry focuses on whether the claims at issue are directed to an abstract idea, rather than laws of nature or natural phenomena.

See, e.g., Elec. Power Grp, LLC v. Alstom S.A., 830 F.3d 1350, 1351, 1353–54 (Fed. Cir. 2016) (holding claims directed to “systems and methods for performing real-time performance monitoring of an electric power grid by collecting data from multiple data sources, analyzing the data, and displaying the results” are directed to abstract ideas).

If the claims are directed to a patent-ineligible concept, the second step in the analysis is to consider the elements of the claims “individually and ‘as an ordered combination’” to determine whether there are additional elements that “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*, 132 S. Ct. at 1289, 1297). The Supreme Court describes the second step as a “search for an ‘inventive concept’—i.e., 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.’” *Id.* (quoting *Mayo*, 132 S. Ct. at 1294) (alterations in original).

Noting that the two steps often overlap, the United States Court of Appeals for the Federal Circuit has described “the first-stage inquiry as looking at the ‘focus’ of the claims, their ‘character as a whole,’ and the second-stage inquiry (where reached) as looking more precisely at what the claim elements add—specifically, whether, in the Supreme Court’s terms, they identify an ‘inventive concept’ in the application of ineligible matter to which (by assumption at stage two) the claim is directed.” *Elec. Power*, 830 F.3d at 1353.

Furthermore, the prohibition against patenting an abstract idea “cannot be circumvented by attempting to limit” the claims “to a particular technological environment or adding insignificant postsolution activity.” *Bilski v. Kappos*, 561 U.S. 593, 610–11 (2010) (citation and internal quotation marks omitted); see *Elec. Power*, 830 F.3d at 1355 (“[L]imiting the claims to the particular technological environment of power-grid monitoring is, without more, insufficient to transform them into patent-eligible applications of the abstract information at their core.”).

The Federal Circuit additionally instructs that “the decisional mechanism [tribunals] now apply is to examine earlier cases in which a similar or parallel descriptive nature can be seen—what the prior cases were about, and which way they were decided.” *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1294 (Fed. Cir. 2016).

2. Contentions of Petitioner and Patent Owner

Petitioner contends, relying on the framework set forth in *Alice*, that “[t]he claims of the ’163 patent merely recite the well-known abstract idea of removing sensitive information, where a check image includes the information to be removed.” Pet. 19. Petitioner provides evidence that not including account number information on ATM receipts was well-known prior to the earliest claimed filing date of the ’163 patent (November 30, 1999) in the form of a 1995 Federal Register notice publishing a final rule of the Federal Reserve System. *Id.* (citing Ex. 1011, 15032–33); Ex. 1011, 15032 (eliminating “the requirement than an

electronic terminal receipt disclose a number or code that uniquely identifies the consumer, the consumer's account, or the access device"). The summary of the final rule, like the '163 patent, recognizes the security risk to consumers by making such information accessible on the receipt. Ex. 1011, 15032 ("This requirement [to include consumer account number or other identifying information] poses a significant security risk to consumers and financial institutions by making information accessible to criminals that could be used to make fraudulent fund withdrawals."); Ex. 1001, 35:17–32 ("In some embodiments, the machine may be operative to reduce the risk that sensitive information included in an image of a check will be subject to unwanted disclosure. This may be accomplished by having the image of a check that is printed on a receipt that is dispensed from the ATM not include certain actual data of the original check."); see Ex. 1001, Abstract ("The ATM can also modify the check image data to produce a modified check image that includes sensitive check information, such as the user's account number in the micr line. The ATM can then print the modified check image on the user's transaction receipt."); Pet. 19 (discussing Ex. 1001, Abstract). On this basis, Petitioner concludes that the claims "are directed to an abstract idea of removing information from a check image." Pet. 19.

According to Petitioner, "performing the abstract idea in a particular context, such as an "automated banking machine" does not confer eligibility. Pet. 27. In addition, Petitioner contends that various other functions recited in the claims—such as "to image . . . at least one side of a check" (claim 2), "to receive at least one check" (claim 3), "to dispense cash" (claim 4), to

mark “indicia” on a check (claims 5 and 23), and to “print[] a check image” (claim 14 and 22) on a receipt—are “simply conventional or post-solution activity of an automated banking machine” that likewise do not confer eligibility. *Id.*

Regarding step two of *Alice*, Petitioner contends that “none of the claims recite an ‘inventive concept’” that would transform the abstract idea into patent eligible subject matter. *Id.* Rather, “[e]ach of claims 1–24, considered as a whole in an ‘ordered combination’ of steps, is squarely directed to the abstract idea of removing information from a check image, without significantly more.” *Id.* at 27–28. According to Petitioner, “[c]onsidered individually, the steps and components recited in claims 1–24 are simply ‘well-understood, routine, conventional’ elements known in the prior art” and do not “recite significantly more than an unpatentable abstract idea” of removing information from a check image. *Id.* at 28. Petitioner contends that tangible components recited in the claims—a “processor,” an “imaging device,” and an “automated banking machine”—represent machine implementations of a concept without meaningful limitation and recite basic, well-known ATM components that would not prevent the claims from preempting all relevant uses of the general idea of removing information from a check image. *Id.* at 22–24.

In Response, focusing on claims 20–24, Patent Owner contends that the claims are not directed to an abstract idea because they cover the operation of a cash dispensing machine with specific and novel functionality arising in the realm of deposit-automated ATMs and address a problem

specific to that context. *Id.* at 13–27. According to Patent Owner, the claims are like the subject matter-eligible claims in *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016) because “operating a check imaging device to generate full visual confirmation that an automated deposit was properly executed without disclosing sensitive information” is not an abstract idea for which computers are invoked merely as a tool. PO Resp. 14. Patent Owner contends the claims in the ’163 patent are like those in *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir. 2016) because the claims are not directed to the automation of a prior method carried out in the same way but are instead directed to a novel method of operating an ATM to solve a specific technical problem arising in the realm of deposit-automated ATMs. PO Resp. 14.

Patent Owner further asserts that the claims recite an inventive concept and are directed to “significantly more” than the abstract idea identified by Petitioner. *Id.* at 25–32. Specifically, Patent Owner asserts the claims recite meaningful limitations that demonstrate patent eligibility in that limitations are tied to an automated banking machine with specific capabilities not found in a general purpose computer. *Id.* at 27. Patent Owner relies on *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014), *BASCOM Global Internet Services, Inc. v. AT&T Mobility LLC*, 827 F.3d 1341 (Fed. Cir. 2016), and *Internet Patents, Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1349 (Fed. Cir. 2015), among others, to support its contentions. *Id.* at 27–33.

In Reply to Patent Owner, Petitioner maintains its position that the claims are not patent-eligible because the claims are directed to an abstract idea of removing information from a check image and do not contain an inventive concept that transforms them into a patent-eligible application of an abstract idea. Reply 1, 8–16. Petitioner distinguishes the claims at issue here from those in *DDR Holdings*, *Enfish*, *McRO*, and *Bascom*. See, e.g., *id.* at 11–13, 15.

3. Independent Claim 20

With regard to the challenged claims, Patent Owner focuses its argument concerning patent eligibility subject matter on claims 20–24. See PO Resp. 13–35. Therefore, we start our analysis with claims 20–24 and then address the other challenged claims (claims 1–19). Before turning to a detailed discussion of how *Alice*’s steps one and two apply to the claims, however, we look first at the limitations recited in independent claim 20 to understand the subject matter of claim, both as a whole and as an ordered combination.

Independent claim 20 is directed to a three-step method that produces an image of a check that does not include sensitive information on the check—specifically, at least a portion of the micr line that typically includes bank routing and account information.¹¹ See Ex. 1001, 72:26–42. As such,

¹¹ More particularly, independent claim 20 recites step “(c) modifying the check image data generated in step (b) to produce modified check image

the plain language of independent claim 20 recites tangible components—a check imaging device of a cash dispensing machine that includes a processor—and recites general functions of collecting data from a check (*see* steps (a) and (b)) and modifying the collected data such that some of a particular type of data is not included in a digital image (*see* step (c)). The recited functions at least imply an ability to recognize a specific type of data—micr line data—in the collected data.

Claim 20 does not go beyond requiring the collection and manipulation of available information on a check and states those functions in general terms. Claim 20 is not limited to technical means for performing those functions that arguably are an advance over conventional computer and ATM technology. Rather, claim 20 recites components—a check imaging device of a cash dispensing machine including one processor in operative connection with the check imaging device—and does so at a high level without providing limitations on those components other than high-level functional limitations that likewise do not specify how the functions are to be performed.

As such, claim 20 defines an information-based result and is not limited to inventive means of achieving that result. For the reasons discussed in more detail below, claim 20 fails to recite patent-eligible

data, wherein at least a portion of the micr line image data included in the check image data is not included in the modified check image data.”
Ex. 1001, 72:38–42.

subject matter as required by § 101. *See, e.g., Elec. Power*, 830 F.3d at 1351 (holding that, “though lengthy and numerous, the claims do not go beyond requiring the collection, analysis, and display of available information in a particular field, stating those functions in general terms, without limiting them to technical means for performing the functions that are arguably an advance over conventional computer and network technology. The claims, defining a desirable information-based result and not limited to inventive means of achieving the result, fail under § 101.”).

*a. Whether Independent Claim 20 Is
Directed to an Abstract Idea*

With that understanding of the subject matter recited in claim 20, we consider *Alice* step one for claim 20—determining whether the focus or character as a whole of claim 20 is directed to the abstract idea of removing information from a check image, as Petitioner contends. Pet. 17–19. We agree with Petitioner that the concept of removing information from a check image—such as a check image to be printed on a receipt at an ATM machine—is an abstract idea within the context of § 101.

(i) Recites Broad Functions

Independent claim 20 recites broad functions untethered to any specific or concrete way of implementing them. Claim 20 requires collecting data from a check and modifying the collected data such that some of a particular type of data is not included in a digital image. These functions are similar to those found to be abstract by the Federal Circuit.

The Federal Circuit treats collecting information, which is intangible, “as within the realm of abstract ideas”—even when collection of the information is limited to a particular content. *Elec. Power*, 830 F.3d at 1353 (for the proposition that information is intangible, citing *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 451 n.12 (2007); *Bayer AG v. Housey Pharm., Inc.*, 340 F.3d 1367, 1372 (Fed. Cir. 2003)); *Elec. Power*, 830 F.3d at 1353 (for the proposition that collecting information is within the realm of abstract ideas, citing *Internet Patents, Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1349 (Fed. Cir. 2015); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015); *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014); *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1370 (Fed. Cir. 2011)).

Recognizing particular types of data (which implicitly is required to modify the collected data such that some of a particular type of data is not included in a digital image) likewise is within the realm of abstract ideas. *See Content Extraction*, 776 F.3d at 1345 (finding a claim reciting “a method of 1) extracting data from hard copy documents using an automated digitizing unit such as a scanner, 2) recognizing specific information from the extracted data, and 3) storing that information in a memory” is an abstract idea).

Modifying data also can be within the realm of abstract ideas. In *Digitech Imaging*, the Federal Circuit considered a “process that started with

data, added an algorithm, and ended with a new form of data”¹² and determined that “[w]ithout additional limitations, a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible.” *Digitech Imaging*, 758 F.3d at 1351; *RecogniCorp, LLC v. Nintendo Co.*, 855 F.3d 1322, 1327 (Fed. Cir. 2017) (characterizing the *Digitech Imaging* claim as a “process that started with data, added an algorithm, and ended with a new form of data”); *see Amdocs*, 841 F.3d at 1296 (discussing *Digitech Imaging*). In *RecogniCorp*, the Federal Circuit found claims at issue to be similar to those in *Digitech Image* (which were directed to the abstract idea of organizing information through mathematical correlations) and to be directed to the

¹² The claim at issue in *Digitech Imaging* recited:

A method of generating a device profile that describes properties of a device in a digital image reproduction system for capturing, transforming or rendering an image, said method comprising:

generating first data for describing a device dependent transformation of color information content of the image to a device independent color space through use of measured chromatic stimuli and device response characteristic functions;

generating second data for describing a device dependent transformation of spatial information content of the image in said device independent color space through use of spatial stimuli and device response characteristic functions; and

combining said first and second data into the device profile.
758 F.3d at 1350.

“abstract idea of encoding and decoding image data.”¹³ *RecogniCorp*, 855 F.3d at 1327. Thus, manipulating image data also is within the realm of abstract ideas.

For these reasons, we determine that claim 20—its focus and its character as a whole—is directed to the broad concept of the collection and manipulation of image data. Moreover, the broad concepts recited in claim 20 are untethered to any specific or concrete way of implementing the claimed functions. Claim 20 recites what the “modified check image data” does not include—“at least a portion of the micr line image data included in the check image data is not included in the modified check image data.” Ex. 1001, 72:40–43. For example, the plain language of the claim does not require a particular manner of “not including” the data, such as by specifying data is deleted, otherwise removed, overwritten, or not copied. *See Elec. Power*, 830 F.3d at 1354 (finding claims purporting to be an advance in a process of gathering, analyzing, and presenting information of a specified content, without claiming “any particular assertedly inventive technology for performing those functions,” as directed to an abstract idea).

Furthermore, the check image device of a cash dispensing machine that includes at least one processor does not take the subject matter of claim 24 out of the realm of abstract ideas. *See Content Extraction*, 776

¹³ The claim at issue in *RecogniCorp* “claims a method whereby a user displays images on a first display, assigns image codes to the images through an interface using a mathematical formula, and then reproduces the image based on the codes.” *RecogniCorp*, 855 F.3d at 1326.

F.3d at 1347 (holding claims are directed to an abstract idea despite reciting a computer and a scanner). The correct inquiry in *Alice* step one is “whether the claims are directed to an improvement to computer functionality versus being directed to an abstract idea.” *Enfish*, 822 F.3d at 1335; see *TLI*, 823 F.3d at 612 (discussing *Enfish*).

Here, unlike the claims in *Enfish*, claim 20 recites “generalized steps to be performed on a computer using conventional computer activity.” *Enfish*, 822 F.3d at 1338. For example, the Specification of the ’163 patent describes tangible components in purely generic and functional terms: (i) “the computer senses that the deposit envelope has been moved” (Ex. 1001, 5:54–55); (ii) “the computer operates responsive to inputs provided by the customer” (*id.* at 6:46–47); (iii) “the computer operates to analyze the characters” (*id.* at 7:8–9); “the computer operates to locate and identify the courtesy amount” (*id.* at 7:14–15); (iv) “the computer decides that the characters in the courtesy amount area may be determined with a sufficient level of assurance” (*id.* at 7:14–16); “the computer operates to analyze the characters in the micr line of the check as well as the courtesy amount” (*id.* at 7:20–22); and (v) changes in the micr line “may be accomplished in a number of ways such as by having the computer modify the image data to mask the micr line Alternatively . . . the micr line may be obliterated by having the image data modified so that when printed, additional indicia is printed in the area of the micr line such that at least a portion of the micr line is not readable” (*id.* at 35:50–36:10).

The Specification goes so far as to explain that any claimed feature “described as a means for performing a function shall be construed as encompassing any means known to those skilled in the art as being capable of carrying out the recited function, and shall not be deemed limited to the particular means shown or described for performing the recited function in the foregoing description, or mere equivalents thereof.” *Id.* at 70:18–24. Thus, the Specification does not provide technical details for the tangible components and describes the tangible components in functional terms. *See TLI*, 823 F.3d at 612 (“The specification does not describe a new telephone, a new server, or a new physical combination of the two. The specification fails to provide any technical details for the tangible components, but instead predominately describes the system and methods in purely functional terms.”).

(iii) Content Extraction & Transmission v. Wells Fargo Bank

Of particular relevance to claim 20 is *Content Extraction & Transmission LLC v. Wells Fargo Bank, National Association*, 776 F.3d 1343 (Fed. Cir. 2014). *See* Reply 10; Tr. 13:3–19, 23:14–18 (Petitioner’s counsel discussing *Content Extraction*); Tr. 66:9–67:16 (Patent Owner’s counsel discussing *Content Extraction*); Ex. 1027, 11 (ITC indicating *Content Extraction* comes “very close to controlling the outcome” of whether claims 20–24 of the ’163 patent were invalid for being directed to ineligible subject matter under § 101); *id.* at 11–14 (ITC discussing *Content Extraction*). In *Content Extraction*, the Federal Circuit analyzed a claim

similar to claim 20 at issue here. Specifically, the Federal Circuit analyzed a claim directed to “a method of 1) extracting data from hard copy documents using an automated digitizing unit such as a scanner, 2) recognizing specific information from the extracted data, and 3) storing that information in a memory.”¹⁴ *Content Extraction*, 776 F.3d at 1345. The Federal Circuit noted that the claimed method “can be performed by software on an automated teller machine (ATM) that recognizes information written on a check, such as the check’s amount, and populates certain data fields with that information in a computer’s memory.” *Id.* In *Content Extraction*, the Federal Circuit held the claims were drawn to abstract ideas and opined:

the claims of the asserted patents are drawn to the abstract idea of 1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory. The concept of data collection, recognition, and storage

¹⁴ More particularly, claim 1 recites the steps

(a) receiving output representing a diversity of types of hard copy documents from an automated digitizing unit and storing information from said diversity of types of hard copy documents into a memory, said information not fixed from one document to the next, said receiving step not preceded by scanning, via said automated digitizing unit, of a separate document containing format requirements;

(b) recognizing portions of said hard copy documents corresponding to a first data field; and

(c) storing information from said portions of said hard copy documents corresponding to said first data field into memory locations for said first data field.

Content Extraction, 776 F.3d at 1345 (citing U.S. Patent No. 5,258,855, 16:19–34).

is undisputedly well-known. Indeed, humans have always performed these functions. And banks have, for some time, reviewed checks, recognized relevant data such as the amount, account number, and identity of account holder, and stored that information in their records.

Id. at 1347. The Federal Circuit rejected the argument that the claims in *Content Extraction* were not drawn to an abstract idea purportedly because the claims required a computer and a scanner. *Id.*; *see id.* at 1345 (reproducing claim 1).

Thus, imaging a check (which is collecting data from a check) and generating and modifying data to produce a subset of check data (which is analyzing and processing collected check data) are abstract ideas. Claim 20, however, further requires “modifying check image data . . . to produce modified check image data” that does not include the micr line image data. Ex. 1001, 72:38–42. In *Content Extraction*, the Federal Circuit also rejected the argument that “extracting and detecting specific data fields” rendered the claim patent-eligible. *Content Extraction*, 776 F.3d at 1348.

The Federal Circuit did not address specifically producing “modified check image data” that does not include “at least a portion of the micr line image data,” as recited in claim 20 at issue here. Ex. 1001, 72:38–42. Indeed, this is the advancement purportedly made by the ’163 patent challenged in this proceeding. Thus, as a whole, the advancement claim 20 purports to make is improving a machine-based deposition automation process by removing at least a portion of the micr line from check image data. Ex. 1001, 72:38–42 (claim 20), 35:17–22 (describing reducing risk

that sensitive information included in an image of a check will be subject to unwanted disclosure by not including some data on the receipt dispensed from the machine); see PO Resp. 1–2 (describing an improved ATM-based deposit automation process that “removes sensitive information from check images by modifying the check image data”). Even so, manipulating image data by removing some of a particular type of data is an abstract idea similar to claims discussed in *RecogniCorp*, *Digitech Imaging*, and *Electric Power*.

In sum, claim 20 focuses on the combination of these abstract processes, the advance they purport to make is removing a portion of micr line data from check image data, without any particular inventive technology for performing these functions. Thus, the process of generating image data of a check and manipulating the image data to remove information from it, as recited in claim 20, is an abstract idea that is untethered to a specific way of implementation.

(iv) Addressing Patent Owner’s Contentions

As noted previously, Patent Owner contends that the claims are not directed to an abstract idea because the claims are directed to a specific technical improvement for “deposit-automation” automated banking machines, address a problem specific to that context, and are tailored specifically to that context. PO Resp. 17–20 (relying on *McRO*, *Enfish*, and testimony of Petitioner’s declarant, Dr. Alexander). Specifically, Patent Owner contends that the claims address the problem of removing sensitive information from check images provided on ATM receipts. *Id.*

First, as discussed previously, limiting claims to a technological area is not sufficient to take a claim from the realm of an abstract idea. *Bilski v. Kappos*, 561 U.S. 593, 610–11 (2010) (explaining that “the prohibition against patenting an abstract idea “cannot be circumvented by attempting to limit the use of the formula to a particular technological environment or adding insignificant postsolution activity”) (citation and internal quotation marks omitted); see *Elec. Power*, 830 F.3d at 1355 (“[L]imiting the claims to the particular technological environment of power-grid monitoring is, without more, insufficient to transform them into patent-eligible applications of the abstract information at their core.”).

Also, as discussed above, claim 20 recites broad functions and the use of generic tangible components. Claim 20, therefore, is similar to claims addressed in *Contract Extraction*, *Digitech Image*, *Electric Power*, and *RecogniCorp*, and is directed to abstract idea of removing sensitive information from a check image. The fact that Dr. Alexander agreed that the problem of removing sensitive information from images of scanned checks on ATM receipts only arose when ATM receipts started to include images of scanned checks is of no moment. Although Dr. Alexander’s testimony reflects Patent Owner’s position that the technology is limited to a particular technology area, that is not sufficient to take claim 20 from the realm of an abstract idea in view of the prevailing case law.

Second, the subject matter of claim 20 is unlike the subject matter of the claims in *Enfish*, which were “directed to a specific improvement to the way computers operate, embodied in the referential table” and were not

directed to an abstract idea. *Enfish*, 822 F.3d at 1335–36; see *Elec. Power*, 830 F.3d at 1354 (characterizing the claims in *Enfish* as improving how computers carry out the basic function of storage and retrieval of data). For example, a claim at issue in *Enfish* recited (i) “means for configuring [a computer] memory according to a logical table,” having specific characteristics (i.e., logical rows and logical columns with certain enumerated characteristics) and (ii) “means for indexing data stored in said [logical] table.” *Enfish*, 822 F.3d at 1336. In contrast to the *Enfish* claims, claim 20 recites “check image data”; “micr line image data representative of micr line data” from the imaged check; “signature image data representative of the signature data” from the imaged check; and “modifying the check image data generated in step (b) to produce modified check image data, wherein at least a portion of the micr line image data included in the check image data is not included in the modified check image data.”

Third, *McRO* does not support Patent Owner’s position. In *McRO*, the Federal Circuit articulated the first step of *Alice* as considering whether the claims are directed to “a specific means or method” for improving technology or whether they are directed to an abstract end-result. *McRO*, 837 F.3d at 1314. As discussed above, the subject matter of claim 20 is directed to using generic tangible components operating on categories of data to achieve results described in broad functional terms—“to produce modified check image data, wherein at least a portion of the micr line image data included in the check image data is not included in the modified check image data.”

In contrast to claim 20, the representative claim in *McRO* is a “method for automatically animating lip synchronization and facial expression of three-dimensional characters comprising” five steps: (i) “obtaining a first set of rules that define output morph weight set stream as a function of phoneme sequence and time of said phoneme sequence”; (ii) “obtaining a timed data file of phonemes having a plurality of sub-sequences”; (iii) “generating an intermediate stream of output morph weight sets and a plurality of transition parameters between two adjacent morph weight sets by evaluating said plurality of sub-sequences against said first set of rules”; (iv) “generating a final stream of output morph weight sets at a desired frame rate from said intermediate stream of output morph weight sets and said plurality of transition parameters”; and (v) “applying said final stream of output morph weight sets to a sequence of animated characters to produce lip synchronization and facial expression control of said animated characters.” *McRO*, 837 F.3d at 1307–08.

In concluding the claim was not directed to an abstract idea, the Federal Circuit explained in *McRO*, that “the structure of the limited rules reflects a specific implementation not demonstrated as that which any animator engaged in the search for an automation process would likely have utilized.” *Id.* at 1316 (quotation marks, citation, and alteration omitted). The Federal Circuit continued, “[w]hen looked at as a whole, [the representative claim] is directed to a patentable, technological improvement over the existing, manual 3–D animation techniques. The claim uses the limited rules in a process specifically designed to achieve an improved

technological result in conventional industry practice.” *Id.* The same cannot be said of claim 20. Rather, claim 20 merely requires not including sensitive information, which reflects a well-known practice as evidenced by the Federal Reserve System’s published final rule that eliminated the prior requirement to include sensitive identifying information—customer identifier and customer account number—on a receipt printed at an ATM. *See* Ex. 1011, 15032.

In view of the foregoing, we conclude claim 20 is directed to an abstract idea and next consider whether claim 20 includes an inventive concept under *Alice* step two.

*b. Whether the Challenged Claims Include
Limitations that Represent Inventive Concepts*

We turn to the second step of the *Alice* inquiry “and scrutinize the claim elements more microscopically” for additional elements that can “transform the nature of the claim” into a patent-eligible application of an abstract idea. *Elec. Power*, 830 F.3d at 1354. That is, we determine whether the claims include an “inventive concept,” i.e., an element or combination of elements sufficient to ensure that the patent in practice amounts to significantly more than a patent on the abstract idea itself. *Alice*, 134 S. Ct. at 2357. The relevant inquiry here is whether “additional substantive limitations . . . narrow, confine, or otherwise tie down the claim so that, in practical terms, it does not cover the full abstract idea itself.” *Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1344–45 (Fed. Cir. 2013) (internal quotations and citation omitted).

We consider the elements of claim 20 individually and as an ordered combination to search for an “‘inventive concept’ sufficient to ‘transform the nature of the claim into a patent-eligible application’” of the abstract idea. *McRO*, 837 F.3d at 1312 (quoting *Alice*, 134 S. Ct. at 2357). We agree with Petitioner that the elements of claim 20, when considered individually and as an ordered combination, do not transform the nature of claim 20 into a patent-eligible application of the abstract idea. We see nothing in the claim elements sufficient to remove claim 20 from the class of subject matter ineligible for patenting.

First, in reciting “operating a check imaging device of a cash dispensing machine” and various elements found on a check, the language of claim 20 limits the claim to particular technological environment of deposit-automation automated banking machines. Limiting the claims to the particular technological environment of deposit-automation automated banking machines, without more, is insufficient to transform the claims into patent-eligible applications of the abstract idea, as discussed above. *See, e.g., Elec. Power*, 830 F.3d at 1354 (“[L]imiting the claims to the particular technological environment of power-grid monitoring is, without more, insufficient to transform them into patent-eligible applications of the abstract idea at their core.”) (citing *Alice*, 134 S. Ct. at 2358; *Mayo*, 132 S. Ct. at 1294); *see also Bilski*, 561 U.S. at 610–11 (explaining that “the prohibition against patenting an abstract idea “cannot be circumvented by attempting to limit the use of the formula to a particular technological environment or

adding insignificant postsolution activity”) (citation and internal quotation marks omitted).

Second, claim 20 does not require anything other than a conventional computer or ATM machine. Claim 20, like the claims at issue in *Electric Power*, does not “require a new source or type of information, or new techniques for analyzing” information. *Elec. Power*, 830 F.3d at 1355. Claim 20 does not require a particular method of accomplishing the desired result of check image data from which micr data is removed—no new algorithm, no inventive type of programming, no new data structure, no nonconventional computer, or no nonconventional bank machine is required by the elements recited in claim 20. The Federal Circuit has held repeatedly that claims reciting computers¹⁵ that are not even arguably inventive are “insufficient to pass the test of an inventive concept in the application” of the abstract idea. *Elec. Power*, 830 F.3d at 1355 (citing *buySAFE*, 765 F.3d at 1353, 1355); see, e.g., *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1324–25 (Fed. Cir. 2016); *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015); *Internet Patents*, 790 F.3d at 1348–49; *Content Extraction*, 776 F.3d at 1347–48.

Third, as discussed above in the context of *Alice* step one, no element recited in claim 20 limits the implementation of the recited abstract idea.

¹⁵ The discussion of “computer” is relevant in that the “processor” recited in claim 20 is described by the Specification as referring to a computer, as discussed previously.

Thus, we conclude that no element recited in claim 20, considered individually or as an ordered combination, would “narrow, confine, or otherwise tie down the claim so that, in practical terms, it does not cover the full abstract idea itself.” *Accenture Global*, 728 F.3d at 1344–45.

Fourth, the Federal Circuit decisions in *DDR Holdings* and *Bascom*, which rejected § 101 challenges by finding an inventive concept under *Alice* step two, are materially different from the claims at issue here, despite Patent Owner’s contentions (PO Resp. 30 (discussing *Bascom*), 31–33 (discussing *DDR Holdings*)).

In *DDR Holdings*, the Federal Circuit found an inventive concept in modification of conventional mechanics behind a website display to produce a dual-source integrated hybrid display. *DDR Holdings*, 773 F.3d at 1257; *see Elec. Power*, 830 F.3d at 1356 (characterizing the holding of *DDR Holdings*). Unlike the claims in *DDR Holdings*, the broad claim language of the recited elements in claim 20 does not include any element that limits how a check image would be modified so as to not include at least some micr line data of the imaged check. As such, we disagree with Patent Owner’s contention that “there is no evidence in the record that the invention disclosed in Claims 20–24 is a feat of ‘routine,’ or prosaic engineering, such that the claims are devoid of an ‘inventive’ concept.” PO Resp. 33 (quoting *DDR Holdings*, 773 F.3d at 1258). Moreover, Patent Owner attempts to link claim 20 to the claims in *DDR Holdings* by contending that the invention of claim 20 “arose from a modern problem resulting from the development of deposit-automation ATMs” addressed by

the “novel, patentable solution” developed by the inventors of the ’163 patent. PO Resp. 33. Patent Owner does not identify a particular inventive concept in any element of the claim language. As discussed above, we are unable to identify such. Thus, for the reasons discussed above, we agree with Petitioner that the claims at issue here are unlike those in *DDR Holdings* and do not contain an inventive concept that meaningfully limits or recites significantly more than the abstract idea of removing information from an image of a check. *See, e.g.*, Pet. 22, Reply 13.

In *Bascom*, the Federal Circuit found the claims directed at a specific implementation of filtering Internet content as set forth by the claims. *Bascom*, 827 F.3d at 1350 (“The claims do not merely recite the abstract idea of filtering content along with the requirement to perform it on the Internet, or to perform it on a set of generic computer components. . . . Nor do the claims preempt all ways of filtering content on the Internet; rather, they recite a specific, discrete implementation of the abstract idea of filtering content.”). Here, as discussed above, there is only the recitation of the abstract idea of removing a portion of a micr line from a check image along with the requirement to do so using a check imaging device of a cash dispensing machine including a processor. As recognized by *Bascom*, such claims do not contain an inventive concept. *Bascom*, 827 F.3d at 1350 (“The claims do not merely recite the abstract idea of filtering content along with the requirement to perform it on the Internet, or to perform it on a set of generic computer components. Such claims would not contain an inventive concept.”).

We disagree with Patent Owner’s contention that claim 20 is “directed to a specific process for generating and modifying check image data in which ‘modified check image data’ is produced such that ‘at least a portion of the micr line image data included in the check image data is not included in the modified check image data.’” PO Resp. 30. As discussed previously, we do not discern any specific implementation of the abstract idea sufficient to meet the requirement of *Alice* step two. Patent Owner points to ways to perform claim 20 described by the Specification—“to mask the micr line so that at least a portion of the micr line is not visible by having an image overlying the micr line,” to apply “a different graphic with different information,” or to change or add characters in the micr line”—that do not preempt other methods of removing at least a portion of the micr line image data (such as by cropping). PO Resp. 30–31. No element of claim 20 (nor any element of claims 21–23 that depend from independent claim 20) limits the ways in which a portion of the micr line data is not included in the modified check image as recited in claim 20. “To save a patent at step two, an inventive concept must be evident in the claims.” *RecogniCorp*, 855 F.3d at 1327 (citing *Alice*, 134 S. Ct. at 2355; *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016) (“The § 101 inquiry must focus on the language of the Asserted Claims themselves.”)).

Thus, we conclude that, when considered individually and “as an ordered combination,” the claim elements apply the abstract concept of removing sensitive information from a check using only conventional technology, which does not transform the abstract idea of removing

information from a check image into a patent-eligible invention. *See Alice*, 134 S. Ct. at 2359–60 (citing *Mayo*, 132 S. Ct. at 1297–98).

For the foregoing reasons, we conclude that claim 20 is directed to an abstract idea and does not recite an inventive concept sufficient to remove claim 20 from the class of subject matter ineligible for patenting.

4. *Claims 21–24*

Patent Owner’s contentions address claims 20–24 collectively and also address independent claim 20 with particularity, which we discussed above. *See* PO Resp. 13–25. The burden to demonstrate unpatentability by a preponderance of the evidence remains with Petitioner. 35 U.S.C. § 326(e); 37 C.F.R. § 42.1(d); *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

As discussed previously, Petitioner contends that all challenged claims are directed to the patent ineligible abstract idea of removing information from a check image and none recite an inventive concept that would transform the abstract idea into patent eligible subject matter. Pet. 17–28.

a. Claim 24

Petitioner argues independent claim 24 with independent claims 1 and 20. *See, e.g.*, Pet. 18 (“Claim 1 recites operating a machine ‘to generate check image data’ and ‘to produce modified check image data’ that omits ‘at least some visual feature data included in the check image data.’ *Id.* at claim 1. Claims 20 and 24 specify that the removed information is ‘a

portion of the micr line image data.’ *Id.* at claims 20, 24.”). Claim 24 is directed to an “article of computer readable media bearing instructions that are operative to cause at least one processor in a cash dispensing machine to carry out the method steps recited in claim 20.” Ex. 1001, 72:61–64. We have discussed reasons why operating a check imaging device of a cash dispensing machine including a processor does not convey patent eligibility in our analysis with regard to independent claim 20. The further limitation of claim 24 requiring a processor in the cash dispensing machine to perform the general functional steps recited claim 20 does not change our determination because the claim recites generalized steps to be performed on a computer using conventional computer activity. *Enfish*, 822 F.3d at 1335; *see Content Extraction*, 776 F.3d at 1347 (holding claims are directed to an abstract idea despite reciting a computer and a scanner). Furthermore, the requirement of claim 24 for computer readable media bearing instructions does not change our determination for the same reason. *Enfish*, 822 F.3d at 1335.

Accordingly, claim 24, like independent claim 20, is directed to the abstract idea of removing information from a check image and does not contain an inventive concept sufficient to remove the claim directed to an abstract idea from the class of subject matter ineligible for patenting.

b. Claims 21–23

Regarding claims 21–23, which each depends from independent claim 20, Petitioner further indicates removing account number from ATM receipts (claim 21 requires modifying account number) is an abstract idea.

Pet. 19. Petitioner further contends that the functions of printing a check image (claim 22), and operating a printer to mark indicia of cancellation on a printed check (claim 23) are conventional or postsolution activity of an automated banking machine. Pet. 27.

Claim 21 depends from independent claim 20 and additionally recites “wherein the micr line data includes an account number, wherein the check image data includes an account number area including account number data representative of the account number, wherein step (c) includes modifying the account number data in the account number area to produce a modified account number area, wherein the modified check image data includes the modified account number area.” The additional requirements related to a particular type of data included in the micr line data, taken individually or in the context of the claim as a whole, do not materially change our analysis regarding patent eligibility discussed above with respect to independent claim 20. As noted in the Specification, a micr line typically contains the bank routing number and account number. Thus, specifying that account number data is included in the modified check image data does not materially change our determination that claim 20 is directed to an abstract idea. For example, although claim 21 requires that additional information—account number data—is included in the modified check image data, claim 21 does not require modification of the account number data when modifying the check image data.

Claim 22 depends from independent claim 21 and additionally recites “wherein the machine includes at least one printer, and further comprising

(d) operating the at least one printer to print on a receipt, a check image corresponding to the modified check image data.” Claim 22 recites a printer that prints a receipt with a check image corresponding to the modified check image data. This does not change the nature of the abstract idea to which claim 20 is directed, nor does printing a check image using a conventional printer evince an inventive concept.

Claim 23, which depends from claim 22, further recites “operating the at least one printer to print check cancellation indicia on the check.” Requiring an additional general function—printing check cancellation indicia on the check—does not materially change our conclusion regarding claim 20. Claim 23 does not describe a particular manner of printing or a particular check cancellation indicia. Neither does the requirement to print check cancellation indicia on the check, without more, evince an inventive concept.

For these reasons and the reasons discussed above with respect to independent claim 20, we conclude that claims 21–24 are directed to patent-ineligible abstract ideas.

5. Claims 1–19

As discussed previously, Petitioner contends that all challenged claims are directed to the patent ineligible abstract idea of removing information from a check image and none recite an inventive concept that would transform the abstract idea into patent eligible subject matter. Pet. 17–28.

a. Independent Claim 1

Independent claim 1 is similar in many respects to independent claim 20 discussed above. Claim 1 requires a machine that includes a check imaging device and a processor, whereas independent claim 20 requires a more particular type of machine—a check imaging device of a cash dispensing machine that includes a processor. Ex. 1001, 70:34–41, 72:27–32. The check image data generated in claim 1 must correspond to at least one side of a check and include a visual feature. The modified check image data in claim 1 does not include at least some visual feature data included in the check image data. Thus, claim 1 relates to visual feature data in a similar manner as claim 20 relates to micr line data. Claim 1, however, recites two steps—step (a) operating a machine to generate check image data and step (b) operating the machine to modify the check image. In contrast, claim 20 also requires operating a machine “to image check data on a check.”

Petitioner presents similar arguments of unpatentability with regard to claims 1, 20, and 24. *See, e.g.*, Pet. 18–21 (contending claims 1–24 are directed to the “unpatentable abstract idea of removing information from a check image); *id.* at 19 (discussing elements recited in claim 1); *id.* at 20–21 (contending claims 1–24 are directed to abstract ideas because the claims are directed to human activity that can be performed using a pen and paper). Patent Owner does not make specific arguments regarding claims 1–19. *See generally* PO Resp. 13–35 (discussing claims 20–24).

For the reasons discussed above, we determine that claim 1 is directed to an abstract idea of removing information from a check image and does not recite significantly more than the unpatentable abstract idea. Like independent claim 20, claim 1 recites broad functions untethered to any specific or concrete way of implementing them—collecting data from a check and modifying the collected data such that some of a particular type of data is not included in a digital image. The conventional machine recited in claim 1 does not take the subject matter of claim 1 out of the realm of abstract ideas because the claims are not directed to an improvement of the computer functionality. *See Content Extraction*, 776 F.3d at 1347 (holding claims are directed to an abstract idea despite reciting a computer and a scanner); *Enfish*, 822 F.3d at 1335 (indicating the correct inquiry in *Alice* step one is “whether the claims are directed to an improvement to computer functionality versus being directed to an abstract idea”). Also, similar to the reasons discussed above with respect to claim 20, we do not find the elements in claim 1—taken individually or as an ordered combination—“narrow, confine, or otherwise tie down the claim so that, in practical terms, it does not cover the full abstract idea itself.” *Accenture Global*, 728 F.3d at 1344–45.

b. Claims 2–19

We agree with Petitioner that claims 2–19 are directed to abstract idea of removing information from a check image and further recite only conventional or insignificant postsolution activity. Pet. 17, 19, 27–28; *see Bilski*, 561 U.S. at 610–11 (The prohibition against patenting an abstract

idea “cannot be circumvented by attempting to limit” the claims “to a particular technological environment or adding insignificant postsolution activity.”) (citation and internal quotation marks omitted).

Many of the claims (claims 6, 11–13, and 15) further specify the type of data in the check image data and the modified check image data. These claims, like independent claim 1 from which they ultimately depend, require collection and manipulation of data, and are tied insufficiently to any specific or concrete way of implementing those functions, as discussed above. *See, e.g.*, Ex. 1001, 71:5–12 (claim 6 additionally reciting “wherein the at least one side includes a visual feature comprising a signature, wherein the check image data includes original signature image data corresponding to the signature, wherein step (b) includes modifying the original signature image data to produce modified signature image data, wherein the modified signature image data differs from the original signature image data”); *id.* at 71:32–41 (claim 11 additionally reciting “wherein the signature comprises a check writer signature, wherein the check image data includes original check writer signature image data corresponding to the check writer signature, wherein step (b) includes modifying the original check writer signature image data to produce modified check writer signature image data, wherein the modified check writer signature image data differs from the original check writer signature image data”); *id.* at 71:42–51 (claim 12 additionally reciting “wherein the signature comprises a check endorser signature, wherein the check image data includes original check endorser signature image data corresponding to the check endorser signature, wherein step (b)

includes modifying the original check endorser signature image data to produce modified check endorser signature image data, wherein the modified check endorser signature image data differs from the original check endorser signature image data”); *id.* at 71:52–59 (claim 13 additionally recites “the at least one side includes a visual feature comprising a micr line, wherein the check image data includes original micr line image data corresponding to the micr line, wherein step (b) includes modifying the original micr line image data to produce modified micr line image data, wherein the modified micr line image data differs from the original micr line image data”); *id.* at 72:1–4 (claim 15 additionally recites “the micr line includes account number data, wherein in step (c) the account number data is not included in the printed check image”).

Some of the claims require generalized steps to be performed on a conventional component—such as the machine recited in claim 1, an automated banking machine (claim 4) or a printer (claims 7 and 14)—using conventional activity. For example, claim 2 requires “operating the check imaging device to image the at least one side”; claim 3 further requires “operating the machine to receive at least one check; wherein step (a) includes operating the check imaging device to image at least one side of a check received in step (c)”; and claim 4 requires operating “an automated banking machine including a cash dispenser . . . to receive the at least one check from a user of the automated banking machine during a check cashing transaction” and “operating the machine to dispense cash during the check cashing transaction.” *Id.* at 70:47–65. Claim 5 requires that “the machine

includes at least one marking device operative to mark indicia on a check, wherein the indicia on a check indicates that the check has been cancelled, and further comprising . . . operating the machine to mark indicia on a check received” in the machine. *Id.* at 70:66–71:2.

Claims 7 and 14 each additionally require operating a printer.

Claim 7 requires “printing a check image that corresponds to the modified check image data, wherein the printed check image includes the modified signature image data, wherein at least a portion of the original signature image data is not visible in the printed check image.” *Id.* at 71:15–19.

Claim 14 additionally recites “printing a check image that corresponds to the modified check image data, wherein the printed check image includes the modified micr line image data, wherein at least a portion of the original micr line image data is not visible in the printed check image.” Ex. 1001, 71:60–66. Each of these claims recites a conventional printer and performing a general function of printing certain data without specifying a particular manner of printing such information.

Claims 8–10 and 16–18 each require “producing modified . . . data by masking the original . . . image data.” Ex. 1001, 71:20–31 (claim 8 reciting “signature image data”; claims 9 and 10 depending directly or indirectly from claim 8); *id.* at 72: 5–16 (claim 16 reciting “micr line image data”; claims 17 and 18 depending directly or indirectly from claim 16). Claims 10 and 11 respectively narrow the masking of the original image data recited in claim 8, as do claims 17 and 18 relative to the masking recited in claim 16. Even so, these claims recite broad functional steps dealing with masking

without describing a specific, discrete implementation that describes how such overlying or removing a masked image would be performed that sufficiently limits the general concept of removing information from a check image. Furthermore, unlike the claims in *Bascom*, we understand claims 8–10 and 16–18 to perform the requisite masking using a set of generic computer components to perform conventional activity. Thus, we find a distinction between claims 8–10 and 16–18 and the claims in *Bascom* that recited “a specific, discrete implementation of the abstract idea of filtering content.” *Bascom*, 827 F.3d at 1350.

Similarly, we do not agree that the masking recited in claims 8–10 and 16–18 is like the inventive concept found in modification of conventional mechanics behind a website display to produce a dual-source integrated hybrid display. *DDR Holdings*, 773 F.3d at 1257. Claims 8–10 and 16–18 merely describe conventional ways of masking. *See* Ex. 1001, 35:47–57 (“In some embodiments the visual appearance of the printed image of the check may have the micr line changed. The changes in the micr line may include changes which make at least a portion of the micr line unreadable. This may be accomplished in a number of ways such as by having the computer modify the image data to mask the micr line so that at least a portion of the micr line is not visible by having an image overlying the micr line. This might include for example applying a graphic such as a black box so that it is printed in the area where the micr line would normally appear.”).

Claim 19, which depends from claim 2, further recites “the at least one side includes a visual feature comprising characters, wherein step (a)

includes operating the check imaging device to image the characters, wherein the check image data includes original character image data corresponding to the characters, wherein step (b) includes changing at least one character in the original character image data to produce modified character image data.” Ex. 1001, 72:17–25. For the reasons discussed previously, operating a conventional check imaging device to image a check does not take the subject matter of claim 19 out of the realm of abstract ideas. *See Content Extraction*, 776 F.3d at 1347 (holding claims are directed to an abstract idea despite reciting a computer and a scanner). Nor does changing at least one character in the original character image data, which claim 19 describes purely in functional terms untethered to a particular implementation.

For these reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 2–19 are directed to the patent ineligible abstract idea of removing information from a check image and none of these claims recite an inventive concept that would transform the abstract idea into patent eligible subject matter.

6. Conclusion

In sum, we conclude that the challenged claims are closer to those analyzed in *Content Extraction*, *Electric Power*, and *Digitech Imaging* than the claims analyzed in *Enfish*, *McRO*, *DDR Holdings*, and *Bascom*.

For the foregoing reasons and having considered the information provided in the Petition, Patent Owner’s Response, and Petitioner’s Reply,

along with the evidence discussed therein, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–24 are directed to patent-ineligible subject matter under 35 U.S.C. § 101.

In addition, the parties dispute whether the claims satisfy the machine-or-transformation test. *Compare* Pet. 25–27 (Petitioner arguing the claims do not), *with* PO Resp. 33–35 (Patent Owner arguing that the claims meet the test). “[T]he Supreme Court has made clear that a patent claim’s failure to satisfy the machine-or-transformation test is not dispositive of the § 101 inquiry.” *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371 (Fed. Cir. 2011). Even so, we do not agree with Patent Owner that the claims satisfy that test. First, as discussed above, the claims recite only generic devices that are insufficiently tied to a particular machine, but rather cover a process “using any existing or future-devised machinery.” *Dealertrack, Inc. v. Huber*, 674 F.3d 1323, 1333 (Fed. Cir. 2012) (“In order for the addition of a machine to impose a meaningful limit on the scope of a claim, it must play a significant part in permitting the claimed method to be performed. . . .”). Second, the claims do not transform a particular article into a different state or thing because neither the “mere collection and organization of data” nor the “mere manipulation or reorganization of data” satisfies the transformation prong of the test. *CyberSource Corp.*, 654 F.3d at 1374.

C. Disclosures of Prior Art References

Petitioner relies on in its contentions that certain of the challenged claims are unpatentable based on the disclosures of various references—Riach, Graf, Gustin, and Anderson. Pet. 28–65.

1. Disclosure of Riach

Riach is a United States patent that describes a self-service financial document processing terminal. Ex. 1008, Abstract. Riach’s terminal accepts from a customer a document to be processed for a financial transaction (such depositing a check). *Id.* After processing the document, the terminal issues a receipt to the user containing printed details of the transaction together with a printed image of significant portions of the document. *Id.*

Riach’s terminal 10 is a self-service device that enables a customer to deposit a check. *Id.* at 2:18–23, 28–32, Fig. 1. A customer inserts a document into terminal 10 through document entry slot 16. *Id.* at 2:34–38. Terminal 10 then feeds the document past an image lift device that senses the document and creates a digital image of the document “in a known manner.” *Id.* at 2:37–44.

Riach indicates that, for a typical check transaction, (i) a customer inserts a check into the document entry slot and (ii) the image lift device lifts the check image and stores the image in the image memory. *Id.* at 4:5–9, Fig. 4 (showing the front side of a check). After processing, a receipt is issued. *Id.* at 4:10–45, Fig. 7 (showing a receipt). A typical receipt includes

printed details of the transaction (including account information), a printed record of the codeline 120 (shown in Figure 4) on the check, and “an image region 306 reproducing image region 140” (shown in Figure 4) on the check. *Id.* at 4:48–55, Fig. 7. In a preferred embodiment, Riach describes printing, on the receipt, only image region 306 having the amount and signature zones on the deposited check. *Id.* at 5:30–33.

2. Disclosure of Graf

Graf is a United States patent that describes reducing storage space required for images of financial instruments, such as checks. Ex. 1009, Abstract (“The present invention provides . . . for compressing images of financial instruments.”), 1:15–2:39. Graf’s techniques remove the preprinted portions of the check image (called “static portions” or “the check form”) but leave the handwritten portions (called “a dropped-form check image”). *See, e.g., id.* at 5:54–60. Graf’s Figure 2 is reproduced below.

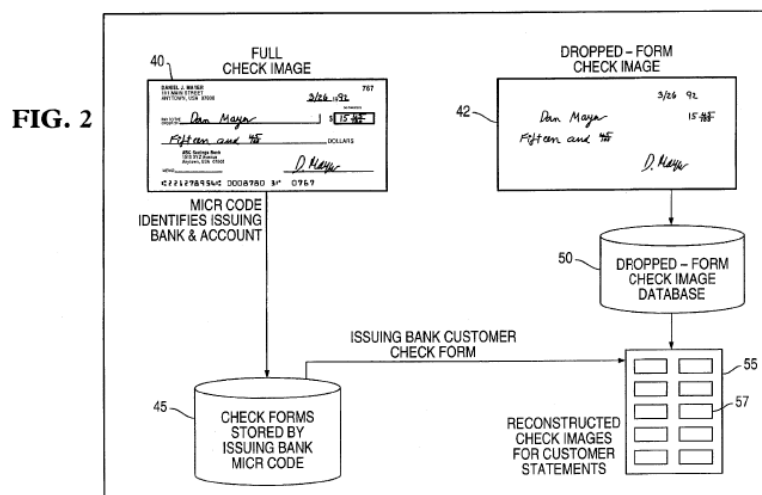


Figure 2 illustrates Graf's techniques for compressing the image of a check. *Id.* at 3:40–42, 3:66–67. The check is scanned to produce full check image 40. *Id.* at 5:5–9. “The handwritten dynamic portion of the original check image 40 is identified and then isolated from the preprinted static portion . . . to produce an exemplary segmented and compressed dynamic image 42.” *Id.* at 5:51–58. “The dynamic image 42 represents a dropped-form image, which includes all of the handwritten text added to the check, but none of the preprinted information.” *Id.* at 5:58–60.

Graf discusses “improvements provided by the present invention [based on] simulat[ions] for several typical bank checks, each generally similar in form to the check of FIG. 1.” *Id.* at 12:55–57. In this context, Graf indicates that some reduction in size is obtained by “masking certain portions of the check known to contain only static information.” *Id.* at 13:43–47. Graf notes, however, that “a significantly greater reduction is obtained using a dropped-form image.” *Id.* at 13:47–49.

3. *Disclosure of Gustin*

Gustin is a United States patent that describes an automated banking machine that includes a cash dispenser. Ex. 1010, 10:63–11:5, Fig. 5 (cash dispenser 30). Gustin also describes a check cashing transaction during which cash is dispensed to the customer. *Id.* at 16:29–47, Fig. 16A, step 534.

4. Disclosure of Anderson

Anderson is a United States patent that describes techniques for storing and retrieving annotations and redactions in “final form documents.” Ex. 1019, [54]. Anderson explains that some documents, such as insurance policies, credit card statements, and cancelled checks, must not be altered. *Id.* at 1:18–24. Anderson refers to such documents as “final form documents” and notes they may be stored in a computer system. *Id.* at 1:22–26. According to Anderson, “it is often necessary to be able to review [final form documents] on a computer screen” and “it may be desirable” during reviews to add an annotation or “blank out certain sections (redaction)” while maintaining “complete fidelity of the original document.” *Id.* at 1:26–32. “With redactions, portions of the original document may be masked either as it is being reviewed or before it was received for review.” *Id.* at 2:40–42.

D. Asserted Ground of Anticipation by Riach

Petitioner contends that claims 1–3 and 5 of the challenged patent are unpatentable under 35 U.S.C. § 102 as anticipated by Riach (Ex. 1008). Pet. 28–32, 54–56 (claim chart). Petitioner supports its contentions with citations to the reference and analysis specifying where the limitations of the challenged claims purportedly are disclosed by Riach. *Id.* Petitioner also supports its contentions with citations to declaration testimony of Peter Alexander, Ph.D. (Ex. 1003). *Id.* We have reviewed the Petition, the Patent Owner’s Response, and Petitioner’s Reply, as well as the relevant

evidence discussed in those papers. For reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that Riach anticipates claims 1–3 and 5.

1. Principles of Law Regarding Anticipation

To establish anticipation under 35 U.S.C. § 102, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). To anticipate, a prior art reference must disclose more than “multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention.” *Net MoneyIN*, 545 F.3d at 1371. Although the elements must be arranged or combined in the same way as in the claim, “the reference need not satisfy an *ipsissimis verbis* test,” i.e., identity of terminology is not required. *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990).

2. Independent Claim 1

As discussed earlier, independent claim 1 is a method claim that recites two steps—(a) operating a machine to generate check image data corresponding to at least one side of a check” that “includes visual features . . . and (b) operating the machine to modify the check image data generated in step (a) to produce modified check image data, wherein at least some visual feature data included in the check image data is not included in the modified check image data.” Ex. 1001, 70:33–46.

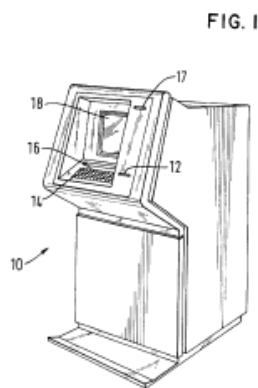
a. Petitioner's Contentions

Petitioner contends “Riach’s terminal 10 initially captures a complete image of a deposited check, and then generates partial images for printing on a receipt.” Pet. 28–29 (citing Ex. 1008, 4:2–9, Fig. 8 (process for printing receipt), Fig. 7 (showing receipt slip 300 having an image region 306 that includes a partial check image)). For the recited machine including a check imaging device and a processor, Petitioner, with support of its declarant, relies on terminal 10 that includes central processing unit (“CPU”) 73 connected to image lift device 38 that generates images of deposited checks. Pet. 29 (citing Ex. 1008, 2:34–65, Figs. 2, 3, 6; Ex. 1003 ¶¶ 63–67 (annotating Figs. 4 and 7)). Petitioner, also with support of its declarant, contends that Riach’s description of image lift device 38 producing an image of the deposited check discloses generating check image data as required in step (a). Pet. 29–30 (citing Fig. 3, 2:40–45, 3:12–16; 3:33–44).

With further support from its declarant, Petitioner indicates “[a]fter Riach’s terminal 10 captures an image of a check, ‘the images of the signature and amounts are extracted from the document image,’ converted to a printer format, and ‘sent to the receipt printer 77.’” Pet. 30 (citing Ex. 1008, 5:16–30). According to Petitioner, Riach’s description of partial printing of the deposited check on receipt slip 300 discloses producing modified check image data that does not include at least some visual feature data that was included in the generated check image, as required in step (b) recited in claim 1.

b. Analysis

Having considered the entirety of the record, we agree with Petitioner's contentions regarding the disclosure of Riach as discussed above. Regarding "the machine includ[ing] a check image device and at least one processor in operating connection with the check image device," as recited in claim 1, Petitioner contends that Riach's terminal 10 discloses such a device. Riach's Figure 1 is reproduced below.



Riach's Figure 1 shows terminal 10, which is a self-service device that enables a customer to deposit a check. Ex. 1008, 2:18–23, 28–32. A customer inserts a document into terminal 10 through document entry slot 16. *Id.* at 2:34–38. Terminal 10 then feeds the document past an image lift device that senses the document and creates a digital image of the document "in a known manner." *Id.* at 2:37–44. Riach discloses "the deposition function operation of the terminal 10 for a typical [check] deposit transaction" that explains Figures 4 and 7. *Id.* at 4:3–5, 4:30–36 (discussing Fig.4), 4:48–59 (discussing Fig. 7). Thus, we find that Riach discloses the components required by claim 1.

Regarding the functions recited in claim 1, the two-step method essentially requires generating check image data and producing modified check image data that does not include at least some visual feature data that was included in the generated check image. Figures 4 and 7, on which Petitioner relies, depict a check (Figure 4) for which an image is created and a receipt (Figure 7) that includes image region 306 but not all visual features of the check depicted in Figure 4. Riach's Figures 4 and 7 are reproduced below.

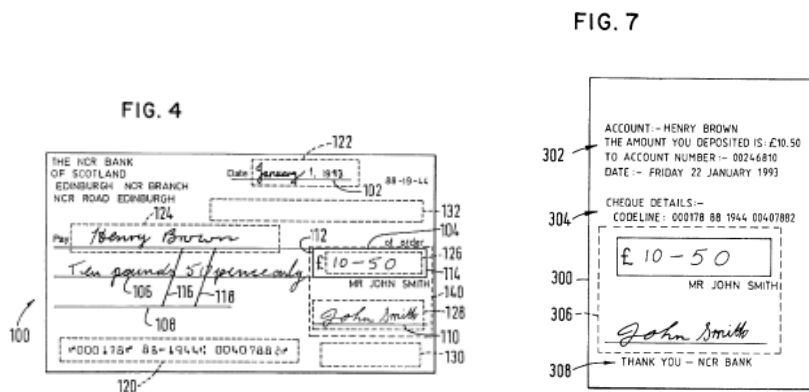


Figure 4 shows a check, and Figure 7 shows a receipt issued by terminal 10 of Figure 1. *Id.* at 2:3-4, 2:11-12. Riach indicates that, for a typical check transaction, (i) a customer inserts a check into the document entry slot and (ii) the image lift device lifts the check image and stores the image in the image memory. *Id.* at 4:5-9. This describes scanning the at least one side of the check inserted into the slot by the user and so discloses “operating a machine to generate check image data corresponding to at least one side of a check, wherein the at least one side includes visual features,” as recited in claim 1.

After processing, a receipt is issued. *Id.* at 4:10–45. Typical receipt 300 shown in Figure 7 includes printed details of the transaction (including account information), a printed record of the codeline 120 (shown in Figure 4) on the check, and “an image region 306 reproducing image region 140” (shown in Figure 4) on the check. *Id.* at 4:48–55. Riach explains that “the images of the signature and amount fields are extracted from the document image stored in the image memory 70 and stored in the memory means 74,” converted to a printer format, and sent to the receipt printer that prints the receipt. *Id.* at 5:16–33. As shown in Figure 7, the extracted image does not include the micr line (i.e., code line zone 120 shown in Figure 4) or other portions of the original check imaged by terminal 10.

As Petitioner contends, Riach discloses images of the signature and amount fields are extracted from the original image and then stored as an image, which is then converted to a printer format and subsequently printed. As evident by Riach’s description and figures, various parts of the imaged check are not included in the receipt. For example, the full name of the bank (“The NCR Bank of Scotland”) and location information (“NCR Road Edinburgh”) are not printed on the receipt. *Compare* Ex. 1008, Fig. 4, with *id.* at Fig. 7.

For the reasons discussed previously, “operating the machine to modify the check image data generated in step (a) to produce modified check image data, wherein at least some visual feature data included in the check image data is not included in the modified check image data”

encompasses Riach's process that copies a portion (but not all) of the original check image data to produce the required modified check image data. Accordingly, we agree that the portion of Riach on which Petitioner relies discloses step (b) of claim 1 that requires, among other limitations, the modified check image data not include at least some visual feature data included in the check image data. Pet. 30 (relying on Ex. 1008, 5:16–30, Figs. 4, 7).

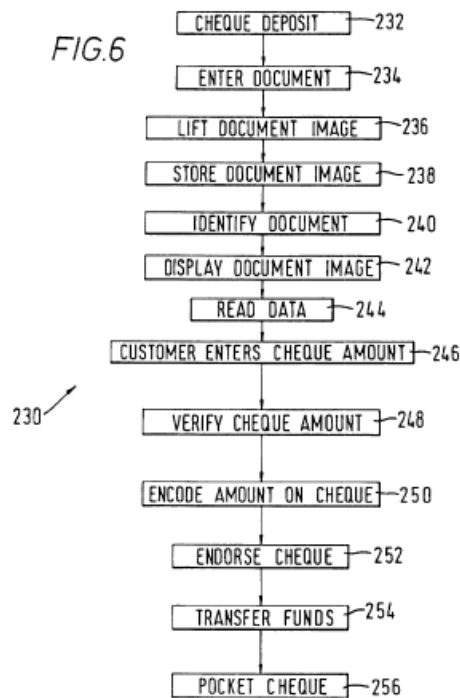
In addition, we do not agree with Patent Owner's position that Riach does not disclose modifying check image data because "Riach discloses only copying part of an image of a check into a receipt." PO Resp. 39 (regarding claim 20). Patent Owner recognizes that Riach describes the functions relied on by Petitioner. Patent Owner, however, contends that the claim requires more based on its proposed claim construction of "modifying." *Id.* at 38–39. As discussed above, the broadest reasonable construction, in view of the Specification, of "to modify the check image data generated in step (a) to produce modified check image data, wherein at least some visual feature data included in the check image data is not included in the modified check image data" encompasses copying part of an image of check image to create modified check image data that does not include all of the check image data.

For these reasons, we conclude that Petitioner has demonstrated by a preponderance of the evidence that Riach discloses each of the limitations recited in claim 1 as arranged in the claim.

3. Claims 2 and 3

Claim 2 depends from claim 1 and additionally recites operating the check imaging device to image the at least one side of the check. Claim 3, which depends from claim 2, further requires operating the machine to receive a check before imaging the check and imaging at least one side of the received check. For the limitations additionally recited in claims 2 and 3, Petitioner relies on Riach's disclosure of the check deposit function of terminal 10, which is described with respect to Figure 6. Pet. 31.

We agree with Petitioner regarding Riach's disclosure with regard to Figure 6 and check deposits. Riach's Figure 6 is reproduced below.



Riach explains that block 234 (“Enter Document”) in Figure 6 indicates that “[t]he customer inserts the [check] into the document entry

slot 16 [of terminal 10 shown in Figure 1].” Ex. 1008, 4:5–7. Block 236 (“Lift Document Image”) in Figure 6 illustrates lift image device 38 (shown in Figures 2 and 3) then lifts the document image. *Id.* at 4:7–8. Block 638 (“Store Document Image”) illustrates that the document image is then stored in image memory 70 (shown in Figure 3). *Id.* at 4:9–10. Riach describes imaging “the document” and so discloses imaging at least one side of the check. In Figure 6, entering the document into the terminal (block 234) is performed before imaging the document (block 236). Thus, Riach discloses that the check is received before it is imaged, as required by claim 3.

For these reasons, we determine Petitioner has demonstrated that Riach discloses each limitation in claims 2 and 3.

4. Claim 5

Claim 5 depends from claim 3 and further recites “the machine includes at least one marking device operative to mark indicia on a check, wherein the indicia on a check indicates that the check has been cancelled, and further comprising operating the machine to mark indicia on” the received check.

Petitioner contends that Riach’s “endorser printer 76” included in terminal 10 discloses the recited marking device. Pet. 31–32 (citing Ex. 1008, Fig. 3 (showing endorser printer 76), Fig. 6, 2:59–65, 3:43–47, 4:36–39). During the processing of a check deposit, Riach describes the check being “endorsed by printing thereon (block 252 [shown in Figure 6]) in the endorsement zone 132 [shown on the check depicted in Figure 4]

thereby invalidating the [check] to prevent it from being used in a subsequent transaction.” Ex. 1008, 4:36–39, Fig. 4.

We agree with Petitioner that Riach’s endorser printer discloses the required marking device and Riach’s printing in the endorsement zone discloses the required indicia marked on the check.

We, therefore, determine that Petitioner has demonstrated by a preponderance of the evidence that Riach discloses each limitation in claim 5.

E. Asserted Grounds of Obviousness

Petitioner’s grounds of obviousness involve the combination of Riach and Graf, either alone or in combination with another reference (Gustin or Anderson). Specifically, Petitioner contends that claims 1–3, 5, and 13–24 are unpatentable for obviousness over Riach and Graf (Pet. 32–46, 56–62), claim 4 is unpatentable for obviousness over Riach, Graf, and Gustin (*id.* at 46–48, 62–63), and claims 16–18 also are unpatentable for obviousness over Riach, Graf, and Anderson (*id.* at 48–54, 63–65). Petitioner supports its contentions with citations to the references and analysis specifying how the references would have conveyed to one of ordinary skill in the art each of the limitations recited in the challenged claims. Petitioner also supports its contentions with citations to declaration testimony of Dr. Alexander (Ex. 1003).

Patent Owner challenges with particularity Petitioner’s contentions regarding claims 20–24. PO Resp. 36–51; *id.* at 51 (indicating Patent Owner

“has focused on the clear substantive deficiencies of the Petition’s challenges to claims 20–24 for the purpose of streamlining the issues in this proceeding and conserving both the Board’s and parties’ resources”). Patent Owner contends that neither Riach nor Graf discloses modifying check image data as required by the claims based on its proposed claim construction, with which we do not agree for the reasons discussed earlier. *Id.* at 36–49. Patent Owner also contends that one of ordinary skill in the art would not combine Riach and Graf to do the requisite modifying. *Id.* at 49–51. Patent Owner relies on declaration testimony of Khalid Sorensen, Ph.D. (Ex. 2003), as well as citations to other testimony and prior art references. *Id.* at 36–51.

We have reviewed the Petition, Patent Owner’s Response, and Petitioner’s Reply, as well as the relevant evidence discussed in those papers. For reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–3, 5, and 13–24 would have been obvious over Riach and Graf, claim 4 would have been obvious over Riach, Graf, and Gustin, and claims 16–18 would have been obvious over Riach, Graf, and Anderson.

1. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time of the invention to a person having ordinary skill in the art. *KSR Int’l Co. v. Teleflex, Inc.*, 550

U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Consideration of the *Graham* factors “helps inform the ultimate obviousness determination.” *Apple v. Samsung Elecs. Co.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016) (en banc).

2. Level of Ordinary Skill

In determining whether an invention would have been obvious at the time it was made, 35 U.S.C. § 103 requires us to resolve the level of ordinary skill in the pertinent art at the time of the invention. *Graham*, 383 U.S. at 17. “The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry.” *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991). The person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). Factors that may be considered in determining the level of ordinary skill in the art include, but are not limited to, the types of problems encountered in the art, the sophistication of the technology, and educational level of active workers in the field. *Id.* In a given case, one or more factors may predominate. *Id.* Generally, it is easier to establish obviousness under a higher level of ordinary skill in the art.

Innovention Toys, LLC v. MGA Entm't, Inc., 637 F.3d 1314, 1323 (Fed. Cir. 2011) (“A less sophisticated level of skill generally favors a determination of nonobviousness . . . while a higher level of skill favors the reverse.”).

Petitioner contends, with support of Dr. Alexander, that one of ordinary skill in the art relevant to the challenged patent at the time of the claimed invention “would have had a bachelor’s degree in computer science, computer engineering, electrical engineering, or a closely related field, along with at least 2 years of experience in computer-based image processing systems or financial transaction processing systems.” Pet. 11 (citing Ex. 1003 ¶ 8); *see* Ex. 1003 ¶ 9 (describing how Dr. Alexander arrived at his opinion regarding one of ordinary skill in the art). Patent Owner does not offer any contrary explanation regarding who would qualify as a person of ordinary skill in the art relevant to the challenged patent. *See generally* PO Resp. Patent Owner’s declarant, Dr. Sorenson, proposed a different level of ordinary skill but indicated that the differences between his own opinion and Dr. Alexander’s do not impact his opinions.¹⁶ Ex. 2003 ¶¶ 18–19.

Based on our review of the challenged patent, the types of problems and solutions described in the challenged patent and cited prior art, and the testimony of Drs. Alexander and Sorenson, we adopt and apply Petitioner’s definition of a person of ordinary skill in the art at the time of the claimed

¹⁶ At the oral hearing, Patent Owner’s counsel expressed confidence in Dr. Sorenson’s opinion that the difference in the level of ordinary skill proposed by the declarants would not make a substantive difference. Tr. 96:1–15.

invention. Ex. 1003 ¶ 9; *see also* Inst. Dec. 30 (adopting Dr. Alexander’s proposed level of ordinary skill for determining whether to institute a proceeding).

3. Asserted Ground of Obviousness over Riach and Graf

Petitioner contends that claims 1–3, 5, and 13–24 are unpatentable for obviousness over Riach and Graf (Pet. 32–46, 56–62). For reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–3, 5, and 13–24 would have been obvious over Riach and Graf.

a. Claims 20–24

We begin our analysis by discussing claims 20–24, which Patent Owner expressly contests. In its proposed combination of the references, Petitioner relies on Riach’s terminal 10 that scans a check and generates an image of the check, as discussed above. *See, e.g.*, Pet. 44–45, 60. Petitioner additionally relies on Graf’s techniques to generate a dropped-form image that includes hand-written “dynamic” portions of a check as shown in Figure 2. *See, e.g.*, Pet. 45; Ex. 1009, 5:58–60 (“The dynamic image 42 represents a dropped-form image, which includes all of the handwritten text added to the check, but none of the preprinted information.”). Graf’s Figure 2 is set forth below.

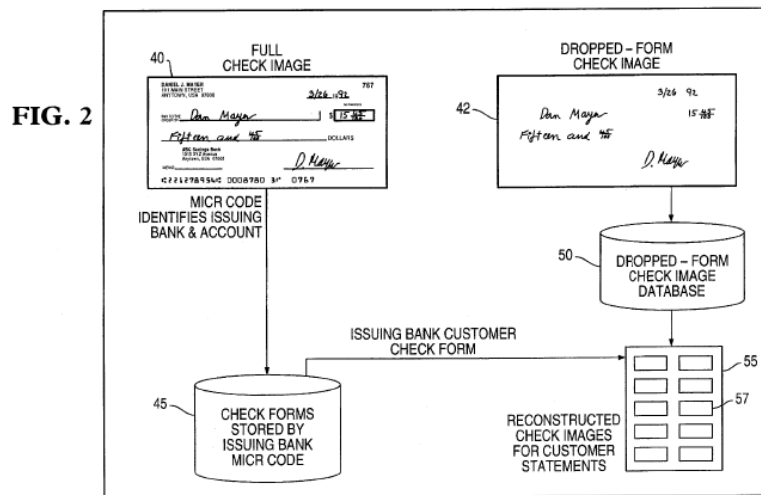


Figure 2 depicts micr line data and signature data in its full check image 40 but does not include any micr line data in its dropped-form image 42. According to Petitioner, Graf's Figure 2 shows "a blank region as modified micr line image data in place of the original micr line image in the full check image 40," and as such, discloses the modified check image data that does not include at least a portion of the micr line image data included in the check image data (as required by claim 20). Pet. 45 (citing Ex. 1009, 5:54–60, Fig. 2). Petitioner contends generating Graf's dropped-form image 42 in Riach's terminal 10 would result in Riach's image region 306 retaining the micr line area and replacing it with blank space, which would disclose (according to Petitioner) the modified check image data that does not include at least a portion of the micr line image data included in the check image data (as required by claim 20). Pet. 45 (relying on assertions made with respect to claim 13); *id.* at 36 (discussing claim 13).

Patent Owner contends that “Graf discloses a system just like Riach, which involves copying portions of a check image to a new image.” PO Resp. 46 (citing Ex. 2003 ¶ 87).

Thus, Petitioner, Patent Owner, and its declarant, Dr. Sorenson, agree that Graf describes copying portions of a check image to a new image, which for the reasons discussed previously meets the requirements of the claim language “modifying the check image data . . . to produce modified check image data wherein at least a portion of the micr line image data included in the check image data is not included in the modified check image data” having certain characteristics,” as recited in claim 20. *See supra* Section II.A.1.

With this perspective in mind, we next proceed with a claim-by-claim analysis addressing each limitation in claims 20–24.

i. Claim 20 Limitations

In Petitioner’s proposed combination of Riach and Graf with respect to independent claim 20, Petitioner relies on Riach for conveying the step a limitation—“(a) operating a check imaging device of a cash dispensing machine to image check data on a check, wherein the check data includes micr line data and signature data, wherein the machine includes least one processor in operative connection with the check imaging device.” Pet. 44–45 (citing Ex. 1008, 6:11–39, 2:40–44, 3:10–21, Fig. 4; Ex. 1003 ¶ 113). Petitioner contends that both Riach and Graf would have conveyed to one of ordinary skill in the art the step (b) limitation—“generating check image

data corresponding to check data imaged in step (a), wherein the check image data includes micr line image data representative of the micr line data, wherein the check image data includes signature image data representative of the signature data.” Pet. 45 (Ex. 1008, 5:14–18, Fig. 4; Ex. 1009, Fig. 2; Ex. 1003 ¶¶ 114, 84–87). Petitioner relies on Graf for conveying the step (c) limitation—“modifying the check image data generated in step (b) to produce modified check image data, wherein at least a portion of the micr line image data included in the check image data is not included in the modified check image data.” Pet. 45 (citing Ex. 1009, 5:54–60, Fig. 2; Ex. 1003 ¶¶ 115, 84–85).

We agree with Petitioner’s contentions regarding what its combination of Riach and Graf would have conveyed to one of skill in the art. As discussed previously with respect to independent claim 1, Riach discloses a self-service device—terminal 10—that creates a digital image of a check. Ex. 1008, 2:40–44, 3:30, Fig. 4. As shown in Figure 4, the check includes a micr line and signature. Ex. 1008, Fig. 4 (depicting the micr line as “code line zone 120”; depicting “signature zone 128” having a signature “John Smith”). In addition, based on Riach’s disclosure of an automated teller machine (ATM) as an example of its self-service terminal 10 and Dr. Alexander’s declaration testimony that one of ordinary skill in the art would have understood that an ATM refers to a cash dispensing machine (Ex. 1003 ¶ 113), we determine that Riach would have conveyed to one of ordinary skill a cash dispensing machine. Riach discloses a processor (CPU 73) operatively connected to image life device 36. Ex. 1008, Fig. 3.

Regarding step (b), Riach describes imaging a check that includes a “code line zone 120” and “signature zone 124.” Ex. 1008, 4:5–9, Fig. 4. As such, Riach discloses check image data having micr line data (i.e., data corresponding to “code line zone 120”) and having signature image data representative of the signature data (i.e., “signature zone 124” depicting signature of “John Smith”). *Id.* at Fig. 4.

Regarding step (c) of claim 20, Petitioner contends that Graf would have conveyed the modifying limitation recited in step (c). Pet. 45. Petitioner indicates that “Graf produces a ‘dropped-form image’ 42 that include a blank region as modified micr line image data in place of the original micr line image in the full check image 40.” Pet. 46 (citing Ex. 1009, 5:54–60, Fig. 2). Both Patent Owner and Patent Owner’s declarant, Dr. Sorenson, agree with Petitioner’s understanding of what Graf describes. PO Resp. 44 (Patent Owner indicating that Graf discloses “copying portions of a check image into a new image, referred to as a dropped form image”); Ex. 1024, 104:9–15 (“Q: Okay. So, the dropped form image on the right is different from the full check image on the left, correct? A: Yes. The dropped form image on the right is different by virtue of the fact that it has had the dynamic portion copied out and isolated from the full check image.”); see Reply 20 (discussing PO Resp. 44, Ex. 1024, 104:9–15). Moreover, Graf’s dropped form image shown in Figure 2 unequivocally does not include micr line data and so is different than the full check image that includes micr line data. Thus, we determine that Graf would have conveyed “(c) modifying the check image data generated in step

(b) to produce modified check image data, wherein at least a portion of the micr line image data included in the check image data is not included in the modified check image data,” as recited in claim 20.

Patent Owner contends that Graf does not disclose the requisite modifying based on its overly narrow proposed construction. We do not agree with Patent Owner about Graf’s purported failure because we have determined that “modifying the check image data to produce modified check image data” not including enumerated types of data encompasses modifying the check image data by copying some, but not all, of the data in the check image data.

Patent Owner’s contentions that the dropped form of the check does not include “the MICR line area of the check” (PO Resp. 45) or other portions of Graf’s static check image are immaterial. Claim 20 requires “*at least a portion* of the micr line image data included in the check image data is not included in the modified check image data,” which encompasses excluding the entire micr line from the modified check data image. Claim 20 does not preclude excluding other portions of the check image data.

Patent Owner’s argument that Graf’s “white or black space is not produced by modifying check image data” (PO Resp. 46) is similarly unavailing. Claim 20 does not require a particular manner of modifying check image data to produce the modified check image data.

For these reasons, we determine that Petitioner has shown by a preponderance of the evidence that the combination of Riach and Graf

would have conveyed to one of skill in the art the limitations recited in claim 20.

ii. Limitations in Claims 21–24

Claims 21 depends from independent claim 20 and additionally recites “wherein the micr line data includes an account number, wherein the check image data includes an account number area including account number data representative of the account number, wherein step (c) includes modifying the account number data in the account number area to produce a modified account number area, wherein the modified check image data includes the modified account number area.” Petitioner contends that Riach discloses that the micr line data includes an account number, the check image data includes account number data, and the modified check image data includes the modified account number area, as required by claim 21. Pet. 61 (discussing claim 21, referring to claim 15 analysis), 57–58 (discussing claim 15). Petitioner relies on express disclosures in Riach for the additional limitations recited in claim 21. *Id.* at 57 (citing Ex. 1008, 4:39–43 (describing a funds transfer operation that transfers the value of the check “from the payer’s account, the account number of which was read from the code line zone 120 (FIG. 4)”), Fig. 4 (showing code line zone 120), Fig. 7 (showing receipt having image region 306 that excludes code line 120 from Fig. 4); Ex. 1003 ¶¶ 94–97). Because Dr. Alexander’s testimony is well-reasoned and explained, and relies on detailed citations to Riach, which support his testimony, we credit Dr. Alexander’s testimony on which

Petitioner relies. *See, e.g.*, Ex. 1003 ¶¶ 94, 96. For these reasons and the reasons discussed previously concerning claim 20, we conclude that the combination of Riach and Graf would have conveyed to one of ordinary skill in the art the subject matter of claim 21.

Claim 22 depends from independent claim 21 requires a printer that prints a receipt on which a check image corresponding to the modified check image data. Petitioner relies on Riach's receipt printer 77 and express descriptions of printing receipts for the additional limitations recited in claim 22. Pet. 61 (regarding claim 22, referring to claim 14), 57 (regarding claim 14). Because Dr. Alexander's testimony is well-reasoned and explained, and relies on detailed citations to Riach, which support his testimony, we credit Dr. Alexander's testimony on which Petitioner relies. *See, e.g.*, Ex. 1003 ¶¶ 88–92 (citing Ex. 1008, 1:35–37, 1:35–57, 1:53–55, 1:55–58, 4:48–59, 4:53–55, 4:62–66, 5:16–30, 5:31–35, Figs. 3, 7). For these reasons, and the reasons discussed previously concerning claims 20 and 21, we conclude that the combination of Riach and Graf would have conveyed to one of ordinary skill in the art the subject matter of claim 22.

Claim 23, which depends from claim 22, further recites “operating the at least one printer to print check cancellation indicia on the check.” Petitioner relies on Riach's endorser printer 76 and its functionality, including printing in the endorsement zone of the check “thereby invalidating the [check] to prevent it from being used in a subsequent transaction.” Pet. 56 (citing Ex. 1008, 4:36–39, Fig. 6; Ex. 1003 ¶ 74); *see id.* at 61 (regarding claim 23, referring to claim 5), 55–56 (regarding

claim 5). Because Dr. Alexander’s testimony is well-reasoned and explained, and relies on detailed citations to Riach, which support his testimony, we credit Dr. Alexander’s testimony on which Petitioner relies. *See, e.g.*, Ex. 1003 ¶ 74. For these reasons, and the reasons discussed previously concerning claims 20–22, we conclude that the combination of Riach and Graf would have conveyed to one of ordinary skill in the art the subject matter of claim 23.

As discussed previously, independent claim 24 is directed to an “article of computer readable media bearing instructions that are operative to cause at least one processor in a cash dispensing machine to carry out the method steps recited in claim 20.” Ex. 1001, 72:61–64. Petitioner contends that Riach discloses “a library of image processing programs” and “control software” that “cause Riach’s CPU 73 to carry out the operations of Riach’s ATM.” Pet. 46 (citing Ex. 1008, 2:66–3:3; Ex. 1003 ¶ 123). Petitioner’s contention is based on express disclosure of Riach. For these reasons and the reasons discussed previously concerning claim 20, we conclude that the combination of Riach and Graf would have conveyed to one of ordinary skill in the art the subject matter of claim 24.

iii. Reasons to Combine Riach and Graf

Having reviewed the entirety of the record, we have determined that the combination of Riach and Graf, as proposed by Petitioner, would have conveyed to one of ordinary skill in the art the limitations recited by claims 21–24. Our inquiry continues because “[a] patent composed of

several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR*, 550 U.S. at 418. Rather, “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *Apple*, 839 F.3d at 1058 (quoting *KSR*, 550 U.S. at 418–19); *see also KSR*, 550 U.S. at 418 (“[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Petitioner also provides, with support of Dr. Alexander, reasons why one of ordinary skill in the art would have combined Graf’s technique for compressing check images (i.e., creating “dropped-form image” 42) with Riach’s financial document processing terminal. Pet. 33–34 (citing Ex. 1003 ¶¶ 78–79). Petitioner contends it would have been obvious to one of ordinary skill in the art to do so “to achieve the advantages disclosed by Graf”—reduction of storage space and time to transmit check images over a network. *Id.* (citing Ex. 1009, 3:4–10, 3:55–58, 7:17–20; Ex. 1003 ¶¶ 78–79). Petitioner contends that one of ordinary skill in the art also would have reason to use Graf’s dropped form image in Riach’s self-service terminal system because doing so would have improved the processing speed in Riach’s system in the same way that the dropped form image improves processing speed in Graf. Reply 23–24 (citing Pet. 33–35; Ex. 1003 ¶¶ 75–78). As Dr. Alexander opines, modifying Riach’s terminal 10 to create and store a dropped-form image as described by Graf would require less storage

capacity and be transmitted over a network in a shorter time than the original check image. Pet. 34; Ex. 1003 ¶ 78.

We determine that these express teachings of Graf’s advantages would have been a reason to prompt one of ordinary skill in the art to use Graf’s technique for compressing check images in Riach’s self-service terminal. Furthermore, testimony by Patent Owner’s declarant, Dr. Sorenson, provides additional support for Petitioner’s position. Specifically, Dr. Sorenson agreed that a compression algorithm that improves processing speed might be beneficial in an ATM. Ex. 1024, 129:19–22 (“Q: So a compression algorithm that improves processing speed might be beneficial in an ATM. Do you agree with that? A: Yeah, I agree with that.”); Reply 24 (citing Ex. 1024, 128:20–130:5). Dr. Sorenson also agreed that a compression algorithm that “reduces storage” also might be beneficial in an ATM. Ex. 1024, 129:23–130:5 (“Q: And a compression algorithm that . . . reduces storage could be beneficial in an ATM as well; right? A. It is generally beneficial to reduce storage. But a computer programmer has to weight the cost/benefit of implementing certain techniques.”); Reply 24 (citing Ex. 1024, 128:20–130:5).

For these reasons, we conclude that Petitioner has sufficiently demonstrated that one of ordinary skill in the art would have had a reason to make the combination as Petitioner contends. *See Dome Patent L.P. v. Lee*, 799 F.3d 1372, 1380 (Fed. Cir. 2015) (“If all elements of a claim are found in the prior art, as is the case here, the factfinder must further consider the factual questions of whether a person of ordinary skill in the art would be

motivated to combine those references, and whether in making that combination, a person of ordinary skill would have had a reasonable expectation of success.”).

In addition, Petitioner notes that Riach already discloses modifying an image by extracting certain handwritten portions of a check to enable printing an image having courtesy amount zone 126 and signature zone 128. Pet. 34 (citing Ex. 1008, Figs. 4, 7). Petitioner’s contentions rely on declaration testimony by Dr. Alexander. *Id.* (citing Ex. 1003 ¶ 80). We credit Dr. Alexander’s testimony because it is well-reasoned (as opposed to being conclusory) and has a factual base in the form of liberal supporting citations to prior art references. Ex. 1003 ¶ 80 (citing Ex. 1008, 1:37–40, 5:32–35, 5:54–60, Abstract, Fig. 7). Thus, we conclude that Petitioner has demonstrated sufficiently that one of ordinary skill in the art would have had a reasonable expectation of success in adding Graf’s dropped form image to Riach’s self-service terminal. *See Dome Patent*, 799 F.3d at 1380 (regarding demonstrating one of ordinary skill in the art would have had a reasonable expectation of success).

Patent Owner contends that each of Riach and Graf teaches away from modifying check image data such that the micr line data or a portion therefore is not included in the check image data. PO Resp. 50–51. “A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the [patentee].” *In re Kahn*, 441 F.3d at 990 (citing *In re*

Gurley, 27 F.3d 551, 553 (Fed. Cir. 1994)). Moreover, “[t]he degree of teaching away will of course depend on the particular facts; in general, a reference will teach away if it suggests that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant.” *In re Gurley*, 27 F.3d at 553. A reference, however, does not teach away “if it merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into the invention claimed.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1326–27 (Fed. Cir. 2009); see *In re Mouttet*, 686 F.3d 1322, 1333–34 (Fed. Cir. 2012) (stating that the existence of better alternatives “in the prior art does not mean that an inferior combination is inapt for obviousness purposes”) (citing *In re Gurley*, 27 F.3d at 553).

Applying these principles, we do not agree with Patent Owner’s contentions. Patent Owner contends that “Riach is directed to a system that includes unredacted information and displays copies of portions of the check image in order to maintain customer confidence.” PO Resp. 49 (citing Ex. 1008, 1:53–57). According to Patent Owner, “Riach teaches that unmodified sensitive information should be printed on each receipt in order to maintain customer confidence” and, therefore, “Riach teaches away from not including micr line data on a receipt or in the check image data.” *Id.* at 50.

First, with regard to claim 20 itself, the claim does not require printing the modified data but only requires not including micr data in a modified check image data.

Moreover, even with regard to claim 22 that requires printing “on a receipt, a check image corresponding to the modified check image data,” we do not agree that Riach teaches away from the claimed invention of modifying check image data. The statement in Riach on which Patent Owner relies indicates

the apparatus according to the invention provides a receipt slip bearing an image of at least a portion of a document being processed by the apparatus. This enables the customer’s confidence to be maintained that the document has been correctly identified and processed by the apparatus.

Ex. 1008, 1:53–58. Riach’s statement discusses providing a receipt that prints an image of “at least a portion” of the document being processed. This statement does not go as far as indicating that “unmodified sensitive information should be printed on the receipt” (as Patent Owner contends). Nor does the statement indicate that micr data must be printed as part of the image on the receipt. Furthermore, Riach’s statement does not rise to the level of teaching away because Riach’s statement does not criticize, discredit, or otherwise discourage investigation into the invention claimed. *See DePuy Spine*, 567 F.3d at 1326–27.

Nor do we agree with Patent Owner’s contentions regarding Graf purportedly teaching away. Patent Owner contends that, because Graf “is directed to a system that compresses check image data but allows for a full

check image to be recreated,” Graf teaches away from the invention recited in claim 20. See PO Resp. 50 (citing Ex. 2003 ¶ 97). Recreating a full check image is not required by any of claims 20–24. Thus, Graf does not teach away from the invention recited in claims 20–24.

In a single sentence, Patent Owner contends that another failure in Petitioner’s showing is that Petitioner does not provide “any evidence that a person of ordinary skill in the art addressing issues with user confidence would consider art directed to the compression of data.” PO Resp. 51. Patent Owner’s conclusory assertion does not acknowledge the statement in Graf’s Abstract that indicates the described technology is directed to compressing images of *financial instruments*. Ex. 1009, Abstract (“The present invention provides a method and apparatus for compressing images of financial instruments and other documents.”).

For these reasons, we agree that Petitioner has demonstrated by a preponderance of the evidence the requisite “some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418.

b. Claims 1–3, 5, and 13–19

We note, for clarity of the record, that Patent Owner does not argue separately or with particularity Petitioner’s assertions concerning claims 1–3, 5, and 13–19. PO Resp. 51 (“As noted above, Patent Owner has focused on the [purportedly] clear substantive deficiencies of the Petition’s challenges to claims 20–24 for the purpose of streamlining the issues in this proceeding and conserving both the Board’s and the parties’ resources.

Patent Owner does not concede that the subject matter of any of Claims 1–23 is unpatentable on the merits.”). The burden, however, remains on the Petitioner to demonstrate by a preponderance of the evidence that the subject matter of these claims would have been obvious. 35 U.S.C. § 326(e); 37 C.F.R. § 42.1(d); *Dynamic Drinkware*, 800 F.3d at 1378.

Concerning claims 1–3 and 5, Petitioner relies on its arguments concerning Riach’s disclosures made regarding Petitioner’s assertion that these claims are anticipated by Riach. Pet. 32 (relying on anticipation arguments for claims 1–3 and 5), 56 (referring to claim chart regarding anticipation of claims 1–3 and 5). Petitioner also argues that Graf would have conveyed to one of ordinary skill in the art limitations recited in claim 1 based on a narrower claim construction than the one Petitioner proposes and we have adopted. Thus, based on the disclosures of Riach discussed above with respect to anticipation, we also determine that Petitioner has demonstrated by a preponderance of the evidence that Riach would have conveyed the limitations recited in claims 1–3 and 5 to one of ordinary skill in the art.

Claim 13, which depends from claim 2, further requires that the modified micr line data differs from the original micr line data. For the additional limitations recited in claim 13, Petitioner contends Riach’s description of “lifting” the image of a check, which includes a micr line (i.e., code line zone 120), would have conveyed the limitations regarding generating a document image wherein the visual feature comprises a micr line, as recited in claim 13. Pet. 35. Petitioner additionally relies on Graf’s

dropped-form check image 42 that “has modified micr image line data—a blank space—that differs from the micr line image data in the full check image 40.” *Id.* at 36. Dr. Alexander explains that Graf’s Figure 2, which shows full check image 42 and the dropped-form check image, shows that the dropped-form check image has a blank area in place of the micr line of the full check image and does not contain the micr line of the full check image. Ex. 1003 ¶ 87. According to Dr. Alexander, because the dropped-form check image does not contain the micr line of the full check image, “Graf discloses modification of the micr line image data to be different from the original.” *Id.* Because the testimony of Dr. Alexander is based on the unambiguous depiction in Graf’s Figure 2 and aligns with our construction of “modifying,” we credit Dr. Alexander’s declaration testimony in this regard.

We acknowledge Dr. Alexander’s deposition testimony that describes Graf’s process as “creat[ing] a new image by copying . . . the dynamic portions [of the full check image] into a new image.” Ex. 2005, 146:15–18; *see* PO Resp. 47 (relying on Ex. 2005, 146:15–18; arguing copying does not produce a modified image). For the reasons noted previously, modifying by copying a portion of an image to produce a new image meets the requirements of the claim language.

For these reasons, we conclude that Petitioner has demonstrated by a preponderance of the evidence that the combination of Riach and Graf would have conveyed to one of ordinary skill in the art the limitations in claim 13.

Petitioner additionally contends that “[i]t would have been obvious to generate Graf’s dropped-form image 42 in Riach’s terminal 10 [as previously discussed] to reduce the size of the check image or to provide a larger degree of the handwritten text on a receipt slip.” *Id.* (citing Ex. 1003 ¶¶ 79–81, 86–87). For similar reasons to those reasons noted previously, we determine that Petitioner has provided the requisite reasoning to support a conclusion of obviousness.

Claim 14, which depends from claim 13, further requires a printer and “printing a check image that corresponds to the modified check image data, wherein the printed check image includes the modified micr line image data, wherein at least a portion of the original micr line image data is not visible in the printed check image.” Ex. 1001, 71:60–66. Petitioner relies on Riach’s “receipt printer 77 that prints a modified check image, such as image region 306, on a receipt slip 300.” Pet. 37 (citing Ex. 1008, 5:16–30, Figs. 3, 7). Petitioner further notes that “a printed record 304 of the codeline 120 is included on the receipt slip 300” in Riach’s Figure 7. *Id.* Petitioner correctly notes that Riach’s “printed record 304 does not include image data, but instead consists of text characters printed outside the image region 306” on which Petitioner relies for the recited modified image data. *Id.* Relying on declaration testimony from Dr. Alexander, citations to Riach, and discussion of Graf, Petitioner contends that the combination of Riach and Graf would have rendered obvious claim 14. *Id.* at 37–38 (citing Exs. 1003, 1008).

We conclude that Petitioner has demonstrated by a preponderance of the evidence that the combination of Riach and Graf would have conveyed to one of ordinary skill in the art the limitations in claim 14.

Claim 15 depends from claim 14 and further requires that “the micr line includes account number data” and “the account number data is not included in the printed check image.” Ex. 1001, 72:1–4. Petitioner relies on Riach’s disclosure that its code line zone 120 includes an account number and that Graf’s dropped-form image 42 excludes the account number in the micr line. Pet. 38 (citing Ex. 1008, 4:39–43; Ex. 1009, Fig. 2; Ex. 1003 ¶¶ 86–92). As Petitioner contends, and what naturally follows from our previous findings and conclusions, is that the combination of Riach and Graf would have conveyed to one of ordinary skill in the art the additional limitations recited in claim 15.

Therefore, we conclude that Petitioner has demonstrated by a preponderance of the evidence that the combination of Riach and Graf would have conveyed to one of ordinary skill in the art the limitations in claim 15.

Claims 16–18 depend from claim 13 and describe producing modified micr line image data by masking the original micr line image data. Ex. 1001, 72:5–7 (claim 16 reciting “producing the modified micr line image data by masking the original micr line image data”); *id.* at 72:8–11 (claim 17 reciting “masking the original micr line image data by having at least one masking image overly [sic: overlay] the original micr line image data”); *id.* at 72:12–16 (claim 18 reciting “(c) modifying the modified micr line image

data by removing the at least one masking image from the modified micr line image data”).

Petitioner relies on Graf’s disclosure that “[a] masked image may be generated by masking off or otherwise removing certain static portions of the full check image” (Ex. 1009, 7:49–51) and the “static portion of check 10 includes . . . a magnetic ink character recognition (MICR) line 16” (*id.* at 4:11–18). Pet. 39. Petitioner further relies on Graf’s Figure 2 depicting the full check image and the dropped-form image, as well as Dr. Alexander’s declaration testimony. Pet. 39 (citing Ex. 1003 ¶¶ 98–104). On this basis, Petitioner contends that “it would have been obvious for the static micr line 16 to be masked to create the dropped-form image.” *Id.* Regarding claim 17, Dr. Alexander testifies that “[m]asking is a well-known technique of covering an area of an image with different image content.” Ex. 1003 ¶ 100. As such, Petitioner contends that Graf’s description of masking would have conveyed to one of ordinary skill in the art masking by overlaying an image, as required by claim 17. Pet. 39–40; Ex. 1003 ¶ 101.

Regarding claim 18, Petitioner relies on Graf’s description of reconstructing an image of the original check after creating a dropped-form check image “by overlaying the dynamic image on the static image.” Pet. 40 (quoting Ex. 1009, 7:13–16, 16:64–17:67; citing Ex. 1003 ¶ 104). According to Dr. Alexander’s testimony, relied on by Petitioner (Pet. 40), such reconstruction of the original check image “requires restoring the preprinted regions of the check, including the micr line, that were previously masked or otherwise removed.” Ex. 1003 ¶ 104. Dr. Alexander then

testifies that “to reconstruct a full check image after masking off the micr line and other static portions, Graf removes the masking image, e.g., the white space that had replaced the static portions, by printing an image of the original micr line data in its place.” Ex. 1003 ¶ 104; see Pet. 40 (indicating Graf’s reconstruction “effectively removes the white image that was used to mask the micr line and other static portions, and replaces the white making image with static portions indicating the preprinted information on the check”). We credit Dr. Alexander’s testimony that relies on unambiguous disclosures in Graf and provides additional explanation based on Graf’s disclosures.

Having considered the entirety of the record, and for the foregoing reasons, we conclude Petitioner has demonstrated by a preponderance of the evidence that the combination of Riach and Graf would have conveyed to one of ordinary skill in the art the limitations in claims 16–18.

Claim 19, which depends from claim 2, further recites “the at least one side includes a visual feature comprising characters, wherein step (a) includes operating the check imaging device to image the characters, wherein the check image data includes original character image data corresponding to the characters, wherein step (b) includes changing at least one character in the original character image data to produce modified character image data.” Ex. 1001, 72:17–25.

Petitioner correctly notes that both Riach and Graf capture original check image data that includes printed characters, “such as a check number and a code line zone 120.” Pet. 41 (citing Ex. 1008, Figs. 2, 4, 6 (step 236

“lift document image”); Ex. 1009, Fig. 2, 5:5–8 (“The check may be scanned, utiliz[ing] a scanner 35, in a manner well-known in the art, to produce an original full check image 40”); Ex. 1003 ¶¶ 106–07). Petitioner contends that the scanned image data showing print characters would have conveyed to one of ordinary skill in the art “original character image data corresponding to the characters,” such as check number 17 (shown in Graf’s Figure 1). Pet. 41.

For the additional limitations in claim 19, Petitioner relies on Graf’s description of reconstructing an image of the original check from the dropped-form image (i.e., the compressed image or the dynamic image). Pet. 42–43 (citing Ex. 1009, 3:1–3, 7:21–24; Ex. 1003 ¶ 109). To do so, Graf describes overlaying the stored dropped-form image 42 on an image of the static portion of the check (i.e., “the static image”). Ex. 1009, 2:63–3:3 (“The dynamic image is then retrieved from the database, and the original electronic image is reconstructed by overlaying the dynamic image on the static image.”); *id.* at 7:12–15 (“A static image, or form, may be stored in a database at the destination, such that the original check image can be reconstructed by overlaying the dynamic image on the static image.”); Pet. 43 (citing Ex. 1009 3:1–3, 7:21–24). Importantly, Graf combines a single static portion with dynamic/dropped-form images of multiple, different checks. Ex. 1009, 7:21–24 (“The static portion is transmitted only once, then stored in a destination database and used to reconstruct a plurality of check images using the separately-transmitted dynamic images.”); Pet. 43 (citing Ex. 1009, 7:21–24).

Graf's reconstruction process of using the same static portion for reconstructing different check images causes the check number to be the *same* for the reconstructions of multiple check images that originally had *different check numbers*. Ex. 1009, 6:25–28 (“The check forms in database 45 are identified by a stored MICR line, and therefore *each printed form* will include the MICR line and check number *for one of the checks* processed during the statement period.”) (emphasis added); Pet. 43 (citing Ex. 1009, 6:25–28; Ex. 1003 ¶¶ 109–110).

According to Petitioner's declarant, Dr. Alexander, Graf's process replaces the original character image data showing the original check number (e.g., from the full check image 40) with different character image data that shows an incorrect check number (e.g., from the stored static image or “check form”). Ex. 1003 ¶¶ 109–110; Pet. 43 (citing Ex. 1003 ¶ 109–110). We credit Dr. Alexander's testimony that is based on liberal citations to Graf and naturally follows from the cited portions of Graf. *See In re Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1368 (Fed. Cir. 2004) (“[T]he Board is entitled to weigh the declarations and conclude that the lack of factual corroboration warrants discounting the opinions expressed in the declarations.”); *see also* 37 C.F.R. § 42.65(a) (“Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.”). For example, Dr. Alexander bases his opinion on Graf's statement, among other portions, that “the check number 17, and the portion of the MICR line 16 which includes the check number, will generally change from check to check. However, since this

information is part of a preprinted identifier on each check, it will be considered herein as part of the static portion of the check.” Ex. 1003 ¶ 109 (quoting Ex. 1009, 4:30–35; citing Ex. 1009, 3:1–3, 4:29–55, 5:63–65, Fig. 2).

Thus, we agree with Petitioner and Dr. Alexander that the check number data in the reconstructed check would have conveyed to one of ordinary skill in the art “modified character image data” having at least one character changed relative to the “original character image data” showing check number characters in Graf’s full check image. Pet. 43–44 (citing Ex. 1003 ¶¶ 109–110).

Based on Dr. Alexander’s testimony, Petitioner contends that “[i]t would have been obvious to have added Graf’s check image reconstruction techniques to Riach’s terminal to permit the terminal to generate customer statements.” Pet. 44 (citing Ex. 1003 ¶ 111; Ex. 1009, 6:7–21).

Having considered the entirety of the record, and for the foregoing reasons, we conclude Petitioner has demonstrated by a preponderance of the evidence that the combination of Riach and Graf would have conveyed to one of ordinary skill in the art the limitations in claim 19.

c. Conclusion

Based on the full record before us, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–3, 5, and 13–24 are unpatentable under 35 U.S.C. § 103 as directed to subject matter that would have been obvious to a person of ordinary skill in the art over Riach and Graf as set forth by Petitioner.

4. *Asserted Ground of Obviousness over Riach, Graf, and Gustin*

Petitioner contends claim 4 is unpatentable for obviousness over Riach, Graf, and Gustin. Pet. 46–48, 62–63. Although Patent Owner does not present arguments with particularity challenging Petitioner’s assertions, Petitioner bears the burden of unpatentability. 35 U.S.C. § 326(e); 37 C.F.R. § 42.1(d); *Dynamic Drinkware*, 800 F.3d at 1378.

Claim 4, which depends from claims 1–3, additionally recites “wherein the machine comprises an automated banking machine including a cash dispenser” and further requires “operating the automated banking machine to receive the at least one check from a user of the automated banking machine during a check cashing transaction . . . and . . . to dispense cash during the check cashing transaction.” Ex. 1001, 70:58–66. As noted above, Petitioner has demonstrated that the combination of Riach and Graf would have conveyed to one of ordinary skill in the art the limitations of claims 1–3 and demonstrated reasons why one of ordinary skill in the art would have combined the references in the manner proposed by Petitioner.

For the limitations additionally recited by claim 4, Petitioner further relies on Gustin’s automated banking machine with a cash dispenser that dispenses cash during a check cashing transaction. Pet. 47–48. Gustin is a United States patent that describes an automated banking machine that includes a cash dispenser. Ex. 1010, 10:63–11:5, Fig. 5 (cash dispenser 30). Gustin also describes a check cashing transaction during which cash is dispensed to the customer. *Id.* at 16:29–47, Fig. 16A (step 534).

Based on the express disclosures of Gustin relied on by Petitioner and noted above, we determine that Petitioner has demonstrated by a preponderance of the evidence that the combination of Riach, Graf, and Gustin would have conveyed to one of ordinary skill in the art the limitations recited in claim 4.

Regarding the requisite reason why one of ordinary skill in the art would have combined Gustin with the combination of Riach and Graf, Petitioner also contends that “[i]t would have been obvious to include a cash dispenser and the step of dispensing cash during a check cashing transaction in Riach’s [automated teller machine].” Pet. 48. The reason one of ordinary skill in the art would have done so, according to Petitioner, is because including these features “would have expanded the capabilities of Riach’s ATM by permitting check cashing and cash withdrawals in addition to deposits.” *Id.* Petitioner further contends that because “Gustin states that the cash dispenser is ‘typical’ for [automated teller machines], [its] inclusion in Riach’s system would be the ‘combination of familiar elements according to known methods’ doing ‘no more than yield predictable results.’” *Id.* (citing *KSR*, 550 U.S. at 416). Dr. Alexander supports Petitioner’s contentions. Ex. 1003 ¶¶ 126–127; Pet. 47–48 (citing Ex. 1003 ¶¶ 126–127). We credit Dr. Alexander’s testimony because it relies on and comports with Gustin’s express disclosures.

For these reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 4 would have been obvious over Riach, Graf, and Gustin.

5. *Asserted Ground of Obviousness over Riach, Graf, and Anderson*

Petitioner contends claims 16–18 are unpatentable for obviousness over Riach, Graf, and Anderson. *Id.* at 48–54, 63–65. Although Patent Owner does not present arguments with particularity challenging Petitioner’s assertions, Petitioner bears the burden of unpatentability. 35 U.S.C. § 326(e); 37 C.F.R. § 42.1(d); *Dynamic Drinkware*, 800 F.3d at 1378.

Petitioner bolsters its contentions that claims 16–18 would have been obvious over Riach and Graf by additionally relying on Anderson’s masking techniques. Pet. 48–49. As noted previously, claims 16–18 depend from claim 13 and describe producing modified micr line image data by masking the original micr line image data. Ex. 1001, 72:5–7 (claim 16 reciting “producing the modified micr line image data by masking the original micr line image data”); *id.* at 72:8–11 (claim 17 reciting “masking the original micr line image data by having at least one masking image overly [sic: overlay] the original micr line image data”); *id.* at 72:12–16 (claim 18 reciting “(c) modifying the modified micr line image data by removing the at least one masking image from the modified micr line image data”).

Regarding claim 16, we find that Anderson discloses that, with overlays, “portions of the original document may be masked” to redact the underlying original image data. Ex. 1019, 1:11–25, 1:28–30, 2:41–43; Pet. 52. Dr. Alexander’s declaration testimony confirms this understanding. Ex. 1003 ¶¶ 140–142; Pet. 52–53.

Regarding claim 17, based on Anderson’s additional disclosure that masking overlays can be “images of graphics,” we conclude Anderson

would have conveyed to one of ordinary skill in the art masking to redact the underlying data by having a masking image overlaying a micr line. *See* Pet. 53.

Regarding claim 18, we find that Anderson discloses non-destructive masking that preserves the original content of a document even after annotations and redactions are added. Ex. 1019, Abstract, 2:20–47 (describing redacting a document by masking information but allowing the reviewer to see either the original document (unredacted) or redacted); Pet. 53. We conclude, as Petitioner contends and Dr. Alexander opines, that the combination of Alexander and Riach would have conveyed to one of ordinary skill in the art using Anderson’s overlays with Riach’s terminal such that the overlay could be removed to reveal the original micr line. This would enable Riach’s terminal to read the micr line or other information in the original check image. Pet. 53–54 (citing Ex. 1003 ¶¶ 145–146; Ex. 1019, 2:30–37; Ex. 1008, 5:14–15).

In addition, we determine that Petitioner has provided sufficient reasons why one of ordinary skill in the art would have combined Anderson with Riach’s terminal and Graf’s dropped-image check. Pet. 51–52. First, Petitioner contends, in view of Dr. Alexander’s declaration testimony, that one of ordinary skill in the art would have had motivation to use Anderson’s overlays in the combination because Anderson’s overlays can be applied to whichever locations are determined to be appropriate after a document image is captured. Pet. 51 (citing Ex. 1003 ¶ 135). This would be an

improvement over Graf's limitation of masking only over predetermined locations on a document. *Id.* (citing Ex. 1009, 1:54–67).

Second, Petitioner contends that one of ordinary skill in the art would recognize that preserving the content of the original check image using Anderson's techniques would be advantageous because, when preparing a receipt, Riach reads original check image data, including the micr line which would be masked as a static portion using Graf's technique. *Id.* at 51–52 (citing Ex. 1003 ¶¶ 136–137, 145–146; Ex. 1008, 5:14–15).

Third, Petitioner contends that, “because Anderson's overlays can secure a document, using Anderson's overlays to store a redacted image would have been an obvious way to reduce the risk of fraud, in the event that unauthorized access were made to Riach's terminal.” Pet. 52 (citing Ex. 1003 ¶ 138).

For these reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 16–18 also would have been obvious over Riach, Graf, and Anderson.

6. Conclusion of Obviousness

We have considered (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; and (3) the level of ordinary skill in the art.¹⁷ Based on the evidence and arguments, Petitioner has demonstrated by a preponderance of the evidence that (i) the

¹⁷ Patent Owner did not put forth any objective evidence of nonobviousness.

subject matter of claims 1–3, 5, and 13–24 is unpatentable under 35 U.S.C. § 103 over Riach and Graf; (ii) the subject matter of claim 4 is unpatentable under 35 U.S.C. § 103 over Riach, Graf, and Gustin; and (iii) the subject matter of claims 16–18 also is unpatentable under 35 U.S.C. § 103 over Riach, Graf, and Anderson.

III. CONCLUSION

In sum, based on the reasons discussed above, we conclude that Petitioner has demonstrated by a preponderance of the evidence that (i) claims 1–24 are unpatentable under 35 U.S.C. § 101, (ii) claims 1–3 and 5 are unpatentable under 35 U.S.C. § 102 based on Riach, (iii) the subject matter of claims 1–3, 5, and 13–24 is unpatentable under 35 U.S.C. § 103 over Riach and Graf; (iv) the subject matter of claim 4 is unpatentable under 35 U.S.C. § 103 over Riach, Graf, and Gustin; and (v) the subject matter of claims 16–18 also is unpatentable under 35 U.S.C. § 103 over Riach, Graf, and Anderson.

IV. ORDER

Accordingly, it is hereby

ORDERED that, based on a preponderance of the evidence, claims 1–24 of U.S. Patent No. 7,314,163 B1 are held unpatentable;

FURTHER ORDERED that, because this is a Final Written Decision, the parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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Patent 7,314,163 B1

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