

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALLIANCE LAUNDRY SYSTEMS, LLC,
Petitioner,

v.

PAYRANGE LLC,
Patent Owner.

PGR2025-00028
Patent 11,972,423 B2

Before MEREDITH C. PETRAVICK, JUSTIN T. ARBES, and
GEORGE R. HOSKINS, *Administrative Patent Judges*.

PER CURIAM.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 328(a)

I. INTRODUCTION

A. Background and Summary

Petitioner Alliance Laundry Systems, LLC filed a Petition (Paper 1, “Pet.”) requesting post-grant review of claims 1–20 of U.S. Patent No. 11,972,423 B2 (Ex. 1001, “the ’423 patent”) pursuant to 35 U.S.C. § 321(a). On August 25, 2025, the Board instituted a post-grant review as to all challenged claims on all grounds of unpatentability asserted in the Petition. Paper 12 (“Decision on Institution” or “Dec. on Inst.”). Patent Owner PayRange LLC then filed a Patent Owner Response (Paper 17, “PO Resp.”), Petitioner filed a Reply (Paper 20, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 22, “PO Sur-reply”). An oral hearing was held on June 2, 2026, and a transcript of the hearing is included in the record (Paper 30, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 328(a). For the reasons that follow, we determine that Petitioner has shown, by a preponderance of the evidence, that claims 1–6 and 8–20 of the ’423 patent are unpatentable, but has not shown, by a preponderance of the evidence, that claim 7 of the ’423 patent is unpatentable.

B. Related Matters

The parties indicate that the ’423 patent is the subject of *Alliance Laundry Systems, LLC v. PayRange Inc.*, No. 1:24-cv-00733 (D. Del.) (“the district court case”), and was the subject of *PayRange Inc. v. Card Concepts, Inc.*, No. 6:24-cv-00339 (W.D. Tex.), and *PayRange Inc. v. Nayax Ltd.*, No. 6:24-cv-00340 (W.D. Tex.), which have been dismissed. *See* Pet. 5; Paper 3, 1–2. Petitioner filed petitions challenging other patents

asserted in the district court case in PGR2025-00027, IPR2025-00573, and IPR2025-00950. The parties also identify, as related proceedings, CBM2020-00026, IPR2021-00086, IPR2023-01186, IPR2023-01187, IPR2023-01188, IPR2023-01449, PGR2021-00077, PGR2021-00084, PGR2021-00093, PGR2022-00035, PGR2023-00042, PGR2023-00045, and PGR2023-00050. *See* Pet. 1–4; Paper 3, 1–3. In PGR2021-00093, the Board issued a final written decision on December 14, 2022, determining that certain claims of U.S. Patent No. 10,891,614 B2 (“the ’614 patent,” a parent of the ’423 patent) were unpatentable. PGR2021-00093, Paper 38. Neither party appealed the Board’s decision, and the Office issued a post-grant review certificate canceling the unpatentable claims on March 27, 2023. *See* PGR2021-00093, Paper 39.

C. The ’423 Patent

The ’423 patent, titled “Method and System for Presenting Representations of Payment Accepting Unit Events,” issued on April 30, 2024. Ex. 1001, codes (45), (54). The ’423 patent claims priority, through a chain of patent applications, to a provisional patent application and a design patent application, both filed on December 18, 2013. *Id.* at code (63), 1:5–40. The specification, in the “Background” section, states the following:

As the number of people with Internet-connected mobile devices proliferates, so does the variety of uses for such devices. Mobile payment is a logical extension. There is a large development effort around bringing mobile payment to the retail sector in an effort to not only provide options to the user, but also increased convenience.

Id. at 2:16–21.

The '423 patent describes “a mobile-device-to-machine payment processing system for processing transactions over a non-persistent network connection.” Ex. 1001, 5:66–6:2. The mobile-device-to-machine payment processing system may be a “payment accepting unit” (i.e., “equipment that requires payment for the dispensing of products and/or services,” such as a vending machine, a parking meter, a toll booth, a laundromat washer and dryer, an arcade game, a kiosk, a photo booth, or a transit ticket dispensing machine). *Id.* at 1:60–2:4.

The '423 patent explains that some payment accepting units are capable of accepting cashless payments, such as “credit cards, debit cards, and alternative mobile device payment methods using, for example, smart phones.” Ex. 1001, 6:46–54. However, “traditional payment accepting units that accept cashless payments . . . require a persistent connection to a network (wired or wireless) to facilitate the cashless payments.” *Id.* Thus, “[i]f the network connection to a traditional machine is temporarily interrupted, cashless payments will be temporarily unavailable. If the machine is located in a location where no network connection is available, cashless payments is not possible.” *Id.* at 6:60–64.

The '423 patent purports to be able to solve this network connectivity problem by having a user's mobile device serve as an “intermediary” between the payment accepting unit and network. Ex. 1001, 6:5–10, 6:64–7:3. At the same time, the described system in the '423 patent purportedly also minimizes or even eliminates user interaction with the mobile device. *Id.* at 6:64–7:3. For example, one feature that the payment accepting unit may possess is a “manual (swipe to pay) mode.” *Id.* at 6:11–16. When a user's mobile device is brought within range of a payment accepting unit running this “manual” mode, a pre-installed mobile

application on the mobile device automatically connects to the payment accepting unit. *Id.* at 7:19–22. The mobile device then connects to a server, which maintains a balance of the user’s funds and authorizes the use of these funds. *Id.* at 10:23–26, 11:32–43. From there, the mobile application may display the balance on the mobile device’s touchscreen, which the user then “swipes” to transfer payment to the payment accepting unit, “just as if cash was inserted in the machine with the user inputting his selection on the payment accepting unit and the payment accepting unit dispensing the product or service.” *Id.* at 7:22–31 (reference numbers omitted).

D. Illustrative Claim

Challenged claims 1, 13, and 15 of the ’423 patent are independent. Claims 2–12 depend from claim 1, claim 14 depends from claim 13, and claims 16–20 depend from claim 15. Claim 1 recites the following (with number designations used in the Petition to refer to the various limitations):

1. A method of presenting representations of payment accepting unit events, comprising:

[1.1] at a mobile device with one or more processors, memory, one or more output devices including a display, and one or more radio transceivers:

[1.2] identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device, [1.3] the identifying based at least in part on an identifier corresponding to the one or more payment accepting units, [1.4] wherein the one or more payment accepting units are payment operated machines that accept payment for dispensing of products and/or services;

[1.5] displaying a user interface of the mobile payment application on the display of the mobile device,

[1.6] the user interface being configured to display a visual indication of the one or more payment accepting units and
[1.7] accept user input selecting an available payment accepting unit of the one or more payment accepting units;

[1.8] establishing via the one or more radio transceivers a wireless communication path including the mobile device and the available payment accepting unit of the one or more payment accepting units;

[1.9] after establishing the wireless communication path, enabling user interaction with the user interface of the mobile payment application to complete a transaction with the available payment accepting unit;

[1.10] exchanging information with the available payment accepting unit via the one or more radio transceivers, in conjunction with the transaction; and

[1.11] after exchanging the information, displaying, on the display, an updated user interface of the mobile payment application to the user of the mobile device.

E. Evidence

The pending grounds of unpatentability in the instant post-grant review are based on the following prior art:

U.S. Patent No. 8,255,323 B1, filed Jan. 9, 2009, issued Aug. 28, 2012 (Ex. 1008, “Casey”);

U.S. Patent No. 8,958,846 B2, filed Aug. 23, 2006, issued Feb. 17, 2015 (Ex. 1007, “Freeny”);

U.S. Patent No. 9,898,884 B1, filed Apr. 4, 2013, issued Feb. 20, 2018 (Ex. 1006, “Arora”); and

U.S. Patent No. 10,210,501 B2, filed July 25, 2013, issued Feb. 19, 2019 (Ex. 1005, “Low”).

Petitioner filed a declaration from B. Clifford Neuman, Ph.D. (Ex. 1003) with its Petition. Patent Owner filed a declaration from Jeffrey Miller, Ph.D.

(Ex. 2008) with its Response. Also submitted as evidence are transcripts of depositions of Dr. Neuman (Ex. 2010) and Dr. Miller (Ex. 1031).

F. Asserted Grounds

Petitioner asserts that claims 1–20 of the ’423 patent are anticipated by, or would have been obvious on the basis of, prior art printed publications under 35 U.S.C. §§ 102 and 103, and unpatentable under 35 U.S.C. § 101:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–6, 8, 10, 12–20	102	Low
7, 9	103	Low, Arora
11	103	Low, Arora, Freeny, Casey
1–20	101	Eligibility

II. ANALYSIS

A. Timeliness and Eligibility

A petition for post-grant review of a patent “may only be filed not later than the date that is 9 months after the date of the grant of the patent.” 35 U.S.C. § 321(c). The ’423 patent issued on April 23, 2024. Ex. 1001, code (45). The Petition’s filing on January 17, 2025 (*see* Paper 5) therefore was timely. *See* Pet. 100.

The post-grant review provisions of 35 U.S.C. §§ 321–329 apply only to patents subject to the first-inventor-to-file provisions of the Leahy-Smith America Invents Act (Pub. L. No. 112-29, 125 Stat. 284 (2011), “the AIA”). *See* AIA § 6(f)(2)(A) (“The amendments made by subsection (d) [enacting 35 U.S.C. §§ 321–329] . . . shall apply only to patents described in section 3(n)(1).”). The first-inventor-to-file provisions of the AIA apply to any

patent issuing from an application that contains or contained at any time a claim to a claimed invention that has an “effective filing date” on or after March 16, 2013. *See id.* § 3(n)(1).

The earliest possible effective filing date of the ’423 patent is December 18, 2013. *See* 35 U.S.C. § 100(i)(1) (defining the term “effective filing date”); Ex. 1001, codes (60), (63). That date is after March 16, 2013, so the ’423 patent is eligible for post-grant review.

B. Level of Ordinary Skill in the Art

In determining the level of ordinary skill in the art for a challenged patent, we look to “1) the types of problems encountered in the art; 2) the prior art solutions to those problems; 3) the rapidity with which innovations are made; 4) the sophistication of the technology; and 5) the educational level of active workers in the field.” *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 666–67 (Fed. Cir. 2000). “Not all such factors may be present in every case, and one or more of them may predominate.” *Id.* at 667.

Petitioner argues that at the time of the ’423 patent,¹ a person of ordinary skill in the art would have had “an educational background of, or practical experience equivalent to, a bachelor’s degree in electrical engineering, computer engineering, computer science, or equivalent training, and approximately three years of experience with electronic payment systems, vending machine technologies, or distributed network systems,” where “[l]ack of work experience can be remedied by additional education, and vice versa.” Pet. 20 (citing Ex. 1003 ¶¶ 20–26). In the Decision on

¹ Petitioner states that it “takes no position on the proper priority date for the [c]hallenged [c]laims” and “uses the earliest possible priority date claimed, December 18, 2013,” for purposes of its asserted grounds. Pet. 14.

Institution, the Board agreed with and applied Petitioner’s proposed definition. Dec. on Inst. 7–8. Patent Owner applies Petitioner’s proposed definition of the level of ordinary skill in the art. PO Resp. 5. Based on the full record developed during trial, including our review of the ’423 patent and the types of problems and solutions described in the ’423 patent and cited prior art, we maintain the previously adopted definition of the level of ordinary skill in the art and apply it for purposes of this Decision.

C. Claim Interpretation

We interpret the claims of the challenged patent using the same claim construction standard that would be used to construe the [claims] in a civil action under 35 U.S.C. 282(b), including construing the [claims] in accordance with the ordinary and customary meaning of such [claims] as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

37 C.F.R. § 42.200(b). Petitioner argued in the Petition that “the Board need not construe any claim terms to resolve the parties’ disputes, and the claims should be given their ordinary and customary meaning.” Pet. 20. We did not interpret any terms in the Decision on Institution. Dec. on Inst. 8. Patent Owner argues that “no constructions are required to reach a decision” in this proceeding. PO Resp. 5. We conclude, based on the full trial record, that no term requires express interpretation to determine whether Petitioner has met its burden to prove unpatentability of the challenged claims. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“Because we need only construe terms ‘that are in controversy, and *only to the extent necessary* to resolve the controversy,’

we need not construe [a particular claim limitation] where the construction is not ‘material to the . . . dispute.’” (emphasis added) (citation omitted)).

D. Burden of Proof

To prevail in its challenge to the patentability of claims 1–20 of the ’423 patent, Petitioner must demonstrate that the claims are unpatentable by a preponderance of the evidence. 35 U.S.C. § 326(e). “In [a post-grant review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). This burden of persuasion never shifts to the patent owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

E. Alleged Anticipation by Low (Claims 1–6, 8, 10, and 12–20)

1. Legal Standards

“Anticipation requires that every limitation of the claim in issue be disclosed, either expressly or under principles of inherency, in a single prior art reference,” *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1255–56 (Fed. Cir. 1989), and that the claim limitations be “arranged or combined in the same way as recited in the claim,” *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1371 (Fed. Cir. 2008). However, “the reference need not satisfy an *ipsissimis verbis* test.” *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009). “In an anticipation analysis, the dispositive question is whether a skilled artisan would ‘reasonably understand or infer’ from a prior art reference that every claim limitation is disclosed in that single reference.” *Acoustic Tech., Inc. v. Itron Networked Solutions, Inc.*, 949 F.3d 1366, 1373 (Fed. Cir. 2020) (citation omitted).

Whether a reference anticipates is assessed from the perspective of an ordinarily skilled artisan. *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1336 (Fed. Cir. 2008) (“[T]he meaning of a prior art reference requires analysis of the understanding of an artisan of ordinary skill.”).

2. *Low*

Low is titled “Electronic Payments to Non-Internet Connected Devices Systems and Methods.” Ex. 1005, code (54).²

Low describes how a user device such as a smart phone may be utilized to make wireless electronic payments for purchases at a non-Internet connected machine (“NICM”) such as a vending machine. *See* Ex. 1005, code (57), 1:17–19, 2:11–20.

² *Low* issued on February 19, 2019, from an application filed on July 25, 2013. Ex. 1005, codes (22), (45). We agree with Petitioner, therefore, that it qualifies as prior art under 35 U.S.C. § 102(a). *See* Pet. 17; Ex. 1001, code (63) (earliest possible effective filing date of December 18, 2013).

Figure 1 of Low is reproduced below.

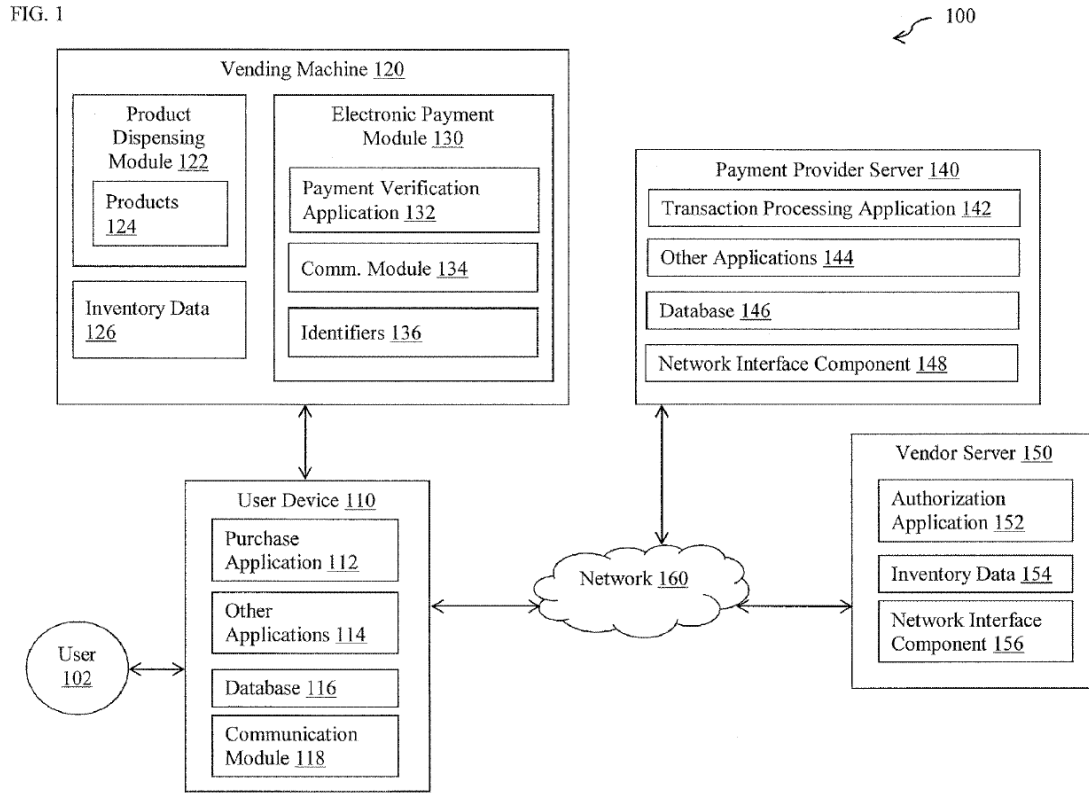


Figure 1 depicts a block diagram of Low's networked system 100.

Ex. 1005, 1:52–54, 2:63–3:2. System 100 includes user device 110 in wireless communication such as via Bluetooth with vending machine 120 (i.e., a NICM), and also in communication with payment provider server 140 and vendor server 150 through network 160 such as the Internet. *Id.* at 2:11–16, 3:18–25, 4:57–64, 8:48–52. User device 110 has purchase application 112 providing an interface that permits user 102 to select, purchase, and dispense products for sale at vending machine 120. *Id.* at 3:49–51, 3:57–63.

Figure 3 of Low is a flowchart illustrating an exemplary method 300 for user device 110 to make an electronic payment to vending machine 120. *See* Ex. 1005, 1:59–61, 10:1–5, Fig. 3. In step 302, communication module 118 of user device 110 wirelessly connects to communication

module 134 of vending machine 120. *See id.* at 10:5–14, 11:36–43. User device 110 then receives information about items for sale from vending machine 120, along with “information corresponding to vending machine 120, such as a machine identifier.” *Id.* at 10:5–7, 10:14–17, 11:36–43.

In step 304, user 102 utilizes user device 110 and/or vending machine 120 to select a product to be purchased from vending machine 120. *See* Ex. 1005, 10:18–34 (“For example, user 102 may utilize user device 110 to view and select a product . . .”), 11:43–55.

In step 306, user device 110 transmits a purchase request to payment provider server 140 that: includes the machine identifier of vending machine 120; identifies the product to be purchased; identifies a funding source for the purchase; and provides other information. *See* Ex. 1005, 10:34–44, 11:56–63. Payment provider server 140 processes the purchase request and, if it is approved, in step 308 the server transmits to user device 110 an approval message including a payment authorization. *See id.* at 10:44–61, 11:64–12:8. User device 110 utilizes the payment authorization to cause vending machine 120 to dispense the purchased product. *See id.* at 10:57–61, 12:9–12.

Low further provides that “a user may not know a location of a NICM configured to accept electronic payments.” Ex. 1005, 9:16–18. In that event, “the user may utilize a user device [110] to access payment provider server 140 and receive locations of available NICMs with lists of available products at each machine” as well as “directions, map coordinates, and/or a GPS location of [a] desired NICM.” *Id.* at 9:18–23.

3. *Claim 1*

a) Undisputed Limitations [1.1]–[1.5] and [1.7]–[1.11]

Claim 1 recites a “method of presenting representations of payment accepting unit events.” Limitation [1.1] recites that the steps of the method are performed “at a mobile device with one or more processors, memory, one or more output devices including a display, and one or more radio transceivers.” Limitation [1.4] recites that “the one or more payment accepting units are payment operated machines that accept payment for dispensing of products and/or services.” Petitioner argues that Low discloses a method of presenting representations of payment accepting unit events (i.e., vending machine 120 events) at a mobile device (i.e., user device 110) that has a processor, a memory, a display, and a radio transceiver, wherein vending machines 120 accept payment for dispensing of products. Pet. 21–23, 25–26 (citing Ex. 1005, code (57), Figs. 4–5, 3:26–32, 3:40–44, 3:49–60, 4:57–59, 11:11–13, 12:39–56; Ex. 1003 ¶¶ 69–72, 77–78).

Limitation [1.2] recites “identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device,” and Limitation [1.3] specifies that “the identifying [is] based at least in part on an identifier corresponding to the one or more payment accepting units.” Petitioner contends that Low’s user device 110 identifies one or more vending machines 120 that are available to accept payment from purchase application 112 executing on user device 110, wherein the identifying is based at least in part on an identifier (i.e., machine identifier 136) corresponding to the identified vending machines 120. Pet. 23–25 (citing Ex. 1005, Fig. 1, 2:16–20, 2:26–28, 6:16–21, 9:4–23; Ex. 1003 ¶¶ 73–76).

Limitation [1.5] recites “displaying a user interface of the mobile payment application on the display of the mobile device.” Petitioner argues that Low’s purchase application 112 displays a user interface on the display of user device 110. Pet. 26 (citing Ex. 1005, 2:24–25, 3:57–60; Ex. 1003 ¶¶ 79–80).

Limitation [1.7] recites that “the user interface is configured to . . . accept user input selecting an available payment accepting unit of the one or more payment accepting units.” Petitioner contends that Low’s purchase application 112 displays a user interface configured to accept user input selecting an available vending machine 120. Pet. 27 (citing Ex. 1005, 2:16–20, 2:26–28; Ex. 1003 ¶¶ 83–84).

Limitation [1.8] recites “establishing via the one or more radio transceivers a wireless communication path including the mobile device and the available payment accepting unit of the one or more payment accepting units.” Petitioner argues that Low’s user device 110 establishes a wireless communication path (e.g., Bluetooth) with the selected vending machine 120. Pet. 28 (citing Ex. 1005, 2:11–16, 2:38–39, 8:24–28; Ex. 1003 ¶¶ 85–86).

Limitation [1.9] recites “after establishing the wireless communication path, enabling user interaction with the user interface of the mobile payment application to complete a transaction with the available payment accepting unit.” Petitioner contends that Low’s user device 110, after establishing a wireless communication path with the selected vending machine 120, enables user interaction with the user interface of purchase application 112 to complete a transaction with the selected vending machine 120. Pet. 28–31 (citing Ex. 1005, Figs. 1, 3, 8:22–28, 10:1–3; Ex. 1003 ¶¶ 87–89).

Limitation [1.10] recites “exchanging information with the available payment accepting unit via the one or more radio transceivers, in conjunction with the transaction.” Petitioner argues that payment verification application 132 of vending machine 120 “may receive an approval of a payment from user device 110, verify the approval, and dispense items purchased.” Pet. 31 (quoting Ex. 1005, 5:66–6:3). Therefore, according to Petitioner, Low discloses “exchanging information (e.g., information such as approval of payment) with the available payment accepting unit via the one or more radio transceivers (e.g., ‘wireless short range communication devices’), in conjunction with the transaction (e.g., approval of payment).” *Id.* (citing Ex. 1005, 5:54–57, 6:9–15; Ex. 1003 ¶¶ 90–91).

Limitation [1.11] recites “after exchanging the information, displaying, on the display, an updated user interface of the mobile payment application to the user of the mobile device.” Petitioner argues that user device 110 displays lists of products 124 and “[i]nventory data 126 may . . . adjust viewable inventory levels of products 124 for display to user 102.” Pet. 32 (quoting Ex. 1005, 8:31–33). Petitioner contends that a person of ordinary skill in the art would understand that “after a product 124 is purchased at a vending machine 120, the user device 110 displays an updated inventory level of products 124 to account for that purchased product (i.e., displaying one less item available).” *Id.* Therefore, according to Petitioner, Low discloses “after exchanging the information, displaying, on the display (i.e., display 511), an updated user interface (i.e., ‘adjust[ed] viewable inventory’) of the mobile payment application (i.e., purchase application 112) to the user of the mobile device (i.e., user device 110).” *Id.* (citing Ex. 1005, 9:8–11; Ex. 1003 ¶¶ 92–95, 146).

Patent Owner in its Response does not dispute that Low discloses Limitations [1.1]–[1.5] and [1.7]–[1.11] of claim 1. Nonetheless, the burden remains on Petitioner to demonstrate unpatentability. *Dynamic Drinkware*, 800 F.3d at 1378. On the complete trial record, we agree with Petitioner’s analysis of the limitations, as supported by the testimony of Dr. Neuman, which we credit. *See* Pet. 21–32; Ex. 1003 ¶¶ 69–80, 83–93.

b) Disputed Limitation [1.6]

Limitation [1.6] recites “the user interface being configured to display a visual indication of the one or more payment accepting units.” Petitioner argues that Low’s mobile device receives a machine identifier from a particular vending machine and “[m]ultiple machines may send their unique identifiers, such that the user is able to select one or more machines to purchase from.” Pet. 26–27 (quoting Ex. 1005, 2:26–28; citing Ex. 1005, 2:16–20, 8:66–9:2). Petitioner contends that a person of ordinary skill in the art “would understand that the user device 110 is configured to *display the available machines* such that the user is able to interact with the display to select the one or more machines from which to make a purchase.” *Id.* at 27 (emphasis added). Therefore, according to Petitioner, Low discloses its “user interface (e.g., ‘interface’) being configured to display (e.g., ‘such that the user is able to select one or more machines to purchase from’) a visual indication of the one or more payment accepting units (e.g., ‘machine identifier’).” *Id.* (citing Ex. 1003 ¶¶ 81–82).

Petitioner clarified in its briefing and at the hearing that its position is not that Low inherently discloses Limitation [1.6], but rather that an ordinarily skilled artisan, reading Low’s disclosure, would reasonably understand the reference to disclose it. *See* Pet. 26–27; Pet. Reply 3–4;

Tr. 9:7–9. Also, neither party proposed an interpretation for the term “visual indication” in Limitation [1.6] and the parties agree on its scope. Petitioner argued at the hearing that the term “visual indication” in Limitation [1.6] is broader than “visual representation” in claim 11 and that a “visual indication” may be, for example, a number or other type of indication of a payment accepting unit, whereas a “visual representation” could be, for example, an icon or photograph of the device. Tr. 11:18–12:21. Patent Owner agreed. *Id.* at 50:16–51:2. Therefore, there is no need for us to resolve any dispute as to the meaning of “visual indication.”

Turning to the merits of Petitioner’s position, we conclude, based on all of the evidence of record, that an ordinarily skilled artisan would reasonably understand Low’s user interface to display a visual indication of one or more vending machines. User device 110 in Low (e.g., a smart phone or iPad) has an input/output component and executes purchase application 112, which displays a user interface from which the user can view information and make selections. Ex. 1005, 3:37–44, 3:57–63, 11:17–38, 12:26–48. Low discloses permitting the user to “select” an item available for purchase from a particular vending machine, and specifies that the way that is done is by displaying a menu of available items to the user. *Id.* at 2:23–31, 2:40–43, 10:5–7. Low similarly discloses allowing the user to “select” a vending machine to make a purchase from. *Id.* at 2:25–28. Importantly, Low’s disclosure of selecting a vending machine appears immediately after its description of selecting an item:

The non-Internet connected machine (NICM) transmits a machine identifier to the user device, which allows the user device to retrieve a menu of items at the specific machine from the payment provider or an operator of the machine. In some embodiments, the NICM, the payment provider, and/or the

operator of the machine may send product details to the user device to upsell or advertise products available on the NICM. The menu is then *displayed* on the user device, and the user *selects* desired item(s) for purchase. Note that in some embodiments, multiple machines may send their unique identifiers, such that the user is able to *select* one or more machines to purchase from.

Id. at 2:16–28 (emphasis added). Given the preceding description of displaying on the user device a menu of available items from which the user can select, a person of ordinary skill in the art would understand the selection of a vending machine to be accomplished the same way: by displaying to the user what vending machines are available to select.

Indeed, Patent Owner does not dispute that Low discloses Limitation [1.7], which recites that the user interface is configured to “accept user input selecting an available payment accepting unit of the one or more payment accepting units.” *See supra* Section II.E.3.a. Similar to its arguments for Limitation [1.6], Petitioner argues for that limitation that a person of ordinary skill in the art “would understand that the user device 110 is configured to *display the available machines* such that the user is able to interact with the display to select the one or more machines from which to make a purchase.” Pet. 27 (emphasis added). That understanding is consistent with the language in Low above.

Based on the full disclosure of Low, we agree with Petitioner that a person of ordinary skill in the art would understand Low’s user interface to display an indication of available vending machines from which the user can make a selection (just like the indication of items available to purchase, from which the user makes a similar selection).

We disagree with Patent Owner’s arguments to the contrary. *See* PO Resp. 6–12; Ex. 2008 ¶¶ 41–50. Patent Owner argues that Low does not

expressly disclose displaying a visual indication of a vending machine on the user device because Low does not “describe a user interface nor what is displayed on it.” PO Resp. 7 (citing Ex. 1005, 2:16–20, 2:26–28, 8:66–9:2). In Patent Owner’s view, “Low is *silent* with respect to what, if anything, is displayed on the user device ‘such that the user is able to select one or more machines to purchase from.’” PO Sur-reply 4–5 (quoting Ex. 1005, 2:26–28). Patent Owner further argues that a machine identifier is only used by the user device to retrieve a menu of items available at the identified vending machine and Low does not describe displaying a machine identifier or other indication to the user. PO Resp. 6–8.

Patent Owner is correct that Low does not give a specific example of what is shown on the interface of the user device to allow the user to select a vending machine. *See, e.g.*, Ex. 1005, Fig. 4 (depicting a phone but not showing anything on its screen). Low, however, clearly discloses that the user selects a vending machine *using the user interface* that is shown on the user device. *See id.* at 2:25–28, 14:20–26 (“communicating the identification of the plurality of [NICMs] to the user device” and “receiving, from the user device, a selection of [one of the NICMs]”). Also, in the cited portion of Low pertaining to the use of machine identifiers to retrieve information about products available at the vending machine, Low describes the user device providing its location and the payment provider server responding with information about a plurality of nearby vending machines to inform the user. *Id.* at 8:64–9:10 (“[I]nformation may be transmitted in response to a request by user device 110 to view information related to a plurality of NICM[s] o[r] a specific NICM. . . . [P]ayment provider server 140 may receive a location of user device 110 and transmit information corresponding to a plurality of NICM[s] near user device 110. In various

embodiments, payment provider server 140 may include information in database 146 for transmission to user device 110 *to display to user 102.*” (emphasis added)), 9:18–21 (“[T]he user may utilize a user device to access payment provider server 140 and receive locations of available NICMs with lists of available products at each machine.”). A person of ordinary skill in the art would understand that such information would be displayed visually to the user on the user interface of the user device, as that is the mechanism through which the user interacts.

Next, Patent Owner argues that Low does not necessarily display a visual indication of a vending machine because there are scenarios that would not involve doing so. PO Resp. 9. Patent Owner contends that selecting a vending machine to purchase from “could be accomplished by displaying on the user device all the products available at the machines that transmitted a machine identifier.” *Id.* at 9–10 (citing Ex. 1005, 2:16–28; Ex. 2008 ¶ 47). In other words, “the user would only be presented with the *items* that can be purchased from the machines,” not indications of the machines themselves. *Id.* As support, Patent Owner points to Dr. Neuman’s testimony regarding Limitation [1.7] that “user device 110 is configured to display either (i) the available machines such that the user is able to interact with the display to select the one or more machines from which to make a purchase or (ii) products available at particular machines, whereby selecting the product(s) necessarily selects the available machine that offers the product(s).” *Id.* at 11 (emphasis omitted) (quoting Ex. 1003 ¶ 83).

We agree with Petitioner that Patent Owner’s example would produce “the non-sensical result of a user purchasing items from an unidentified vending machine, at an unknown location.” *See* Pet. Reply 4. Providing information only about available items—and not the machines themselves or

which items can be purchased from which machines—also conflicts with Low’s disclosure of “multiple” vending machines being available and the user selecting a particular one to purchase from. *See, e.g.*, Ex. 1005, 2:25–28, 8:61–9:21 (the user device can receive from the payment provider server “locations of available NICMs with lists of available products at *each* machine” (emphasis added)), 14:20–26. Further, Dr. Miller’s testimony regarding Limitation [1.7] pertains to the way in which the user makes a selection, not the information that is provided to the user so that he or she can do so. *See* Ex. 2008 ¶ 47. The portions of Low discussed above support Petitioner’s view that at least some information about the vending machines themselves, and not just the items available from them collectively, is communicated to the user device and displayed.

Patent Owner also relies on testimony from Dr. Miller that types of indications other than a visual indication may be provided to the user. PO Resp. 11–12 (citing Ex. 2008 ¶ 49). For instance, “once the user selects a product to purchase, an external cue, such as an audio indication, from the user device or the vending machine can indicate the machine from which the selected product will be dispensed,” or the user could “interact[] with the desired machine through direct contact of the mobile device to the selected machine, upon which the payment provider server may display a menu of the products available at the selected machine.” Ex. 2008 ¶ 49. We do not find these example scenarios consistent with the disclosure of Low. Low discloses that available NICMs may be identified via “directions, map coordinates, and/or . . . GPS location[s]” provided to the user device, not with an external cue like audio. Ex. 1005, 9:4–7, 9:16–23. And, although Low describes vending machine 120 as having a “keypad, touchscreen, display, or other selection means” for selecting a product, *id.* at 5:19–24, the

menu of items (from which the user selects using the user device in the disclosed system) is described as being displayed on the user device, not on the vending machine or payment provider server. *Id.* at 2:16–31, 9:8–11, 11:36–49.

Finally, Patent Owner attempts to distinguish *Acoustic Tech.*, 949 F.3d at 1373–74, because that case involved detailed analysis from an expert as to why a person of ordinary skill in the art would reasonably understand a reference to disclose complex radio communication technology, with no rebuttal testimony. PO Sur-reply 2–3. It is well-established, however, that a claim is anticipated “when ‘one skilled in the art would reasonably understand or infer from the prior art reference’s teaching that every claim [limitation] was disclosed in that single reference.’” *CRFD Research, Inc. v. Matal*, 876 F.3d 1330, 1338 (Fed Cir. 2017) (alteration in original) (citing *Akamai Techs., Inc. v. Cable & Wireless Internet Servs., Inc.*, 344 F.3d 1186, 1192–93 (Fed. Cir. 2003)). Here, the relevant limitation requiring display of a “visual indication” of a payment accepting unit is not complex, and Low’s disclosure of a user interface and how that interface is used to select a vending machine and products to purchase from the vending machine supports Petitioner’s view of how an ordinarily skilled artisan would understand the reference.

Petitioner’s explanation regarding Limitation [1.6], supported by the testimony of Dr. Neuman, which we credit, is persuasive. *See* Pet. 26–27; Ex. 1003 ¶¶ 81–82. Based on the full trial record, we find that an ordinarily skilled artisan would understand Low to disclose Limitation [1.6].

c) Conclusion

Based on all of the evidence of record, we determine that Petitioner has proven, by a preponderance of the evidence, that claim 1 is anticipated by Low under 35 U.S.C. § 102.

4. Independent Claims 13 and 15

Independent claim 13 is similar to claim 1, but recites a “mobile device” comprising memory storing one or more programs comprising instructions to perform the same steps as claim 1. Independent claim 15 similarly recites a “non-transitory computer readable storage medium” storing one or more programs comprising instructions that, when executed by a mobile device, perform the same steps as claim 1. Petitioner largely refers to its earlier arguments regarding claim 1. Pet. 39–46. Patent Owner does so as well. PO Resp. 12. We disagree with Patent Owner’s arguments regarding Limitation [1.6], which is identical to Limitations [13.9] and [15.5], for the reasons explained above. *See supra* Section II.E.3.b. In view of those reasons and in light of Petitioner’s arguments and supporting evidence, we determine that Petitioner has proven, by a preponderance of the evidence, that claims 13 and 15 also are anticipated by Low under 35 U.S.C. § 102. *See* Pet. 39–46; Ex. 1003 ¶¶ 131–151, 155–168.

5. Dependent Claims 2 and 16

Claim 2 recites that “the updated user interface of the mobile payment application includes at least one of: a message displayed on the display of the mobile device; a banner notification displayed on a display of the mobile device; and/or a visual alert from one or more LEDs of the mobile device.” Claim 16 depends from claim 15 and recites the same limitation.

Petitioner relies on Low's disclosure of "displaying a message to user 102 after purchasing a drink such as, 'Would you like chips with your drink.'" Pet. 33 (quoting Ex. 1005, 7:24–39) (emphasis omitted). Petitioner argues that a person of ordinary skill in the art "would understand that the message displayed to user 102 would be displayed on the user interface of the user device 110." *Id.* (citing Ex. 1003 ¶¶ 97–98). Patent Owner responds that Petitioner's argument is conclusory and the "Would you like chips with your drink" message could instead be "displayed on the vending machine itself." PO Resp. 13–14 (citing Ex. 2008 ¶¶ 53–54); PO Sur-reply 5–6. Patent Owner contends that Low discloses that "vending machine 120 may include a display capable of displaying information to the user." PO Resp. 14 (citing Ex. 1005, 2:40–41, 5:19–24, 12:52–62).

Given the full context in which the cited message is described, we agree with Petitioner. Low discloses that database 146 of payment provider server 140 may store "cross-promotional products and/or preferences for use in *upselling* products, for example, displaying a message *to user 102* after purchasing a drink such as, 'Would you like chips with your drink.'" Ex. 1005, 7:35–39 (emphasis added). Low also states that "[i]n some embodiments, the NICM, the payment provider, and/or the operator of the machine may send product details *to the user device* to *upsell* or advertise products available on the NICM." *Id.* at 2:20–23 (emphasis added). And, although Low's vending machine has a display, Low does not describe communication of information, such as for upselling products, from the payment provider server to the vending machine for display there. *See id.* at 4:59–62 ("Vending machine 120 does not have Internet connection with network 160, but does have capability of wireline or wireless communication with user device 110"), 5:22–24, Fig. 1 (showing

arrows for communication between payment provider server 140 and user device 110 over network 160, but no similar arrows between payment provider server 140 and vending machine 120). Therefore, we are persuaded that Low’s “Would you like chips with your drink” message would be displayed on the user device.

Petitioner has proven, by a preponderance of the evidence, that claims 2 and 16 are anticipated by Low under 35 U.S.C. § 102.

6. *Dependent Claims 3, 4, and 17*

Claim 3 recites that “the information indicates completion of the transaction between the user of the mobile device and the available payment accepting unit.” Petitioner argues that Low teaches that “payment provider server 140 includes generally a database 146, which ‘include[s] information associated with the *transaction* history processing’ described in Low.” Pet. 33 (quoting Ex. 1005, 7:22–24). According to Petitioner, a person of ordinary skill in the art “would understand this information indicates completion of a transaction (i.e., the transaction).” *Id.* (citing Ex. 1003 ¶¶ 100–102). Petitioner then again identifies “transaction history” as “information” that indicates completion of a transaction. *Id.* at 33–34.

Petitioner’s arguments, however, are inconsistent. Claim 3’s recitation of “the information” refers to the “information” exchanged between the mobile device and payment accepting unit, introduced in parent claim 1. *See ABS Global, Inc. v. Cytonome/St, LLC*, 84 F.4th 1034, 1040 (Fed. Cir. 2023) (“The use of the definite article, ‘the,’ means that the phrase ‘the sample stream’ refers back to earlier language as an antecedent.”). Limitation [1.10] recites “exchanging *information* with the available payment accepting unit via the one or more radio transceivers, in

conjunction with the transaction,” and Limitation [1.11] recites “after exchanging *the information*, displaying, on the display, an updated user interface of the mobile payment application to the user of the mobile device” (emphasis added). In its arguments for those limitations, Petitioner identifies as the recited “information” a payment approval sent from user device 110 to vending machine 120. Pet. 31–32. But in its arguments for claim 3, Petitioner points to transaction history data stored in database 146 of payment provider server 140. *Id.* at 33–34. Petitioner does not address this inconsistency or explain why the relied-upon “information” is the same. *See id.*; Pet. Reply 5–6.

Regardless, Petitioner does not show sufficiently that Low’s transaction history is exchanged between the user device and vending machine, as required by Limitation [1.10]. Dr. Neuman testifies that he understands Low’s disclosure of storing information about “transaction history processing” in database 146

to mean that the information associated with the transaction history indicates completion of one or more transactions. That is, the transaction history is a record of one or more completed transactions, and this information is exchanged between the user device 110 and the vending machine 120 and ultimately sent to the payment provider server 140 via the network 160. . . . Because Low describes a system with no direct connection between the vending machine 120 and the payment provider server 140, and instead only describes a connection between the user device 110 and the payment provider server 140, the “transaction history” information necessarily must be communicated from the user device 110 to the payment provider server 140.

Ex. 1003 ¶ 101 (citing Ex. 1005, 4:45–48, 7:22–24). Although the user device and vending machine communicate with each other in Low, Dr. Neuman never identifies any disclosure of information indicating

completion of a transaction being exchanged between the user device and vending machine and *then* being communicated to the payment provider server for storage in a database. *See* PO Resp. 16–17 & n.2.

We credit Dr. Miller’s testimony that a person of ordinary skill in the art instead would understand Low’s disclosure to mean that database 146 stores “a history of the payment provider’s processing of the transaction (*i.e.*, . . . a history of purchase requests received from the user device and approvals transmitted to the user device).” *See* Ex. 2008 ¶¶ 59–63. That view is consistent with Low’s description of the functionality of payment provider server 140. Again, Low discloses that “[d]atabase 146 may . . . include information associated with the transaction history processing *described herein*.” Ex. 1005, 7:22–24 (emphasis added). The next sentence states that “database 146 may be configured to interact with transaction processing application 142 on behalf of user 102 during a transaction with purchase application 112 to handle payments using account information corresponding to user 102.” *Id.* at 7:24–28. The purpose of transaction processing application 142 (in payment provider server 140) is to “receive” a payment request and “facilitate payment” for a product at vending machine 120. *Id.* at 6:51–67, 8:58–61, 9:24–61, 10:41–61, 11:56–12:8, Figs. 2 (steps 204 and 206), 3 (steps 306 and 308). Thus, the “transaction history processing” information stored in database 146 would simply be a record of the processing performed by payment provider server 140, *i.e.*, what

payment requests it received and what approvals it sent back. It does not originate at the vending machine or user device, as Petitioner contends.³

Claim 4 depends from claim 3. Claim 17 depends from claim 15 and recites the same “information” limitation as claim 4, and Petitioner refers to its earlier arguments for that claim. *See* Pet. 46. Accordingly, Petitioner has not proven, by a preponderance of the evidence, that claims 3, 4, and 17 are anticipated by Low under 35 U.S.C. § 102.

7. Dependent Claims 5, 6, 18, and 19

Claim 5 recites that “the information indicates *abortion* of the transaction initiated by the user of the mobile device” (emphasis added). Claim 6 similarly recites that “the information indicates *failure* of the transaction initiated by the user of the mobile device or a malfunction associated with the available payment accepting unit” (emphasis added). Petitioner points to Low’s disclosure that “the user device transmits the purchase request to a server for approval,” which “may determine if there are any restrictions and/or limitations corresponding to the user account and may take appropriate actions as desired.” Pet. 35–36 (quoting Ex. 1005, 10:41–54). Petitioner argues that a person of ordinary skill in the art “would understand that Low’s disclosure of a server determining whether there are

³ Petitioner also cites Dr. Miller’s testimony that the vending machine and payment provider server do not communicate with each other “directly,” but only through the user device. Pet. Reply 6 (citing Ex. 1031, 128:4–129:17). However, that does not support Petitioner’s theory that information indicating “completion” of a transaction would first be exchanged between the vending machine and user device and then be communicated from the user device to the payment provider server for storage in a database. *See* Pet. 33–34; Ex. 1003 ¶ 101.

any restrictions and/or limitations, including whether there are adequate funds for the transaction, encompasses a scenario where the transaction is aborted [or fails] (e.g., because of a restriction and/or limitation on the user account or inadequate funds).” *Id.* (citing Ex. 1003 ¶¶ 108–117). According to Petitioner, the user device transmitting information indicating abortion or failure of the transaction (i.e., taking “appropriate actions”) is similar to the user device transmitting a “payment authorization” to the vending machine, as Low discloses. *Id.*

Patent Owner responds that Petitioner’s arguments are “speculative” and lack support in Low. PO Resp. 20; PO Sur-reply 8–9. Relying on testimony from Dr. Miller, Patent Owner contends that a person of ordinary skill in the art would understand the “appropriate actions” in Low to potentially include “informing the user of the restriction or limitation (e.g., informing the user that there are inadequate funds), at which point, the user can walk away from the vending machine.” PO Resp. 20–21 (citing Ex. 2008 ¶¶ 69–74). In that situation, no information would be exchanged between the user device and vending machine indicating “abortion” or “failure” of the transaction. *Id.*

Low discloses that user device 110 transmits a “purchase request” to payment provider server 140 “for approval.” Ex. 1005, 9:24–28, 10:41–44, 11:56–58, Fig. 2 (step 204), Fig. 3 (step 306). Transaction processing application 142 of payment provider server 140 “processes” the request by, for example, “checking for adequate funds and charging the [user’s] account/funding card.” *Id.* at 9:28–35, 10:44–51, 11:64–66. If approved, payment provider server 140 transmits an “approval” including “payment authorization” to user device 110, which in turn sends the “approval” to vending machine 120 for dispensing the product. *Id.* at 2:34–37, 9:39–61,

10:55–61, 12:2–12, Fig. 2 (step 206), Fig. 3 (step 308). Importantly, in describing those steps, Low also states that “transaction processing application 142 may determine if there are any restrictions and/or limitations corresponding to the user account and may take *appropriate actions* as desired.” *Id.* at 9:35–38, 10:51–54 (emphasis added), 11:66–12:2. Low, therefore, acknowledges the possibility that a purchase request can be approved or denied.

Given Low’s disclosure of transmitting an *approval* (e.g., if there are sufficient funds available) from the payment provider server to the user device to the vending machine, we are persuaded that a person of ordinary skill in the art would understand Low’s “appropriate actions” to include transmitting a *denial* in the same manner (e.g., if a restriction or limitation on the user’s account is not satisfied, or if there are inadequate funds). In the latter case, the transmitted information would indicate “abortion” or “failure” of the transaction. *See* Pet. 35–36; Pet. Reply 7; Ex. 1003 ¶¶ 108–117. Indeed, Dr. Miller agreed that Low’s reference to taking “appropriate actions” means the transaction processing application “approve[d] the purchase request” and “it may also be able to deny the purchase request.” Ex. 1031, 133:7–18.

Claims 18 and 19 depend from claim 15 and recite the same “abortion” and “failure” limitations as claims 5 and 6. Petitioner refers to its earlier arguments for each claim. *See* Pet. 46. Petitioner has proven, by a preponderance of the evidence, that claims 5, 6, 18, and 19 are anticipated by Low under 35 U.S.C. § 102.

8. *Dependent Claim 10*

Claim 10 recites that “the user interface of the mobile payment application, after establishing the wireless communication path, indicates that the wireless communication path has been established with the available payment accepting unit.” Petitioner points to Low’s disclosure that “[i]nventory data 154 may be received from vending machine 120, for example using an Internet connection of user device 110 after a short-range communication link is established between user device 110 and vending machine 120,” and the inventory data “may be utilized with user device 110 to display to user 102.” Pet. 38 (quoting Ex. 1005, 5:41–42, 8:24–28). Petitioner argues that a person of ordinary skill in the art would understand that user device 110 receiving and displaying inventory data 154 “indicates that the wireless communication path has been established with the vending machine 120, as the inventory data 154 could not be received unless the wireless communication path had successfully been established.” *Id.* (citing Ex. 1003 ¶¶ 124–127). Therefore, according to Petitioner, Low discloses that the user device, after establishing a wireless communication path, indicates that the path has been established “by displaying the inventory data [for the selected vending machine] on the user device.” *Id.*

Patent Owner responds that Petitioner’s characterization that the inventory data “could not be received unless the wireless communication path had successfully been established” is incorrect because the inventory data instead “can be transmitted [from the payment provider server] to the user device even in instances where the user device is *not* in communication range with the vending machine.” PO Resp. 22–24 (citing Ex. 1005, 2:16–20, 9:8–11, 9:18–23, 9:62–65; Ex. 2008 ¶¶ 80–84).

Low expressly states that “[i]nventory data 154 may be received [by user device 110] from vending machine 120, for example using an Internet connection of user device 110 *after* a short range communication link is established between user device 110 and vending machine 120.” Ex. 1005, 8:24–28 (emphasis added). In that scenario, the inventory data is received over the short-range communication link after it is established. *See id.* Dr. Miller agreed. Ex. 1031, 137:16–25. Low also discloses inventory data being displayed on user device 110. *See, e.g.*, Ex. 1005, 5:41–43, 8:31–33. The fact that Low *also* discloses another way for the user device to receive information (i.e., receiving “lists of available products” from the payment provider server) does not negate the other disclosure. *See* PO Resp. 23 (quoting Ex. 1005, 9:18–21); Pet. Reply 8; *Hewlett-Packard Co. v. Mustek Sys., Inc.*, 340 F.3d 1314, 1324 n.6 (Fed. Cir. 2003) (“The anticipation analysis asks solely whether the prior art reference discloses and enables the claimed invention, and not . . . whether alternatives are also disclosed.”).⁴

⁴ We disagree with Patent Owner that Petitioner raised an improper new argument in its Reply. *See* PO Sur-reply 10. Petitioner in the Petition argued that a person of ordinary skill in the art would understand Low’s disclosure of sending inventory data to the user device over the communication link after it is established, and display of that information on the user device, to indicate that the communication link had in fact been established, as required by claim 10. Pet. 38; *see* Ex. 1003 ¶¶ 124–127. Petitioner relies on the same communication from the vending machine to the user device in the Reply. *See* Pet. Reply 8; *Chamberlain Group, Inc. v. One World Techs., Inc.*, 944 F.3d 919, 924–25 (Fed. Cir. 2019) (“Parties are not barred from elaborating on their arguments on issues previously raised.”); *Ericsson Inc. v. Intellectual Ventures I LLC*, 901 F.3d 1374, 1381 (Fed. Cir. 2018) (determining that a reply argument was proper where it “cite[d] no new evidence and merely expand[ed] on a previously argued rationale”).

Petitioner has proven, by a preponderance of the evidence, that claim 10 is anticipated by Low under 35 U.S.C. § 102.

9. Dependent Claims 8, 12, 14, and 20

Patent Owner does not argue dependent claims 8, 12, 14, and 20 separately from their respective parent claims 1, 13, and 15. PO Resp. 12–13. We disagree with Patent Owner’s arguments regarding parent claims 1, 13, and 15 for the reasons explained above. *See supra* Sections II.E.3–4. We have reviewed Petitioner’s contentions and supporting evidence, including the testimony of Dr. Neuman, and determine that Petitioner has proven, by a preponderance of the evidence, that claims 8, 12, 14, and 20 are anticipated by Low under 35 U.S.C. § 102, for the reasons stated by Petitioner. *See* Pet. 36–39, 42, 47; Ex. 1003 ¶¶ 118–123, 128–130, 152–154, 187–189.

F. Alleged Obviousness Based on Low and Arora (Claims 7 and 9)

1. Legal Standards

A claim is unpatentable for obviousness if, to one of ordinary skill in the pertinent art, “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103; *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 “the scope and content of the prior art”; “differences between the prior art and the claims at issue”; and “the level of ordinary skill in the pertinent art.” *Graham v. John Deere Co.*, 383 U.S. 1,

17–18 (1966). Additionally, objective indicia of nonobviousness, such as “commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.”⁵ *Id.* When conducting an obviousness analysis, we consider a prior art reference “not only for what it expressly teaches, but also for what it fairly suggests.” *Bradium Techs. LLC v. Iancu*, 923 F.3d 1032, 1049 (Fed. Cir. 2019).

A patent claim “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. An obviousness determination based on a combination of references requires finding “both ‘that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.’” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367–68 (Fed. Cir. 2016) (quoting *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1360 (Fed. Cir. 2012)); see *KSR*, 550 U.S. at 418 (for an obviousness analysis, “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”).

“Although the *KSR* test is flexible, the Board ‘must still be careful not to allow hindsight reconstruction of references . . . without any explanation as to *how* or *why* the references would be combined to produce the claimed

⁵ Patent Owner does not present any evidence of objective indicia of nonobviousness in this proceeding.

invention.”” *TriVascular, Inc. v. Samuels*, 812 F.3d 1056, 1066 (Fed. Cir. 2016) (alteration in original) (quoting *Kinetic Concepts*, 688 F.3d at 1368). Further, an assertion of obviousness “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR*, 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)); accord *In re NuVasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (stating that “conclusory statements” amount to an “insufficient articulation[] of motivation to combine”; “instead, the finding must be supported by a ‘reasoned explanation’” (quoting *In re Lee*, 277 F.3d 1338, 1342 (Fed. Cir. 2002))); *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (“To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.”).

2. *Arora*

Arora is titled “Method and System of Personal Vending.” Ex. 1006, code (54).

Figure 1 of Arora is reproduced below.

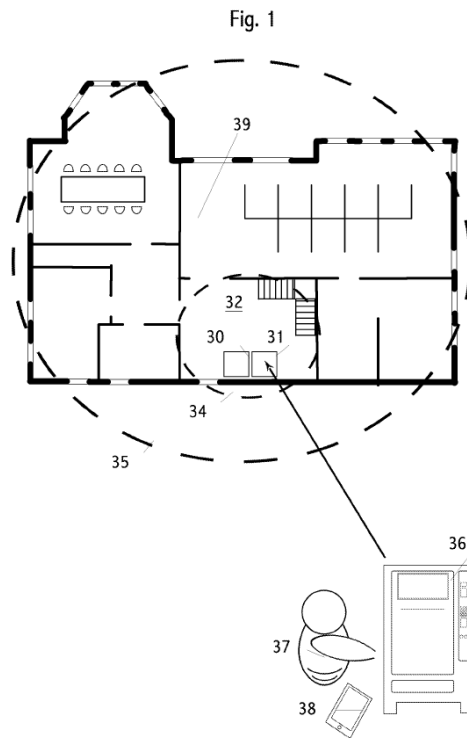


Figure 1 depicts an exemplary system configured as two vending machines 30 and 31 on the floor of a private company, with two transaction distances. *Id.* at 11:44–46, 12:34–40. Dashed line 34 shows a “within sight” distance in which a user can directly see at least one of vending machines 30, 31. *Id.* at 12:54–57. Dashed line 35 shows a “potential buyer” distance in which a user is within a predetermined distance, such as 200 feet. *Id.* at 12:57–13:5.

Arora's Figure 6 is reproduced below.

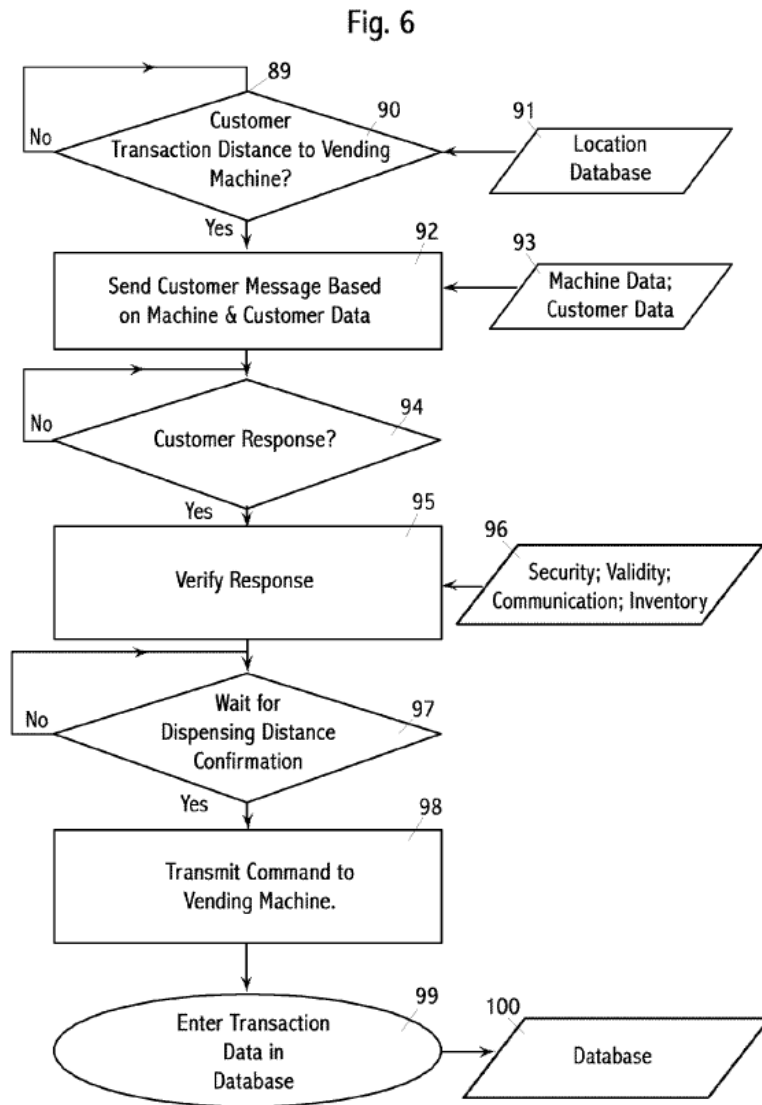


Figure 6 depicts a flowchart illustrating the steps a customer follows to purchase a product. Ex. 1006, 11:54, 18:37–39. The flowchart starts at step 89. *Id.* at 18:39. At step 90, the flowchart determines whether a customer is within a particular transaction distance of the vending machine using a vending machine location database. *Id.* at 18:39–42. Technologies, such as GPS, cellular geolocation, and inertial guidance, may be used to determine a customer's location. *Id.* at 13:28–35. "Inertial guidance may use an accelerometer and other sensors" in the customer's device. *Id.* at

13:34–35. “When the customer [is] within the transaction distance, in step 92 a message appropriate to the potential transaction is sent to the customer.” *Id.* at 18:44–47. Then in step 94 the flowchart waits for a customer response, and if no response is received within a timeout period, the flowchart returns to the start at step 89. *Id.* at 18:53–55.

If a response is received, the flowchart continues to steps 95, 97, 98, and 99 to conduct the transaction. Ex. 1006, 18:56–19:6. At step 95, the validity of the response is verified by, for example, whether it falls within predetermined bounds “such as time, location, product type or price.” *Id.* at 18:56–65. After validity is confirmed, the vending machine dispenses the product (step 98) when the user is confirmed to be in the dispensing distance (step 97) and the transaction is recorded in a database (step 99). *Id.* at 18:67–19:6.

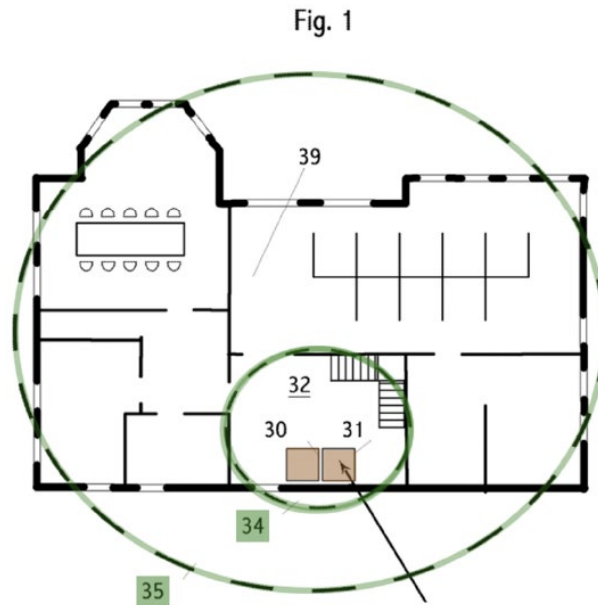
3. *Claim 7*

Claim 7 recites that “the mobile device includes an accelerometer” and the method further comprises:

based on data from the accelerometer, determining whether the user is walking away from the available payment accepting unit; and

in accordance with a determination that the user is walking away from the available payment accepting unit, canceling the wireless communication path.

Petitioner relies on Arora for the limitations of claim 7, providing the following annotated version of a portion of Figure 1 (Pet. 52):



The annotated figure depicts vending machines 30 and 31 (brown) and two transaction distances (green): “within sight” distance 34 and “potential buyer” distance 35. *Id.* at 51–52 (citing Ex. 1006, 12:34–13:5). Petitioner cites Arora’s disclosure of a personal electronic device with an accelerometer and determining the location of the customer through “inertial guidance” using the accelerometer. *Id.* at 52 (citing Ex. 1006, 13:28–35).

Petitioner argues that

[b]ecause Arora describes determining the location and trajectory of the user device through “inertial guidance,” including whether the user is walking away from the vending machine, a [person of ordinary skill in the art] would have found it obvious to cancel the communication link between Low’s user device and vending machine if the inertial guidance indicated that the user was walking away from the vending machine to, among other things, conserve resources.

Pet. 52–53 (citing Ex. 1003 ¶¶ 211–219). Petitioner further contends that an ordinarily skilled artisan “would understand that because Arora determines

the customer is exiting the transaction distance based on data from the accelerometer, then Arora teaches cancelling the wireless communication path between the personal electronic device and the vending machine.” *Id.* at 47–48. Petitioner provides various reasons as to why a person of ordinary skill in the art would have been motivated to modify Low’s system based on Arora, including that (1) Arora teaches a “finite number of approaches to determining a customer’s location”; (2) connections should not remain active when not needed to preserve resources, so it would be desirable to cancel a connection when “data from the accelerometer indicated that the user was departing the range of near field communication”; and (3) canceling a connection when the user is walking away from a vending machine “would have been a simple modification to the system of Low to conserve resources.” *Id.* at 48–51 (citing Ex. 1003 ¶¶ 196–202, 205–207).

Patent Owner argues that Petitioner has not shown that Arora teaches “based on data from [an] accelerometer, determining whether the user is walking away from the available payment accepting unit.” PO Resp. 25–26 (emphasis omitted, alteration in original) (citing Ex. 2008 ¶¶ 86–93). Patent Owner contends that Arora only describes the use of an accelerometer to determine a user’s distance from a vending machine and whether that distance falls within a set distance. *Id.* Arora, therefore, does not describe using an accelerometer to determine whether the user is “walking away” from the vending machine. *Id.*

We agree with Patent Owner. Arora discloses “[d]etermining customer 17 location [using] one or more technologies,” such as GPS, cellular geolocation, vision-based location determination, manual location entry, or “inertial guidance,” which “may use an accelerometer and other sensors in the customer 17’s personal electronic device 18.” Ex. 1006,

13:28–35. Arora “determine[s] whether or not a customer is within a particular transaction distance of a particular vending machine or vending group.” *Id.* at 18:39–42, Fig. 6 (step 90). The reference describes various exemplary distances away from a vending machine: “dispensing” distance, “identification” distance, “within sight” distance, and “potential buyer” distance (i.e., the customer is “within a predetermined range” of the machine). *Id.* at 12:41–13:5, Fig. 1. In the context of Figure 6, a “message appropriate to the potential transaction is sent to the customer” when the customer is within the “transaction distance” (step 92), then the system “waits for a customer response” (step 94), checks again whether the customer is within the “transaction distance” if “no response is received within a timeout period” or, if the customer does respond, waits until the customer is within a “dispensing distance” (step 97). *Id.* at 18:44–19:4.

Arora, therefore, periodically determines a customer’s distance from a vending machine to determine whether that distance is within a predetermined range. Petitioner does not point to any description in Arora of using an accelerometer to determine how a customer is moving relative to the vending machine or, specifically, making a determination as to whether the customer is “walking away” from the vending machine. We credit the testimony of Dr. Miller in that regard, as it is consistent with the language of Arora discussed above. *See* Ex. 2008 ¶¶ 88–90.

We also note that Dr. Neuman relies on the following passage of Arora:

When a timely response has been received, step 95 [in Figure 6] verifies the validity of the response. There are many ways to verify validity, as those trained in the art know. For example, the message may be encrypted; contain a password; contain a communications checksum or hash; fall within predetermined

bounds such as *time*, *location*, product type or price; use a secure element within a personal electronic device; use a third party to determine validity or any combination of these or other means.

Ex. 1006, 18:56–64 (emphasis added); *see* Ex. 1003 ¶¶ 215–216.

Dr. Neuman testifies that “[g]iven Arora’s prior teachings of determining customer location through inertial guidance, the verification of the message through predetermined bounds such as time and location clearly encompasses determining whether the customer is walking away from the machine.” Ex. 1003 ¶ 216. The passage of Arora above discloses determining whether a “time, location, product type or price” is within “predetermined bounds” to verify the customer’s response. Ex. 1006, 18:56–64. In other words, the system compares the customer’s “location” to a predetermined distance (or the current “time” to a predetermined time period, such as business hours). The cited passage does not support Petitioner’s contention that Arora determines whether the customer is “walking away” from the vending machine. We again credit the testimony of Dr. Miller over that of Dr. Neuman, as Dr. Miller’s explanation is consistent with the disclosure of Arora. *See* Ex. 2008 ¶¶ 91–93.

Petitioner’s arguments regarding the combination of Arora with Low also do not remedy Petitioner’s deficient showing. *See* Pet. 47–51; Ex. 1003 ¶¶ 196–202, 205–207. Claim 7 requires a determination as to “whether the user is walking away from the available payment accepting unit” “based on data from [an] accelerometer” and, “in accordance with a determination that the user is walking away from the available payment accepting unit, canceling the wireless communication path.” Petitioner and Dr. Neuman explain why a person of ordinary skill in the art allegedly would have been motivated to modify Low to cancel its connection to conserve resources, but

do not point to any description in Arora of determining whether a user is “walking away” from a payment accepting unit (as opposed to just periodically determining location) or explain why making such a determination would have been obvious. *See id.*

Finally, Petitioner argues in its Reply that because Arora determines whether a customer is within a transaction distance of a vending machine, “Arora determines the location of a customer at two different points, and, in situations where the second point is further from the vending machine than the first point,” the customer would be walking away from the vending machine. Pet. Reply 8–10 (citing Ex. 1006, 12:41–13:46, 18:37–42, and including an annotated version of Arora’s Figure 1 showing a customer in “within sight” distance 34 and then “potential buyer” distance 35). We are not persuaded. Again, Arora only discloses periodically determining a customer’s distance from the vending machine and then taking certain actions if that distance is less than a predetermined threshold. *See* Ex. 1006, 18:37–19:5, Fig. 6. Arora says nothing about determining the *direction* a customer is walking relative to the vending machine or, specifically, whether a customer is walking away from the machine. *See* PO Sur-reply 11–12.

Petitioner has not shown sufficiently that Low and Arora teach or suggest “based on data from the accelerometer, determining whether the user is walking away from the available payment accepting unit; and in accordance with a determination that the user is walking away from the available payment accepting unit, canceling the wireless communication path,” as recited in claim 7.⁶ Accordingly, Petitioner has not proven, by a

⁶ Given this determination, we need not address Patent Owner’s additional arguments regarding claim 7. *See* PO Resp. 27; PO Sur-reply 12–13.

preponderance of the evidence, that claim 7 would have been obvious based on Low and Arora under 35 U.S.C. § 103.

4. *Claim 9*

Claim 9 depends from claim 1 and recites “in addition to exchanging the information, receiving, via the one or more radio transceivers, a coupon that is targeted to the user of the mobile device based on the transaction.” Petitioner relies on a combination with Arora, which discloses coupon 51 received and shown on a user interface (i.e., personal electronic device screen 40). Pet. 48, 53–55 (citing Ex. 1006, 5:35–38, 13:47–14:16, Fig. 3; Ex. 1003 ¶¶ 194–195, 220–223). Petitioner further contends that the use of coupons was well-known to “incentivize potential consumers to conduct a transaction” and a person of ordinary skill in the art would have been motivated to modify Low’s system to “include a coupon that is targeted to the user based on the transaction, as taught by Arora, for example, to create an incentive for the user to conduct a transaction, to reward the user for loyalty, or to try to sell certain products that are high in stock or about to expire, etc.” *Id.* at 49–51 (citing Ex. 1003 ¶¶ 203–204, 208–210). Patent Owner does not argue claim 9 separately in its Response, relying only on its arguments for parent claim 1, which we disagree with for the reasons explained above. *See* PO Resp. 24; *supra* Section II.E.3. We have reviewed Petitioner’s contentions and supporting evidence, including the testimony of Dr. Neuman, and determine that Petitioner has proven, by a preponderance of the evidence, that claim 9 would have been obvious based on Low and Arora under 35 U.S.C. § 103, for the reasons stated by Petitioner. *See* Pet. 48–51, 53–55; Ex. 1003 ¶¶ 203–204, 208–210, 220–223.

*G. Alleged Obviousness Based on Low, Arora, Freeny, and Casey
(Claim 11)*

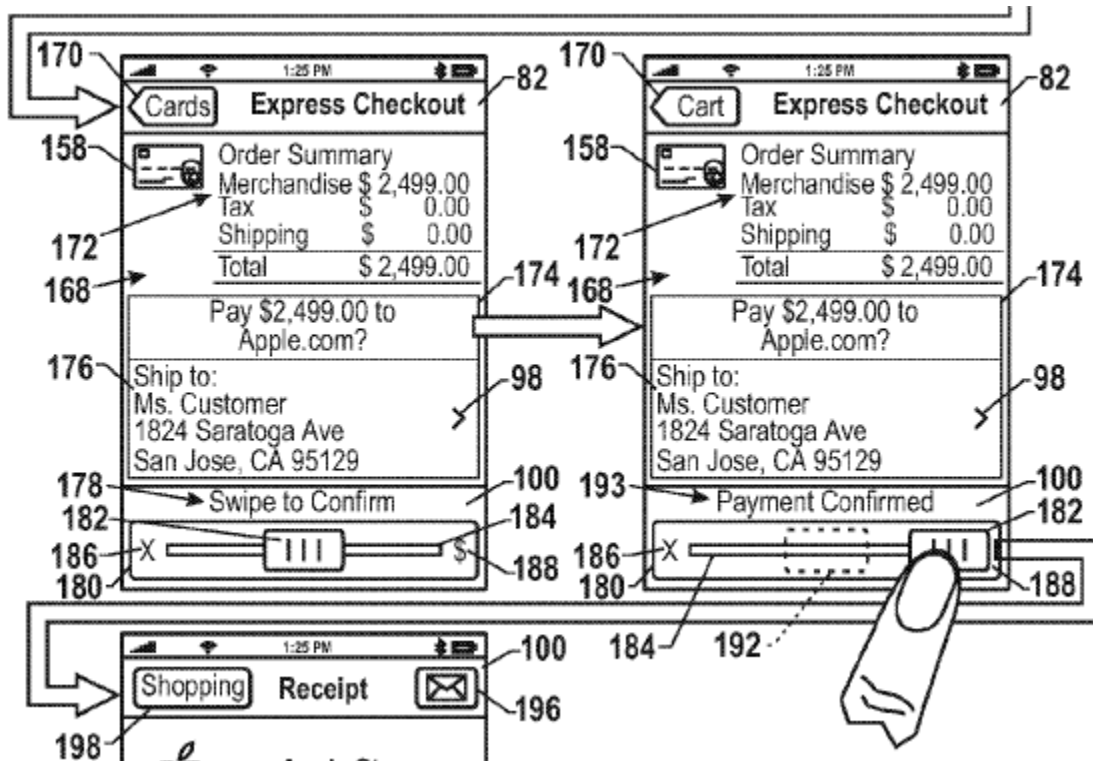
1. Freeny

Freeny is titled “Communication and Proximity Authorization Systems.” Ex. 1007, code (54). Freeny describes how a customer’s wireless device (e.g., a digital phone) may require fingerprint or video authorization to perform various control functions such as “control[ling] a customer bank balance request after the customer is connected to their bank.” *Id.* at 9:15–35. Freeny additionally provides a “proximity authorization unit [that] can operate just like a smart card with the approved credit amount stored in the proximity authorization unit,” wherein “the amount can be checked at any time by the user . . . by accessing his account.” *Id.* at 37:58–38:14.

2. Casey

Casey is titled “Motion Based Payment Confirmation.” Ex. 1008, code (54). Casey discloses an electronic device having a graphical user interface with “one or more graphical elements that may be moved by a user to confirm or decline a payment transaction.” *Id.* at code (57).

An excerpt of Casey's Figure 5 is reproduced below.



Excerpted Figure 5 shows two views of confirmation screen 168, illustrating confirmation of an online shopping payment. Ex. 1008, 2:33–35, 13:24–26. Confirmation screen 168 includes order summary section 172 and display window 174 with selection bar 176 displaying shipping information. *Id.* at 13:16–35. Display window 174 also includes “a prompt asking a user to confirm the payment transaction.” *Id.* at 13:36–37.

Instructions 178 located in the lower summary bar 100 may prompt the user to move a graphical element 180 to confirm the payment transaction. The depicted graphical element 180 includes a slide bar 182 that may be moved to the right or to the left using the touch screen 54 (FIG. 2). The slide bar 182 may slide along a track 184 between a decline position 186 and confirmation position 188. Specifically, a user may drag the slide bar to the left to the decline position 186 to decline the payment or the user may drag the slide bar 182 to the right to the confirmation position 188 to confirm the payment transaction.

Id. at 13:41–51.

3. *Claim 11*

Claim 11 depends from claim 1 and recites that

the user interface of the mobile payment application, after establishing the wireless communication path, includes:

a visual representation of the available payment accepting unit;

an indication of a prepaid balance; and

an affordance that when slid, indicates the initiation of the transaction;

wherein the affordance is slid in response to receiving a user input of swipe on the affordance displayed on the display of the mobile device.

As to the “visual representation” limitation, Petitioner argues that Low teaches a user selecting one or more vending machines to purchase from but “does not explicitly disclose” that its user interface shows a “visual representation” of a vending machine. Pet. 55–56, 64–65. Accordingly, Petitioner relies on Figure 3 of Arora, which depicts an exemplary screen on a personal electronic device showing two icons for vending machines⁴¹ and 42. *Id.* at 55–56, 65–66 (citing Ex. 1006, 13:47–54, Fig. 3).

As to the “prepaid balance” limitation, Petitioner similarly argues that Low’s description of the user device requesting funding source information “strongly implies that the user interface includes an indication of a prepaid balance” but “does not explicitly disclose” the limitation. Pet. 56, 67–68. Accordingly, Petitioner relies on Freeny, which teaches “displaying an approved credit amount and credit balance” at the user’s request. *Id.* at 56, 68 (citing Ex. 1007, 9:32–35, 38:3–5).

Petitioner provides various reasons as to why a person of ordinary skill in the art would have been motivated to modify Low’s system based on Arora and Freeny, including that (1) providing a visual representation of an

available vending machine in Low would make its user interface “more ‘convenient’” to the user and would have been a simple combination of elements yielding predictable results, and (2) showing an indication of a prepaid balance also would have made Low’s user interface “more ‘convenient’” because it would provide information to the user and “allow the user to make informed purchasing decisions.” Pet. 57–62.

Patent Owner does not dispute Petitioner’s arguments regarding the “visual representation” and “prepaid balance” limitations of claim 11, or the combination with Arora and Freeny. *See* PO Resp. 27–32. Petitioner’s arguments, supported by the testimony of Dr. Neuman, are persuasive. *See* Pet. 55–68; Ex. 1003 ¶¶ 225–231, 234–245, 249–258, 262–279.

Turning to the “affordance” limitations, which are disputed, Petitioner first cites Low’s disclosure that the “user selects a payment button or option on the user device, which communicates the payment request to a payment provider,” and the payment provider then approves the request and returns a purchase authorization, which the user device communicates to the vending machine to receive the product. Pet. 69–70 (quoting Ex. 1005, 2:46–49; citing Ex. 1005, 2:49–62; Ex. 1003 ¶¶ 280–286). Petitioner argues that, to the extent Patent Owner’s position is that pressing a “Pay” button without sliding an affordance meets the limitations, Low teaches such an action. *Id.* (citing Ex. 1005, 2:46–49 (“the user selects a payment button or option on the user device”), 12:39–46). Petitioner further contends that selecting a payment button or option “indicates initiation of the transaction” as recited because it causes the “‘communicat[ion of] the payment request to a payment provider,’ resulting in the purchased item(s) being dispensed.” *Id.* at 70.

Again, though, Petitioner acknowledges that Low “does not explicitly disclose” sliding an “affordance,” so Petitioner relies on Casey, which teaches a user sliding slide bar 182 (shown in Figure 5 above) to the right to confirm a payment transaction. Pet. 56–57, 70–71 (citing Ex. 1008, 13:44–51, Fig. 5). Petitioner provides various reasons as to why a person of ordinary skill in the art would have been motivated to replace Low’s payment button with Casey’s slide bar interface, including that an ordinarily skilled artisan “would understand that the user interface of Low can include any suitable graphical user interface elements responsive to any suitable user inputs, such as taps, swipes, or other gestures,” and dragging a slide bar is “one of a finite number of identified, predictable solutions, with a reasonable expectation of success.” *Id.* at 62–64 (citing Ex. 1003 ¶¶ 259–264).

Patent Owner responds that Low describes a payment button “in relation to a different embodiment, separate from the embodiment the [P]etitioner relies on as disclosing other limitations recited in claim 1,” and “Petitioner conflates the two embodiments without acknowledging their differences or proposing to combine them.” PO Resp. 27–32 (citing Ex. 2008 ¶¶ 97–105). Patent Owner contends that Low describes a “first embodiment” in which (1) the user device receives a list of products, (2) the user selects one with the user device, (3) the user device sends a purchase request to the payment provider, (4) the payment provider processes the request and returns an approval, and (5) the user device communicates that approval to the vending machine. *Id.* at 28–29 (citing Ex. 1005, 2:16–20, 2:29–37, 4:2–5). In an “alternative” embodiment, however, “the user uses the vending machine itself to select a product,” where (1) the user device transmits a user identifier to the vending machine for display, (2) the user selects a product to purchase during that display, (3) the vending machine

transmits a purchase request to the user device for display, (4) the user selects a *payment button* if the information is correct, (5) the user device sends a purchase request to the payment provider, (6) the payment provider processes the request and returns an approval, and (7) the user device communicates that approval to the vending machine. *Id.* at 29–30 (citing Ex. 1005, 2:38–62, 4:5–13, 6:3–8). Patent Owner argues that Petitioner relies on the first embodiment for most limitations of claim 1, but relies on the alternative embodiment for the “affordance” limitations. *Id.* at 30–32. According to Patent Owner and Dr. Miller, “Low only describes the use of a payment button in relation to embodiments where the user selects the product using the vending machine, not in relation to embodiments where the user uses the *user device* to view and select products.” *Id.* at 32; *see* Ex. 2008 ¶ 104.

We disagree with Patent Owner’s arguments, as they overlook important aspects of Low’s disclosure. Low expressly states that “[w]here applicable, the ordering of various steps described herein may be changed, combined into composite steps, and/or separated into sub-steps to provide features described herein.” Ex. 1005, 13:60–64. Low also broadly discloses that the user device has an “input/output (I/O) component 504 that processes a user action, such as selecting keys from a keypad/keyboard, selecting one or more *buttons* or links, etc.” *Id.* at 12:42–46 (emphasis added). Therefore, Low would have suggested to a person of ordinary skill in the art including the step of selecting a payment button in other contexts. *See* Pet. Reply 12.⁷

⁷ We disagree with Patent Owner that Petitioner raised an improper new argument in its Reply. *See* PO Sur-reply 13–14. Petitioner’s theory as to how the combination of Low and Casey teaches the “affordance” limitations

Further, even if Low describes two distinct embodiments as Patent Owner contends, the payment functionality is identical for both. Low describes “various embodiments” in which a “consumer device, such as a smart phone or computing tablet, communicates with a non-Internet connected unmanned device/machine via wireless communication . . . *for making a payment to the device utilizing a payment provider.*” Ex. 1005, 2:11–16 (emphasis added). Low is focused on the process for paying for a selected item at the vending machine, via communication with a payment provider. *See id.* at 2:11–62.

Regardless of whether that selection takes place on the user device or the vending machine, the payment functionality is the same. *See* Pet. Reply 12. To illustrate with the description of Patent Owner’s arguments above, in the first embodiment, (2) the user selects a product with the user device, and (3) the user device sends a purchase request for that product to the payment provider. In the alternative embodiment, (2) the user selects a product, and (5) the user device sends a purchase request for that product to the payment provider. The only difference is that for the alternative embodiment, transmission of the purchase request is initiated by (4) the user selecting the payment button, whereas for the first embodiment, transmission is initiated by the selection itself. *See* Ex. 1005, 2:29–31 (“The user may . . . add

did not change. *See* Pet. 56–57, 62–64, 69–71; Pet. Reply 12. Petitioner merely responded to Patent Owner’s argument that Petitioner was improperly relying on different embodiments of Low. *See* 37 C.F.R. § 42.23(b) (“A reply may only respond to arguments raised in the corresponding . . . patent owner response”); *Corephotonics, Ltd. v. Apple Inc.*, 84 F.4th 990, 1008 (Fed. Cir. 2023) (“[T]he arguments and evidence in the reply must not be part of a *new* theory of unpatentability [and] the arguments and evidence in the reply must be *responsive* to the patent owner’s contentions or the Board’s institution decision.”).

desired item(s) from one or more machines to a cart and make the purchase through a payment provider.”), 2:46–49 (“The user device displays the purchase request and, if the information is correct, the user selects a payment button or option on the user device, which communicates the payment request to a payment provider.”), 9:24–26, 11:56–58, Figs. 2 (step 204), 3 (step 304). Low describes selection being accomplished either way (via the user device or the vending machine) and discusses them together:

The purchase request may be received after a user utilizes user device 110 *and/or* vending machine 120 to select at least one product of products 124 for purchase. For example, user 102 may utilize user device 110 to view and select a product while user device 110 is in communication with electronic payment module 130. In another embodiment, user 102 may also utilize product dispensing module 122 [of vending machine 120] to select a product to purchase and electronic payment module may transmit the product information, such as a product name, product price, product code, a machine identifier, and/or a transaction number to user device 110.

Id. at 10:23–34 (emphasis added). Therefore, we disagree that a person of ordinary skill in the art would have read Low’s disclosure as narrowly as Patent Owner contends.

Finally, Petitioner’s obviousness ground is premised on the combined teachings of Low and Casey, where Low’s “payment button” or other “option” on the user interface is replaced with Casey’s slide bar interface. Pet. 56–57, 62–64, 69–71. Patent Owner solely disputes the starting point of Low, and does not account for what the references together would have suggested to a person of ordinary skill in the art. *See* PO Resp. 27–32; PO Sur-reply 13–15; *KSR*, 550 U.S. at 418–420 (holding that it is often necessary to “look to interrelated teachings of multiple patents” to determine whether there was a reason to combine known elements in the manner

claimed, as “in many cases a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle”);

In re Mouttet, 686 F.3d 1322, 1332–33 (Fed. Cir. 2012) (“It is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements. . . . Rather, the test for obviousness is what the combined teachings of the references would have suggested to those having ordinary skill in the art.”).

Petitioner has proven, by a preponderance of the evidence, that claim 11 would have been obvious based on Low, Arora, Freeny, and Casey under 35 U.S.C. § 103.

H. Alleged Ineligibility Under 35 U.S.C. § 101

Petitioner asserts claims 1–20 of the ’423 patent are unpatentable under 35 U.S.C. § 101 as lacking statutory subject matter. *See* Pet. 6, 72–92. Patent Owner disagrees. *See* PO Resp. 32–57. We conclude Petitioner has demonstrated the unpatentability of claims 1–6 and 8–20, but not claim 7, in this ground as follows.

1. Legal Standards

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. The Supreme Court has interpreted § 101 to include implicit exceptions, including abstract ideas, which are not patentable. *E.g.*, *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).

In determining statutory eligibility under § 101, we are guided by the Supreme Court’s two-step framework described in *Alice* and *Mayo*. *Id.* at

217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is “directed to.” *See id.* at 219; *Bilski v. Kappos*, 561 U.S. 593, 611 (2010). If the claim is “directed to” an abstract idea, we turn to the second step of the *Alice* framework, where “we must examine the elements of the claim to determine whether it contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 573 U.S. at 221 (quotation marks omitted).

The USPTO has published binding guidance for applying § 101, which has been clarified over time and embodied in MPEP § 2104(III) & § 2106 (9th Ed., Rev. 01.2024 (Nov. 2024)) (“Guidance”). The Guidance divides the first step of the *Alice* framework into two prongs, identified as Step 2A, Prong One and Step 2A, Prong Two. *See id.* § 2106.04. In Prong One, we look to whether the claim recites — that is, sets forth or describes — certain groupings of abstract ideas, including certain methods of organizing human activity (e.g., fundamental economic practices) and mental processes. *See id.* § 2106.04(II)(A)(1) & § 2106.04(a). In Prong Two, we look to whether the claim recites additional elements that integrate the abstract idea into a practical application. *See id.* § 2106.04(II)(A)(2) & § 2106.04(d). Only if a claim recites an abstract idea, and does not integrate that abstract idea into a practical application, do we then conclude that the claim is directed to an abstract idea in Step 2A of the Guidance (first step of *Alice*), and proceed to Step 2B of the Guidance (second step of *Alice*). *See id.* § 2106.04(II)(A).

In the second step of the *Alice* framework, “we must examine the elements of the claim to determine whether it contains an ‘inventive

concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.” *Alice*, 573 U.S. at 221 (quotation marks omitted); *see* MPEP § 2106(I) & § 2106.05. “A claim that recites an abstract idea must include ‘additional features’ to ensure ‘that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].’” *Alice*, 573 U.S. at 221 (alterations in original) (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

2. *Claim 1*

Petitioner provides arguments and evidence in support of contending claim 1 is unpatentable as lacking statutory subject matter under 35 U.S.C. § 101. *See* Pet. 72–88. Patent Owner opposes. *See* PO Resp. 32–52. We conclude Petitioner has demonstrated claim 1 is unpatentable in this ground, as follows.

a) Collateral Estoppel

Petitioner firstly argues Patent Owner is collaterally estopped from arguing claim 1 of the ’423 patent is not unpatentable under 35 U.S.C. § 101. *See* Pet. 72–75. Petitioner asserts claim 1 of the ’423 patent is “materially identical” to claim 1 of the ’614 patent which the Board determined to be unpatentable under 35 U.S.C. § 101 in PGR2021-00093. *See id.* at 73–75 (citing Ex. 1011, a redline comparison of the claims).

Patent Owner’s sole opposition is that claim 1 “recites limitations that raise issues that were not decided by the Board in [PGR2021-00093]” (PO Resp. 34–35) so “Petitioner has failed to show that the issue [presented

here] is identical to the issue decided in [PGR2021-00093]” (*id.* at 33–34). Patent Owner focuses on Limitation [1.3], which we address below.

(1) Limitation [1.3] in Both Patents

Patent Owner cites the following difference in verbiage between Limitation [1.3] in claim 1 of the ’614 patent, and Limitation [1.3] in claim 1 of the ’423 patent, as precluding collateral estoppel:

Claim 1 of the ’614 Patent	Claim 1 of the ’423 Patent
“the identifying [of one or more payment accepting units] <i>including detecting predefined radio messages broadcast by</i> the one or more payment accepting units”	“the identifying [of one or more payment accepting units] <i>based at least in part on an identifier corresponding to</i> the one or more payment accepting units”

Ex. 1011, 1 (Limitation [1.3], emphases added)); *see* PO Resp. 35–36.

Petitioner argues Limitation [1.3] in the ’423 patent is “broader” than Limitation [1.3] in the ’614 patent, because the ’423 patent “allows the identifying to be based on any generic ‘identifier,’ whereas the ’614 [p]atent required that the identifying be based on the narrower ‘detecting predefined radio messages.’” Pet. 75. Therefore, according to Petitioner, the Board’s findings in PGR2021-00093 “apply equally” here. *Id.* (citing *Google LLC v. Hammond Dev. Int’l, Inc.*, 54 F.4th 1377, 1381 (Fed. Cir. 2022); *IronSource Ltd. v. Digital Turbine Inc.*, PGR2022-00053, Paper 58, at 15–16 (PTAB Mar. 12, 2024) (“*IronSource*”)).

Patent Owner responds that a person of ordinary skill in the art would understand Limitation [1.3] in the ’423 patent to recite “the type of content (*i.e.*, an identifier) that is used to identify a payment accepting unit,” whereas Limitation [1.3] in the ’614 patent recites “a particular

communication medium that is detected in order to identify a payment accepting unit (*i.e.*, predefined radio messages).” PO Resp. 35–36; Ex. 2008 ¶¶ 106–110. Patent Owner also argues the ’423 patent “specification treats these terms as distinct features and even describes the type of content recited in [Limitation [1.3] of the ’423 patent] as narrower than the predefined radio messages recited in [Limitation [1.3]] of the ’614 patent.” PO Resp. 36 (citing Ex. 1001, 11:36–37, 13:41–46, 29:48–59); Ex. 2008 ¶ 110. Patent Owner concludes the Board in PGR2021-00093 did not “decide[] the issue of patent eligibility of claims reciting identification . . . *based on an identifier corresponding to the one or more payment accepting unit[s]*,” so collateral estoppel does not apply. PO Resp. 36–37 (citing PGR2021-00093, Paper 38, at 27, 37).

Petitioner replies that Patent Owner’s opposition “focuses on the wrong analysis” because “[t]he question is not . . . whether there are differences between the claims” (which Petitioner concedes there are), or whether there is any “narrowing,” but rather “the relevant question is whether the *issues of patentability* are identical.” Pet. Reply 13 (citing *Google*, 54 F.4th at 1381). Petitioner asserts the issues of patentability are identical because the Board in PGR2021-00093 “found that the ‘issue of patentability’ did not extend ‘*beyond the judicial exception*, *i.e.*, the additional elements’” in claim 1 of the ’614 patent, and likewise here “‘Patent Owner’s arguments . . . rest on the alleged novelty of the abstract idea itself’ of an ‘identifier,’ which involves the same issue of patentability as the ‘predefined radio message.’” *Id.* at 14 (alteration in original) (citing PGR2021-00093, Paper 38, at 37).

Petitioner adds that, during prosecution of the ’423 patent, the Examiner rejected claim 1 as an obviousness-type double patenting of

claim 1 of the '614 patent on the basis that the claims “are not patentably distinct from each other” and that the only difference between the claims was a “labeling difference,” which the applicant did not dispute and instead overcame with a terminal disclaimer. Pet. Reply 14 (citing Ex. 1002, 151–152, 174).

Patent Owner replies that the Board in PGR2021-00093 did “not mention an ‘issue of patentability’ nor does Petitioner identify what the alleged issue is,” and “the Board only opined on the impact of ‘predefined radio messages’ to the § 101 analysis.” PO Sur-reply 17. Patent Owner concludes “Petitioner fails to show that the Board’s findings [in PGR2021-00093] necessarily decide[d] the same issue here.” *Id.*

Patent Owner also asserts Petitioner “misrepresents” the applicability of the '423 patent prosecution history to the collateral estoppel issue raised here. PO Sur-reply 18. According to Patent Owner, the two issues (§ 103 obviousness and § 101 eligibility) are different. *See id.* (citing MPEP § 804; Ex. 1002, 193–194).

We conclude that in order for collateral estoppel to apply, Petitioner must show, among other things, “the issue is identical to one decided in the first action.” *Google*, 54 F.4th at 1381. That is, “collateral estoppel requires that the *issues of patentability* be identical,” and “[i]t is well established that patent claims need not be identical for collateral estoppel to apply.” *Id.* “[C]ollateral estoppel may apply even if the patent claims ‘use slightly different language to describe substantially the same invention,’ so long as ‘the differences between the unadjudicated patent claims and adjudicated patent claims do not materially alter the question of invalidity.’” *Id.*

We determine the difference between the two Limitations [1.3] at issue here materially alters the subject matter eligibility of the respective

claims. Petitioner’s contrary contention is premised on Limitation [1.3] in the ’423 patent being “broader” than Limitation [1.3] in the ’614 patent. Pet. 75. However, claim 1 of the ’423 patent requires identifying an available payment accepting unit based on an identifier of the unit, whereas claim 1 of the ’614 patent required the identification to be based on predefined radio messages broadcast by the units. This difference presents an apples-to-oranges comparison (a difference in kind), rather than an apples-to-apples comparison (a difference in degree) as Petitioner’s argument would have it.

This difference also represents more than “*slightly different language* to describe substantially the same invention.” *Google*, 54 F.4th at 1381 (emphasis added); *see also id.* at 1381–82 (holding collateral estoppel arose from a previous judgment of obviousness where “[t]he only difference between the claims is the language describing the number of application servers”); *Soverain Software LLC v. Victoria’s Secret Direct Brand Mgmt., LLC*, 778 F.3d 1311, 1319–20 (Fed. Cir. 2015) (holding collateral estoppel arose from a previous judgment of obviousness where “[t]he only additional limitation in [the claim at issue] concern[ed] the Internet” versus “a generic network”).

We moreover agree with Patent Owner that the obviousness-type double patenting rejection overcome during prosecution of the ’423 patent is a different issue from the eligibility issue disputed here. The former is governed by 35 U.S.C. § 103 and case law such as *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), whereas the latter is governed by 35 U.S.C. § 101 and case law such as *Alice* and *Mayo*. This difference is illustrated by the fact that the ’423 patent was allowed to issue after the applicant filed a terminal disclaimer — that is, the applicant never disputed that the

'423 patent claims were in fact an obviousness-type double patenting of the '614 patent claims. *See* Ex. 1002, 151–152 (examiner's rejection), 174–177 (applicant's terminal disclaimer), 183 (applicant's remarks regarding rejection), 4079–81 (examiner's reasons for allowance). By contrast, the applicant would not have been able to overcome a rejection for lack of statutory subject matter by filing a terminal disclaimer.

We are unaware of any binding authority considering whether the claims of a challenged patent are sufficiently similar to the claims of another patent in the context of 35 U.S.C. § 101 such that an earlier judgment of eligibility (or ineligibility) collaterally estops a party from re-litigating the issue.⁸ *See, e.g.*, Dec. on Inst. 12–13 (in the Institution Decision, we encouraged the parties “to address . . . how the collateral estoppel requirement that the issue be ‘identical to one decided in the first action’ applies in the context of an asserted ground under 35 U.S.C. § 101”).

We conclude the eligibility issues presented by claim 1 of the '423 patent are not “identical” (*Google*, 54 F.4th at 1381) to the eligibility issues presented by claim 1 of the '614 patent because the difference in Limitation [1.3] is a material technological difference in the context of Step 2A (*Alice* step one) and Step 2B (*Alice* step two). Although we ultimately decide claim 1 of the '423 patent is ineligible (*see infra* Sections II.H.2.b–f), the difference in Limitation [1.3] materially affects the

⁸ The *IronSource* decision cited by Petitioner is not binding. More importantly, the result there turned on whether the prior determination was essential to the judgment and whether the party had a full and fair opportunity to litigate the issue in the prior action, not whether the § 101 eligibility issues were identical. *See IronSource*, Paper 58, at 17–20 (noting that the petitioner agreed that the § 101 arguments were “essentially identical”).

eligibility analysis such that the Board’s prior determination in PGR2021-00093 does not collaterally estop Patent Owner from defending claim 1 of the ’423 patent here.

(2) Whether to Apply Collateral Estoppel to Individual Limitations

Petitioner argues that, even if the Board determines certain limitations in claim 1 of the ’423 patent present “a new issue” of unpatentability versus claim 1 of the ’614 patent (as we have done above), “collateral estoppel must still apply to the Board’s findings regarding all materially identical limitations.” Pet. 75 (citing *Keysight Techs., Inc. v. Centripetal Networks, LLC*, IPR2023-00446, Paper 30, at 21 (PTAB Aug. 5, 2024) (“*Keysight*”).

Patent Owner argues Petitioner fails to show collateral estoppel applies on a limitation-by-limitation basis in a § 101 eligibility inquiry. *See* PO Resp. 37–39. Patent Owner asserts the *Keysight* decision instead concerned a reference’s prior art status and teachings. *Id.* (citing *Keysight*, Paper 30, at 21). Patent Owner emphasizes that “[t]he § 101 framework ‘requires that the claims be read as a whole’” which “should take into consideration **all the claim limitations and how these limitations interact and impact each other.**” *Id.* at 38.

Patent Owner also asserts Petitioner fails to satisfy its burden to “identify the specific ‘issues’ from the Board’s previous decision that must be applied or the specific limitations to which those ‘issues’ apply.” PO Resp. 37 (citing *ParkerVision, Inc. v. Qualcomm Inc.*, 116 F.4th 1345, 1357 n.4 (Fed. Cir. 2024)).

Petitioner replies that the Board in *IronSource*, Paper 58, at 19–20⁹ “endorsed” a limitation-by-limitation application of collateral estoppel in a § 101 eligibility inquiry. Pet. Reply 15.

Patent Owner responds that *IronSource* does not support Petitioner’s assertion. PO Sur-reply 18–19. According to Patent Owner, “[t]he Board in *IronSource* merely concluded anticipation and obviousness issues were identical to those resolved in a prior proceeding” and “made no determination that collateral estoppel . . . applied to some parts of a claim but not others.” *Id.* (citing *IronSource*, Paper 58, at 9–16).

We conclude Petitioner has failed to satisfy its burden to explain how collateral estoppel should be applied to a particular limitation in claim 1 separately from other limitations, or to a particular issue, in the subject matter eligibility inquiry separately from other issues. *See* 35 U.S.C. § 326(e); *ParkerVision*, 116 F.4th at 1357 n.4 (“[T]he party invoking collateral estoppel . . . bears the burden of proving the identity of the issues litigated in the [prior action].”). The Petition simply asserts that collateral estoppel “appl[ies] to the Board’s findings regarding all materially identical limitations” (Pet. 75), and then proceeds to the § 101 eligibility inquiry under *Alice* (*see id.* at 77–84). Petitioner’s *Alice* analysis is sprinkled with citations to the Board’s decision in PGR2021-00093, but Petitioner largely supplies its own arguments for ineligibility rather than establishing the *Alice* steps are “identical” under the *Google* decision. *See id.* at 77–84. Petitioner particularly does not explain why the patentability issues are identical for claim 1 as a whole, despite the material difference in Limitation [1.3]

⁹ Petitioner cites 2024 WL 1098132 at page *8, which maps to Paper 58 at pages 19–20 in the Board’s P-TACTS system.

discussed above. *See id.* Petitioner’s approach invites us to sift through Petitioner’s arguments to parse out the ones we think are persuasive, and then (somehow) fill in any deficiencies with collateral estoppel from the Board’s decision in PGR2021-00093. We decline that invitation.

b) Step 1: Whether the Claim Falls Within a Statutory Category

At Step 1 of the Guidance, we determine whether claim 1 falls within a statutory category — namely a process, machine, manufacture, or composition of matter. *See* MPEP § 2106.03. We conclude claim 1 recites a “method” (Ex. 1001, 47:6–7) which is a “process” under § 101. *See* Pet. 77; MPEP § 2106.03.

c) Step 2A, Prong One: Whether the Claim Recites an Abstract Idea

At Step 2A, Prong One of the Guidance, we determine whether claim 1 recites a judicial exception to eligibility, such as certain groupings of abstract ideas including certain methods of organizing human activity (e.g., fundamental economic practices) and mental processes. *See* MPEP § 2106.04(II)(A)(1) & § 2106.04(a); *Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611; *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972). As part of this inquiry, we must examine the relevant limitations in the context of the claim language as a whole. *Alice*, 573 U.S. at 218 n.3. “The § 101 inquiry must focus on the language of the [a]sserted [c]laims themselves.” *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1149 (Fed. Cir. 2016); *Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013) (“[T]he important inquiry for a § 101 analysis is to look to the claim.”).

On August 4, 2025, the USPTO issued a Memorandum entitled *Reminders on Evaluating Subject Matter Eligibility of Claims Under 35 U.S.C. 101* (“2025 Guidance”).¹⁰ We discuss aspects of the 2025 Guidance that apply to this case below.

Petitioner argues claim 1 “is directed to the abstract idea of identifying a merchant and enabling completion of a purchase from the merchant, which can be performed by a human in the mind or via oral, or written communication with a merchant.” Pet. 78. Claim 1 correspondingly recites (with Petitioner’s labeling added):

[1.2] identifying one or more payment accepting units in proximity to the mobile device that are available to accept payment from a mobile payment application executing on the mobile device, [1.3] the identifying based at least in part on an identifier corresponding to the one or more payment accepting units, [1.4] wherein the one or more payment accepting units are payment operated machines that accept payment for dispensing of products and/or services;

[1.5] displaying a user interface of the mobile payment application on the display of the mobile device, [1.6] the user interface being configured to display a visual indication of the one or more payment accepting units and [1.7] accept user input selecting an available payment accepting unit of the one or more payment accepting units;

[1.8] establishing via the one or more radio transceivers a wireless communication path including the mobile device and the available payment accepting unit of the one or more payment accepting units;

[1.9] after establishing the wireless communication path, enabling user interaction with the user interface of the mobile payment application to complete a transaction with the available payment accepting unit;

¹⁰ Available at <https://www.uspto.gov/sites/default/files/documents/memo-101-20250804.pdf>.

[1.10] exchanging information with the available payment accepting unit via the one or more radio transceivers, in conjunction with the transaction; and

[1.11] after exchanging the information, displaying, on the display, an updated user interface of the mobile payment application to the user of the mobile device.

Ex. 1001, 47:6–41.

Petitioner addresses each of the limitations above and explains how they support Petitioner’s contention that the claim, as a whole, is directed to the alleged abstract idea. *See* Pet. 78–81. Petitioner argues Limitations [1.2] and [1.3] recite “a customer using the generic mobile device to identify a merchant (i.e., a ‘payment accepting unit’) for purchasing goods based on an identifier,” which “can be done completely in the mind of the customer.” *Id.* at 78–79. Petitioner contends Limitation [1.4] merely limits the field of use of the alleged abstract idea to “a generic mobile phone and payment accepting unit,” Limitation [1.5] recites a generic “user interface” for performing a purchase, and Limitation [1.8] recites generic “radio transceivers” for communication between the mobile device and the payment accepting unit. *Id.* at 79–80. Petitioner further argues the user interface functionality in claim 1 “merely ‘takes the place of the human acting as an intermediary,’ communicating with the customer and merchant.” *Id.* at 80. In particular, Petitioner argues the recited functionality is “akin to a customer seeing one or more merchants ([L]imitation[] [1.6]) and selecting a merchant ([L]imitation [1.7]).” *Id.* According to Petitioner, the ’423 patent specification describes these functions as being “performed using known, generic technology, such as an iPhone 5.” *Id.* at 79–80 (citing Ex. 1001, 2:9–15, 2:30–34, 21:3, 9:9–25, 36:14–33, 36:46–37:28). Finally, Petitioner argues Limitations [1.10]

and [1.11] merely recite “a merchant communicating with a customer about a transaction.” *Id.* at 80–81.

Patent Owner responds that the 2025 Guidance states we “should be careful to distinguish claims that recite an exception (which require further eligibility analysis) from claims that merely involve an exception (which are eligible and do not require further eligibility analysis),” and provides examples relating to mathematical concepts. 2025 Guidance, at 3; *see* PO Resp. 40–42. Patent Owner argues “Petitioner’s assertion that ‘[c]laim 1 is directed to the abstract idea of identifying a merchant and enabling completion of a purchase from the merchant’ fails to show that claim 1 **recites** the identified abstract idea.” PO Resp. 42 (alteration in original) (quoting Pet. 78). According to Patent Owner, “whether [claim 1] can be likened to (or ‘akin to’) a generalized concept is insufficient to establish that the claim expressly recites the specific abstract idea” and Petitioner’s “comparison of [claim 1] to a generic customer-merchant transaction is divorced from the claim language.” *Id.*

Patent Owner moreover asserts Petitioner does not show claim 1 “can be performed by a human in the mind or via oral, or written communication with a merchant.” PO Resp. 42–43. Here, Patent Owner cites the 2025 Guidance stating that a claim “does not recite a mental process when it contains limitation(s) that cannot *practically* be performed in the human mind.” 2025 Guidance, at 2 (emphasis added); *see* PO Resp. 43. Patent Owner asserts “claim 1 recites limitations that require a user to interact with specific user interface elements provided by a mobile application on a mobile device” in the “manual mode” of the ’423 patent specification, which cannot practically be performed in the user’s mind or via communication with a merchant. PO Resp. 43–45 (citing Ex. 1001, 2:25–29, 6:11–16,

7:19–31, 7:45–58, 24:53–59; Ex. 2010, 58:3–60:10); Ex. 2008 ¶¶ 29–34, 111–116.

Petitioner replies that the Petition shows claim 1 “recites the abstract idea” and does not merely “involve an abstract idea.” Pet. Reply 16–17 (citing Pet. 78–79). Petitioner argues the “manual mode” and the “hands-free mode” “are disclosed only in the [’423 patent] specification and are not in the claims themselves, and therefore cannot support a Section 101 argument.” *Id.* at 16. Further: “Focusing instead on the claims themselves, the claims recite a transaction process at such a high level of generality, that they can easily be performed in a human mind.” *Id.* at 17.

Patent Owner replies that Petitioner asserts claim 1 “merely involves identifying a merchant and enabling completion of a purchase” rather than that claim 1 “recite[s]” an abstract idea. PO Sur-reply 19 (citing Pet. 78–79; Pet. Reply 16). Further, Patent Owner “is not contending that the ‘exact examples’ disclosed in the [’423 patent] specification should be read into” claim 1, but rather contends that claim 1 is “generally directed to the manual mode, which require[s] user interaction with the mobile device.” *Id.* at 20 (citing PO Resp. 42–46; Ex. 2010, 58:3–60:10).

We agree with Petitioner’s argument that claim 1 recites the abstract idea of identifying a merchant and enabling completion of a purchase from the merchant. *See* Pet. 78–81. For example, Petitioner notes specifically how Limitation [1.2], reciting “identifying one or more payment accepting units,” pertains to identifying a merchant, and how Limitations [1.6], [1.7], and [1.9] recite user interaction using the mobile device that enables the completion of a purchase. *See id.* Petitioner thus shows sufficiently how

claim 1, by virtue of the limitations quoted above,¹¹ recites the concept of identifying a merchant and enabling completion of a purchase from the merchant. *See id.* at 78.

Petitioner also argues persuasively that identifying a merchant and enabling completion of a purchase from the merchant is similar to other concepts held to be an abstract idea. *See* Pet. 78–81; *Universal Secure Registry LLC v. Apple Inc.*, 10 F.4th 1342, 1349–50 (Fed. Cir. 2021) (“The claims are directed to a method for enabling a transaction between a user and a merchant, where the merchant is given a time-varying code instead of the user’s secure (credit card) information.”); *cxLoyalty, Inc. v. Maritz Holdings, Inc.*, 986 F.3d 1367, 1376–77 (Fed. Cir. 2021) (“[C]laim 1 is directed to ‘facilitating, or brokering, a commercial transaction (i.e., the sale and purchase of goods and services) between a purchaser using a first form of value (i.e., a rewards program participant using points in whole or in part) and a seller transacting in a second form of value (i.e., a vendor system which transacts purchases in currency).’”); *Smart Sys. Innovations, LLC v. Chicago Transit Auth.*, 873 F.3d 1364, 1372 (Fed. Cir. 2017) (“Taken together, the Asserted Claims are directed to the formation of financial transactions in a particular field (i.e., mass transit) and data collection related to such transactions.”); *In re AuthWallet, LLC*, No. 2022-1842, 2023 WL

¹¹ As explained further below in the context of Step 2A, Prong Two and Step 2B of the Guidance, claim 1 recites that the method steps are performed “at a mobile device with one or more processors, memory, one or more output devices including a display, and one or more radio transceivers,” and also recites “one or more payment accepting units,” a “mobile payment application executing on the mobile device,” and a “user interface” of the mobile payment application displayed on the mobile device. *See infra* Sections II.H.2.d–e.

3330298, at *3 (Fed. Cir. May 10, 2023) (“[T]he claims are directed to a method for processing financial transaction data that implements authorization requests and confers discounts and benefits upon the consumer.”); *In re Elbaum*, No. 2021-1719, 2021 WL 3923280, at *2 (Fed. Cir. Sept. 2, 2021) (“[T]he claim is directed to an abstract idea, specifically a method of providing information and allowing customers to utilize that information to engage in a commercial transaction.”); *Ex parte James*, Appeal No. 2018-005345, 2019 WL 2763407, at *7–8 (PTAB June 21, 2019) (affirming rejection of claims directed to “transmitting information to conduct financial transactions, including writing checks and maintaining an associated account ledger”). Patent Owner does not address these cases cited by Petitioner or explain why they are inapplicable, despite our reliance on them in the Institution Decision (Dec. on Inst. 17–18).¹²

We further conclude the abstract idea recited in claim 1 can be performed by a human in the mind or via oral or written communication

¹² Patent Owner argued at the hearing that “analogizing to Federal Circuit decisions where claims were found ineligible” is “not even the right approach here because of the deficiencies in [Petitioner’s] case.” Tr. 62:7–23. We disagree. *See Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1294 (Fed. Cir. 2016) (“[T]he decisional mechanism courts now apply [for Section 101] is to examine earlier cases in which a similar or parallel descriptive nature can be seen — what prior cases were about, and which way they were decided.”); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016) (“[The Federal Circuit] and the Supreme Court have found it sufficient to compare claims at issue to those claims already found to be directed to an abstract idea in previous cases.”); *Etison LLC v. HighLevel, Inc.*, No. 2025-1711, 2026 WL 1906579, at *7 (Fed. Cir. July 2, 2026) (nonprecedential) (“The district court’s decision to analogize the patents-in-suit to similar claims we have evaluated, in what now amounts to a rich and elaborate corpus of Section 101 precedent, was entirely proper.”).

with a merchant. *See* Pet. 78. Patent Owner’s opposition overlooks that these two sub-groupings of abstract ideas in the Guidance “are not mutually exclusive, i.e., some claims recite limitations that fall within more than one . . . sub-grouping.” MPEP § 2106.04(a). That is, the *entire* abstract idea does not need to be a mental process that can be performed practically in the human mind. Instead, the abstract idea may be composed of some parts that can be performed practically in the human mind, and other parts that concern the fundamental economic practice of communications between a merchant and a customer to complete a sale of goods. That is the case here, as discussed above.

Patent Owner particularly focuses on the “user interface” recitations in claim 1 corresponding to the “manual mode” of the ’423 patent specification which requires user interaction with the mobile device — that is, Limitations [1.6], [1.7], and [1.9]. However, these limitations recite merely that the user interface: displays a visual indication of a payment accepting unit (i.e., a merchant) available for selection; accepts a user input selecting an available payment accepting unit (i.e., a merchant); and enables user interaction to complete the transaction. These user interactions with the mobile device are routine aspects of identifying a merchant and enabling completion of a purchase from the merchant, so they are appropriately considered part of the recited abstract idea.

Thus, we conclude Petitioner has shown claim 1 recites identifying a merchant and enabling completion of a purchase from the merchant, which falls within the enumerated “mental process” and “[c]ertain methods of organizing human activity” groupings of abstract ideas in the Guidance. *See* MPEP § 2106.04(a)(2).

d) Step 2A, Prong Two: Whether the Claim Recites Additional Elements that Integrate the Abstract Idea into a Practical Application

At Step 2A, Prong Two of the Guidance, we determine whether claim 1 recites “additional elements that integrate the judicial exception [here, an abstract idea] into a practical application” of the judicial exception. MPEP § 2106.04(II)(A)(2); *see id.* § 2106.04(d). If the claim as a whole does integrate the recited judicial exception into a practical application, then the claim is not “directed to” the abstract idea and is patent eligible. *See id.* § 2106.04(d). The 2025 Guidance reminds us that this analysis “considers the claim *as a whole*,” such that “[t]he way in which the additional elements use or interact with the exception may integrate the judicial exception into a practical application” and “the additional limitations should not be evaluated in a vacuum, completely separate from the recited judicial exception.” 2025 Guidance, at 3–4.

“A claim that integrates a judicial exception into a practical application will apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception.” MPEP § 2106.04(d). One example in which a judicial exception may be integrated into a practical application is when the claim includes an additional element that reflects “[a]n improvement in the functioning of a computer, or an improvement to other technology or technical field.” *Id.* § 2106.04(d)(I) (citing *id.* §§ 2106.04(d)(1) & 2106.05(a)).

Petitioner argues: “Other than the abstract idea, [c]laim 1 recites only generic elements: (1) a mobile device; . . . (2) an application . . . executing on the mobile device; (3) a payment accepting unit; . . . and (4) a user interface.” Pet. 82. According to Petitioner, the generically-recited “mobile

device,” “mobile payment application,” “one or more payment accepting units,” and “user interface” are “merely used as a tool” to perform the alleged abstract idea and do not integrate the exception into a practical application. *Id.*

Patent Owner responds that claim 1 “is directed to a specific embodiment of a mobile application that requires user interaction with a specific user interface” thereby integrating the abstract idea into a practical application. PO Resp. 39–40, 45–47 (citing Pet. 78, 83–85). Patent Owner accuses Petitioner of failing “to consider claim 1 as a whole and assess ‘[t]he way in which the additional elements use or interact with the exception’” as required by the 2025 Guidance. *See id.* at 47 (alteration in original) (citing Pet. 82).

Patent Owner also asserts Dr. Neuman admitted during cross-examination that Limitations [1.2], [1.5], and [1.7]–[1.9] “interact with one another to recite a user interface that performs an ordered combination of functionality to the user.” PO Resp. 48–49 (citing Ex. 2010, 36:22–37:5, 39:10–41:1, 66:16–68:22). Specifically, according to Patent Owner, these claim elements “meaningfully limit any judicial exception to a particular practical application — *i.e.*, a mobile device that enables an ordered identification of an available payment accepting unit and subsequent interaction with the available payment accepting unit through a user interface.” *Id.* at 49.

Patent Owner moreover attacks Petitioner’s argument that the claimed mobile device, application executing on the mobile device, payment accepting unit, and user interface are “only generic elements” as improperly reading out or ignoring limitations “merely because they can be found in the prior art.” PO Resp. 47–48 (citing *PowerBlock Holdings, Inc. v. iFit, Inc.*,

146 F.4th 1366, 1373 (Fed. Cir. 2025); *Contour IP Holding LLC v. GoPro, Inc.*, 113 F.4th 1373, 1380 (Fed. Cir. 2024)).

Petitioner replies that the Petition “analyzes the entire claim by asserting that ‘[n]othing in [c]laim 1 integrates the abstract idea into a practical application that imposes a meaningful limit on the abstract idea,’ followed by an identification of the generic elements recited in the claim.” Pet. Reply 17 (alteration in original) (citing Pet. 82). Further: “Patent Owner’s arguments regard[ing] the supposed ordered combination — which [were] previously rejected by this Board [in PGR2021-00093] — likewise do nothing to integrate the abstract idea into a practical application.” *Id.* (citing PO Resp. 49; PGR2021-00093, Paper 38, at 27–28; *GoTV Streaming, LLC v. Netflix, Inc.*, 166 F.4th 1053, 1066–68 (Fed. Cir. 2026)).

Patent Owner responds that “Petitioner takes the facially indefensible position that the claims preempt the entire idea of identifying a merchant and enabling completion of a purchase from that merchant,” which “is precisely what the Office identifies as improper analysis.” PO Sur-reply 20–21 (citing Pet. Reply 17; 2025 Guidance, at 3–4).

We agree with Petitioner’s argument that the additional elements in claim 1 do not integrate the recited abstract idea into a practical application. In particular, claim 1 recites the “mobile device,” “mobile payment application,” “one or more payment accepting units,” and “user interface” as generic components at a high level of generality. And, as Petitioner points out, the ’423 patent specification describes the use of generic technology. *See* Pet. 79–80, 82. For example, the ’423 patent specification states that “[m]obile devices include, but are not limited to smart phones, tablet or laptop computers, or personal digital assistants (PDAs), smart cards, or other technology (e.g., a hardware-software combination) known or yet to be

discovered that ha[ve] structure and/or capabilities similar to the mobile devices described herein,” and discloses an application on the mobile device that can be “*any* software program(s) capable of implementing the features described herein.” Ex. 1001, 9:9–18 (emphasis added); *see also id.* at 21:2–6 (describing an iPhone 5 as the mobile device).

Petitioner persuasively argues that these components are merely used as a tool to identify a merchant and enable completion of a purchase from the merchant. *See* Pet. 82; *Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044, 1055 (Fed. Cir. 2017) (“The ‘focus of the claims’ is on the method of financing, and the recited generic computer elements ‘are invoked merely as a tool.’”); *Enfish*, 822 F.3d at 1335–36 (determining whether the claims at issue were focused on a “specific asserted improvement in computer capabilities” or “a process that qualifies as an ‘abstract idea’ for which computers are invoked merely as a tool”).

Patent Owner focuses on the “user interface” Limitations [1.6], [1.7], and [1.9]. As noted above, we have concluded that the functionality of these limitations is part of the recited abstract idea.

Specifically, the “user interface” limitations recite that the user interface: displays a visual indication of a payment accepting unit available for selection; accepts a user input selecting an available payment accepting unit; and enables user interaction to complete the transaction. Even considering these “user interface” limitations with claim 1 as a whole, the claim does not integrate the recited abstract idea into a practical application because the “user interface” limitations merely apply the recited abstract idea on a generic mobile device without meaningfully limiting the abstract idea. *See* 2025 Guidance, at 4–5. For example, these limitations do not reflect an improvement to the functioning of the mobile device (or any other

computer device), and instead are “mere instructions to implement an abstract idea or other exception on” the mobile device. *Id.*

For example, in *International Business Machines Corp. v. Zillow Group, Inc.*, 50 F.4th 1371 (Fed. Cir. 2022), the Court stated: “Identifying, analyzing, and presenting certain data to a user is not an improvement specific to computing” in *Alice* step one. *Id.* at 1378 (“We have repeatedly held claims ‘directed to collection of information, comprehending the meaning of that collected information, and indication of the results, all on a generic computer network operating in its normal, expected manner’ to be abstract.”). We conclude claim 1 at issue here similarly is directed to an abstract idea.

By contrast, the *Data Engine* decision cited by Patent Owner is representative of cases in which the claimed invention is *not* directed to an abstract idea by virtue of providing a solution to an existing technological problem. *See Data Engine*, 50 F.3d at 1007–09; PO Resp. 38. There, the Court considered claims reciting “a specific method for navigating through three-dimensional electronic spreadsheets” “by providing a highly intuitive, user-friendly interface with familiar notebook tabs.” *Data Engine*, 50 F.3d at 1008. The Court held such claims were not directed to an abstract idea in *Alice* step one, because the claimed invention “improv[ed] computers’ functionality as a tool able to instantly access all parts of complex three-dimensional electronic spreadsheets.” *Id.* By contrast, the “user interface” limitations in claim 1 of the ’423 patent do not improve the functionality of the mobile device in any sort of analogous way.

Thus, we conclude Petitioner has shown that claim 1 as a whole, looking at the additional limitations of the “mobile device,” “mobile payment application executing on the mobile device,” “one or more payment

accepting units,” and “user interface,” does not integrate the recited abstract idea into a practical application. Petitioner therefore has shown claim 1 is directed to identifying a merchant and enabling completion of a purchase from the merchant.

e) Step 2B: Whether the Claim Includes an Inventive Concept

At Step 2B of the Guidance (the second step of the *Alice* framework), we “scrutinize the claim elements more microscopically” for additional elements that might be understood to “transform the nature of the claim” into a patent-eligible application of an abstract idea. *Electric Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016) (quoting *Alice*, 573 U.S. at 222–24); MPEP § 2106.05(I). That is, we determine whether claim 1 includes “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.’” *Alice*, 573 U.S. at 217–18 (quoting *Mayo*, 566 U.S. at 72–73) (alteration in original). The relevant inquiry 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*, 728 F.3d at 1344–45 (alteration in original).

This Step 2B inquiry is “similar to” Step 2A, Prong Two discussed above and “most of the[] considerations overlap.” MPEP § 2106.04(d)(I) & § 2106.05(II). Thus, much of our analysis in Step 2A, Prong Two applies here in Step 2B. However, Step 2B further considers “whether the additional element(s) are well-understood, routine, conventional activities previously known to the industry.” *Id.* § 2106.05(d); *id.* § 2106.04(d)(I) (“Step 2A specifically excludes consideration of whether the additional

elements represent well-understood, routine, conventional activity.”). If the additional claimed elements involve “well-understood, routine, [and] conventional activity previously engaged in,” they do not include an “inventive concept.” *Mayo*, 566 U.S. at 72–73; MPEP § 2106.05(I)(A) & § 2106.05(d).

Petitioner argues claim 1 recites “a well-understood, routine, and conventional wireless mobile device” that “uses well-known, routine, and conventional elements . . . to carry out the abstract idea” of “identifying a merchant and enabling completion of a purchase from the merchant,” and cites supporting testimony from Dr. Neuman. Pet. 83–84 (citing Ex. 1003 ¶¶ 292–293, 303–319). As to the combination of recited elements, Petitioner contends:

Taken as a whole, the steps of using a generic mobile phone to identify some information, display some information on the user interface of the mobile phone, accept user input via the user interface, and process and incorporate that user input, and then generally communicate with one or more other generic devices was well-understood, routine, and conventional

Id. at 84 (citing Ex. 1003 ¶¶ 290–302).

Patent Owner argues “Petitioner fails to satisfy its burden in showing that the claim uses ‘well-known, routine, and conventional elements to carry out the abstract idea.’” PO Resp. 40, 49–50 (citing Pet. 83–84). Patent Owner asserts Dr. Neuman applied “the wrong standard (obviousness) in assessing whether the claim limitations were routine and conventional under § 101.” *Id.* at 40, 50–51 (citing Ex. 1003 ¶¶ 293, 299, 306–308, 316–318; Ex. 2010, 69:6–73:15, 75:1–17, 80:18–81:6; *BASCOM Global Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016)). Patent Owner further asserts the Petition improperly incorporates “nearly

twenty paragraphs” of Dr. Neuman’s Declaration in this regard. *Id.* at 50 (citing 37 C.F.R. § 42.6(a)(3); Pet. 83; Ex. 1003 ¶¶ 292–293, 303–319).

Patent Owner also argues Petitioner’s failure to establish anticipation of claim 1 by Low carries forward here by failing to demonstrate “claim 1 recites only elements that were ‘well-known, routine, and conventional.’” PO Resp. 51–52 (citing Ex. 1003 ¶ 309; *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1369 (Fed. Cir. 2018)); Ex. 2008 ¶ 117.

Petitioner replies that “[t]he Petition and Dr. Neuman merely referred to the prior art cited in the obviousness analysis as examples of how the limitations are well-known, routine, and conventional, which is perfectly acceptable.” Pet. Reply 18 (citing *Internet Pats. Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1347 (Fed. Cir. 2015)). Petitioner further asserts Dr. Miller acknowledged that the hardware elements recited in claim 1 were known prior to the ’423 patent, and each recited step is a function performed by the generic mobile device. *See id.* at 18–19 (citing Ex. 1031, 140:18–151:18).

Patent Owner responds that “Petitioner’s arguments essentially suggest that, because mobile devices were already known, any mobile device interface is necessarily ineligible.” PO Sur-reply 22 (citing Pet. Reply 18–19; *Berkheimer*, 881 F.3d at 1369). Further according to Patent Owner, claim 1 “recite[s] specific hardware and software features that provide for *particular user interactivity*, which Petitioner tried and failed to show was ‘well-known, routine, and conventional.’” *Id.* (emphasis added).

We agree with Petitioner’s argument that claim 1 does not recite any elements, individually or as an ordered combination, that transform the abstract idea into a patent-eligible inventive concept by ensuring the claim as a whole amounts to significantly more than the abstract idea itself. *See*

MPEP § 2106.05(I). Petitioner explains, with supporting testimony from Dr. Neuman, why claim 1 merely recites generic and conventional computer components (i.e., “mobile device,” “one or more processors,” “memory,” “one or more output devices including a display,” “one or more radio transceivers,” “one or more payment accepting units,” “application,” and “user interface”) and functionality (i.e., “wireless communication path”) for identifying a merchant and enabling completion of a purchase from the merchant. *See* Pet. 83–84; Ex. 1003 ¶¶ 294–319; *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1256 (Fed. Cir. 2014) (“[A]fter *Alice*, there can remain no doubt: recitation of generic computer limitations does not make an otherwise ineligible claim patent-eligible.”); *see also Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1341 (Fed. Cir. 2017) (holding that the claims at issue, which “recite[d] both a generic computer element — a processor — and a series of generic computer ‘components’ that merely restate their individual functions . . . merely describe the functions of the abstract idea itself, without particularity” which is “not enough under step two”); *Mortgage Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1324–25 (Fed. Cir. 2016) (holding that “generic computer components such as an ‘interface’ . . . do not satisfy the inventive concept requirement”). Patent Owner does not address these cases or explain why they are inapplicable, despite our reliance on them in the Institution Decision (Dec. on Inst. 25–26).

Dr. Neuman’s opinion that the recited components were well-understood, routine, and conventional is supported by disclosures in the ’423 patent specification. *See, e.g.*, Ex. 1003 ¶ 297 (a processor, memory, output device with a display, and radio transceiver are all “necessary for operation of, and found in, a conventional mobile device”), ¶ 298 (mobile

device user interfaces, such as a keypad or touch screen, were well-known), ¶ 300 (payment accepting units, such as vending machines, parking meters, tool booths, etc., were well-known), ¶ 301 (wireless communication between a mobile device and vending machine, such as via Bluetooth, was well-known)(citing Ex. 1001, 1:51–52, 2:5–15, 9:14–22, 9:34–39, 9:55–57, 10:2–20, 10:36–43, 12:30–39).

“The inventive concept inquiry requires more than recognizing that each claim element, by itself, was known in the art” such that “an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces.” *BASCOM*, 827 F.3d at 1350 (cited at PO Resp. 59). Nonetheless, Patent Owner does not identify or explain in any detail what combination of element(s) in claim 1 might constitute an inventive concept. *See* PO Resp. 49–52 (Step 2B argument limited to asserting that Petitioner fails to satisfy its burden to demonstrate unpatentability, rather than affirmatively identifying a potential inventive concept); Ex. 2008 ¶ 117.

Further, considering the additional elements of claim 1 as an ordered combination, we discern nothing that adds a specific limitation beyond the abstract idea that is not well-understood, routine, and conventional in the field. Instead, as discussed above, the additional elements of claim 1 “[s]imply append[] well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the [abstract idea]” recited in claim 1. MPEP § 2106.05(I)(A). That is, the additional elements of claim 1 provide merely ordinary functionality to apply an abstract idea, and do not provide a specific application designed to achieve an improved technological result. Thus, we find no element or combination of elements recited in claim 1 that contains any “inventive

concept” or adds anything “significantly more” to transform the abstract concept into a patent-eligible application. *See Alice*, 573 U.S. at 221.

Moreover, the “user interface” limitations in claim 1 here are similar to the claim at issue in *cxLoyalty* which failed Step 2B. Specifically, “[t]he claims appl[ied] the abstract idea on a computer by replacing the human intermediary [for redeeming loyalty rewards] with a GUI and API, but . . . ‘merely recite[d] generic and conventional computer components (i.e., “processor,” “GUI,” and “API”) and functionality for carrying out’ the abstract idea.” *cxLoyalty*, 986 F.3d at 1377; *see also id.* at 1370–72 (summarizing the challenged patent’s specification and representative claim 1); Ex. 1001, 6:64–7:3 (stating that the mobile device with the user interface is used “as an intermediary” between a payment accepting unit and server). Somewhat similarly, in *Affinity Labs of Texas, LLC v. Amazon.com, Inc.*, 838 F.3d 1266 (Fed. Cir. 2016), “[f]eatures such as network streaming and *a customized user interface* do not convert the abstract idea . . . into a concrete solution to a problem.” *Id.* at 1271 (emphasis added); *see also id.* at 1272 (“The addition of basic user customization features to the interface does not alter the abstract nature of the claims and does not add an inventive component that renders the claims patentable.”).

Patent Owner’s objection that the Petition incorporates the Neuman Declaration by reference has some merit. *See* Pet. 83–84 (citing Ex. 1003 ¶¶ 290–302); 37 C.F.R. § 42.6(a)(3). Petitioner’s underlying arguments, however, appear in the Petition, and Petitioner addresses each limitation of claim 1. *See* Pet. 78–84. Further, in the specific context of this case, where the Step 2B analysis is relatively straightforward in favor of Petitioner’s position due to the breadth of the claim as discussed above, this cavil is an inadequate basis to throw out Petitioner’s eligibility challenge to claim 1.

See 37 C.F.R. § 42.5 (“The Board may waive or suspend a requirement of parts 1, 41, and 42[.]”).

Thus, we conclude Petitioner has shown that the additional limitations of claim 1, viewed individually and as an ordered combination, merely use well-understood, routine, and conventional computer components and functionality to identify a merchant and enable completion of a purchase from the merchant, such that claim 1 does not provide an inventive concept.

f) Conclusion as to Claim 1

Petitioner has shown that the limitations of claim 1, when considered individually and as an ordered combination, do no more than apply a certain method of organizing human activity, namely identifying a merchant and enabling completion of a purchase from the merchant. *See Alice*, 573 U.S. at 217–18. Petitioner also has shown that claim 1 does not recite anything in a manner sufficient to transform that abstract idea into a patent-eligible invention. *See id.* Therefore, we conclude claim 1 is unpatentable as claiming ineligible subject matter under 35 U.S.C. § 101.

3. Claims 13 and 15

Claim 13 of the ’423 patent recites a mobile device comprising “one or more radio transceivers,” “one or more output devices including a display,” “one or more processors,” and “memory storing one or more programs to be executed by the one or more processors, the one or more programs comprising instructions for” performing the same steps as method claim 1. Ex. 1001, 48:37–49:6. Claim 15 recites a “non-transitory computer readable storage medium storing one or more programs, the one or more programs comprising instructions, which, when executed by a mobile device

with one or more processors, one or more output devices including a display, and one or more radio transceivers, cause the mobile device to perform” the same steps as method claim 1. *Id.* at 49:12–50:6.

Both parties refer back to their arguments concerning claim 1 when addressing claims 13 and 15. *See* Pet. 84–85; PO Resp. 52; Pet. Reply 19. For the reasons provided above in relation to claim 1, we conclude: (1) collateral estoppel does not prevent Patent Owner from arguing claims 13 and 15 satisfy the subject matter eligibility requirement of 35 U.S.C. § 101; and (2) Petitioner has shown on the merits that claims 13 and 15 are unpatentable as claiming ineligible subject matter.

4. *Claims 2 and 16*

Claim 2 of the ’423 patent depends from claim 1 to add that the user interface of the mobile device is updated after exchanging information with the payment accepting unit to include a message, a banner notification, or a visual alert from light-emitting diodes. *See* Ex. 1001, 47:32–41 (parent claim 1), 47:42–49 (claim 2). Claim 16 depends from independent claim 15 and recites the same limitations as claim 2. *See id.* at 50:7–14.

Petitioner argues claims 2 and 16 do not add meaningful limitations to the abstract idea of the independent claims. *See* Pet. 88 (citing PGR2021-00093, Paper 38, at 44–46). In support, Petitioner asserts the ’423 patent fails to “provide additional information regarding the claimed messages, notifications, or visual alerts, beyond that ‘appropriate technology may be used’ and providing generic sample notifications and messages.” *Id.* at 86 (citing Ex. 1001, Figs. 26A–26D, 13:45–50, 38:26–43); Ex. 1003 ¶ 324.

Patent Owner argues “Petitioner fails to meet its burden” here by “ignor[ing] the claim limitations as a whole.” PO Resp. 53. Patent Owner asserts in Step 2A that claims 2 and 16 “recite[] the display of particular features with particular structure (*i.e.*, a message, a banner notification, or a visual alert from one or more LEDs) after a particular sequence of events using particular hardware (*i.e.*, after *exchanging information with the available payment accepting unit via the one or more radio transceivers, in conjunction with the transaction[]*).” *Id.*; Ex. 2008 ¶ 119. Patent Owner asserts in Step 2B that Petitioner’s anticipation analysis “fails to identify any support that these limitations, when considered as a whole, were well-understood, routine, and conventional.” PO Resp. 53 (citing *id.* at 13–14); Ex. 2008 ¶ 119.

Petitioner replies that “Patent Owner made similar arguments in [PGR2021-00093], which the Board properly rejected.” Pet. Reply 20 (citing PGR2021-00093, Paper 38, at 34–35, 44–45).

Patent Owner responds that “Petitioner’s reliance on its obviousness analysis and erroneous assertions regarding the prior art’s disclosure . . . carries over to” dependent claims 2 and 16. PO Sur-reply 22.

In Step 2A, we conclude claims 2 and 16 are directed to the abstract idea of identifying a merchant and enabling completion of a purchase from the merchant, as discussed above in relation to claim 1. The dependent claim limitations fail to integrate that abstract idea into a practical application because notifying the user of information exchanged between the mobile device and the payment accepting unit adds only insignificant extra-solution activity to the abstract idea. *See* MPEP § 2106.04(d)(I) (“[a]dding insignificant extra-solution activity to the [abstract idea]” does not integrate the abstract idea into a practical application); *id.* § 2106.05(g)

(“An example of post-solution activity is an element that is not integrated into the claim as a whole, *e.g.*, a printer that is used to output a report . . .”).

Moreover, simply notifying the user of information exchanged between the mobile device and the payment accepting unit does not improve the functioning of the mobile device or the payment accepting unit. *See* MPEP § 2106.04(d) (“claims that improve the functioning of a computer or other technology or technological field” integrate an abstract idea into a practical application); *see also id.* § 2106.04(d)(1) & § 2106.05(a) (discussing this principle in detail); 2025 Guidance, at 4 (“**Improvements consideration**”). An “important consideration” in this context “is the extent to which the claim covers a particular solution to a problem or a particular way to achieve a desired outcome, as opposed to merely claiming the idea of a solution or outcome.” 2025 Guidance, at 4. Claims 2 and 16 fall into the latter category, by merely updating the user as to information being exchanged. *See, e.g., Mobile Acuity Ltd. v. Blippar Ltd.*, 110 F.4th 1280, 1292–93 (Fed. Cir. 2024) (“As we have by now frequently held, claims reciting generalized steps of collecting, analyzing, and presenting information, using nothing other than the conventional operations of generic computer components, are directed to abstract ideas.”).

In Step 2B, we conclude the additional limitations in claims 2 and 16 do not transform the abstract idea into a patent-eligible concept, because they represent well-understood, routine, and conventional activity in notifying the user of information exchanged between the mobile device and the payment accepting unit. The nature and brevity of the ’423 patent specification’s description of the message / banner notification / LED alert of claims 2 and 16 suggests these elements are routine and conventional in the field. *See* Ex. 1001, 2:30–52, 34:18–30 (Figs. 26A–26D), 35:49–55,

38:6–52; MPEP § 2106.05 (“Although the courts often evaluate considerations such as the conventionality of an additional element in the eligibility analysis, the search for an inventive concept should not be confused with a novelty or non-obviousness determination.”); *id.*

§ 2106.05(d) (“in many instances, the specification of the application may indicate that additional elements are well-known or conventional” (citing case law)); *Berkheimer*, 881 F.3d at 1368–70 (examining the challenged patent’s specification in the context of applying Step 2B).¹³ We credit Dr. Neuman’s testimony on this point over Dr. Miller’s rebuttal. *See* Ex. 1003 ¶ 324; Ex. 2008 ¶ 119.

We conclude Petitioner has shown claims 2 and 16 are unpatentable as claiming ineligible subject matter under 35 U.S.C. § 101.

5. *Claims 3, 4, and 17*

Claim 3 of the ’423 patent depends from claim 1 to add that the information exchanged with the payment accepting unit “indicates completion of the transaction.” Ex. 1001, 47:36–38 (parent claim 1), 47:50–52 (claim 3). Claim 4 depends from claim 3 to add that the exchanged information “includes an amount of the completed transaction,” and to specify further that “the mobile device includes a long-range

¹³ Patent Owner cites *CosmoKey Solutions GmbH & Co. KG v. Duo Security LLC*, 15 F.4th 1091, 1098 (Fed. Cir. 2021), as “finding district court’s reliance on challenged patent’s specification description that steps were routine or conventional was ‘misplaced’ as prior art did not teach the recited claim steps.” PO Resp. 53–54. We disagree. In *CosmoKey*, the Court simply disagreed with the district court’s reading of the challenged patent’s specification, and did not require an inquiry into what the prior art teaches separately from the specification. *See CosmoKey*, 15 F.4th at 1098–99.

transceiver” that sends the completed transaction amount to a server. *Id.* at 47:53–58. Claim 17 depends from independent claim 15 and recites the same limitations as claim 4 except that it does not require a long-range transceiver. *See id.* at 50:16–25.

Petitioner argues claims 3, 4, and 17 do not add meaningful limitations to the abstract idea of the independent claims. *See* Pet. 85–89 (citing PGR2021-00093, Paper 38, at 44–46). Concerning claim 3, Petitioner asserts the ’423 patent fails to “provide additional information regarding the claimed message[s] . . . beyond that ‘appropriate technology may be used’ and providing generic sample notifications and messages.” *Id.* at 86 (citing Ex. 1001, Figs. 26A–26D, 13:45–50, 38:5–43); Ex. 1003 ¶ 324. Concerning claims 4 and 17, Petitioner asserts “[t]hese limitations are akin to the limitation in *Ex [p]arte James* directed to receiving transaction data from a remote bank computer server system,” which was found to be patent ineligible. Pet. 88–89 (citing *Ex parte James*, 2019 WL 2763407, at *16); Ex. 1003 ¶ 325.

Patent Owner argues in Step 2A that each of claims 3, 4, and 17 “when considered as a whole, recite that particular types of information (*i.e.*, information that *indicates completion of the transaction between the user of the mobile device and the payment accepting unit* (claim 3) and *includes an amount of the completed transactions* (claims 4 and 17)) are exchanged” utilizing “particular hardware (*i.e.*, *one or more radio transceivers[]*).” PO Resp. 54; Ex. 2008 ¶ 120. Patent Owner asserts claims 4 and 17 further specify “that the information is also sent to *a server via [a] long-range transceiver.*” PO Resp. 54 (alteration in original); Ex. 2008 ¶ 120. Patent Owner argues in Step 2B that Petitioner’s anticipation analysis “fails to

identify any support that these limitations, when considered as a whole, were well-understood, routine, and conventional.” PO Resp. 54 (citing *id.* at 14–19, 24); Ex. 2008 ¶ 120.

Concerning claim 3, Petitioner replies that “Patent Owner made similar arguments in [PGR2021-00093], which the Board properly rejected.” Pet. Reply 20 (citing PGR2021-00093, Paper 38, at 34–35, 44–45).

Concerning claims 4 and 17, Petitioner replies “the Board [in PGR2021-00093] already concluded that the additional limitations in nearly identical claims did not add ‘meaningful limitations to the judicial exception and that the claimed subject matter of each of those claims is patent ineligible.’” *Id.* at 21 (citing Ex. 1011; PGR2021-00093, Paper 38, at 45–46). Further: “These claims are also analogous to those found ineligible in” *Ex parte James*. *Id.* (citing *Ex parte James*, 2019 WL 2763407, at *7–8).

Patent Owner responds as with claims 2 and 16 discussed above. *See* PO Sur-reply 22.

In Step 2A, we conclude claims 3, 4, and 17 are each directed to the abstract idea of identifying a merchant and enabling completion of a purchase from the merchant, as discussed above in relation to claim 1. The dependent claim limitations fail to integrate that abstract idea into a practical application because exchanging information to indicate completion of the transaction (as in claim 3) and an amount of the completed transaction (as in claims 4 and 17) adds only insignificant extra-solution activity to the abstract idea. *See* MPEP § 2106.04(d)(I) (“[a]dding insignificant extra-solution activity to the [abstract idea]” does not integrate the abstract idea into a practical application); *id.* § 2106.05(g) (“**Mere Data Gathering**” is extra-solution activity that does not integrate an abstract idea into a practical application); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355

(Fed. Cir. 2014) (“That a computer receives and sends the information over a network — with no further specification — is not even arguably inventive.”).

Moreover, the “long-range transceiver” recited in claim 4 is claimed simply as a generic component performing its ordinary function of data exchange, and is not recited as having any specific structure. For example, Patent Owner does not cite, and we do not find, any disclosure in the ’423 patent specification that the claimed long-range transceiver is anything other than a generic component for data exchange. *See, e.g.*, Ex. 1001, 2:66–3:6, 9:43–10:2, 10:39–42, 13:41–58, 14:10–17, 15:1–6, 15:54–59.

Turning to each of claims 3, 4, and 17 as a whole, the claims do not specify how notifying the mobile device that the transaction is complete (as in claim 3) including the amount (as in claims 4 and 17), or notifying the server of the amount (as in claims 4 and 17), might improve the functioning of the overall system. *See* MPEP § 2106.04(d) (“claims that improve the functioning of a computer or other technology or technological field” integrate an abstract idea into a practical application); *see also id.* § 2106.04(d)(1) & § 2106.05(a) (discussing this principle in detail); 2025 Guidance, at 4 (“**Improvements consideration**”). An “important consideration” in this context “is the extent to which the claim covers a particular solution to a problem or a particular way to achieve a desired outcome, as opposed to merely claiming the idea of a solution or outcome.” 2025 Guidance, at 4. Because claims 3, 4, and 17 stop at transmitting information, without specifying how that information is used upon receipt, they merely claim the idea of a solution or outcome rather than covering the solution to a problem or providing a particular way to achieve a desired outcome.

In other words, the exchange of information recited in these claims is not a practical application of anything. The claims instead are “a drafting effort designed to monopolize” the abstract idea which does not “apply, rely on, or use the [abstract idea] in a manner that imposes a meaningful limit on the [abstract idea].” MPEP § 2106.04(d); *see also Mobile Acuity*, 110 F.4th at 1292–93; *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1316 (Fed. Cir. 2016) (patent owner argued the claimed email filtering system improved technology by shrinking the protection gap and mooted the volume problem, but the Court disagreed because the claims themselves did not have any limitations that addressed these issues).

In Step 2B, we conclude the additional limitations in claims 3, 4, and 17 do not transform the abstract idea into an inventive concept by amounting to significantly more than the abstract idea, either alone or in combination with other claim elements. *See, e.g.*, MPEP § 2106.05. We rely principally on our reasoning in Step 2A as also applying here in Step 2B. *See id.* § 2106.04(d)(I) (“Step 2A Prong Two is similar to Step 2B in that both analyses involve evaluating a set of judicial considerations to determine if the claim is eligible,” and “most of these considerations overlap (i.e., they are evaluated in both Step 2A Prong Two and Step 2B).”) & § 2106.05(II).

Thus, we need not, and we do not, reach the issue of whether the additional information exchange limitations in claims 3, 4, and 17 represent well-understood, routine, and conventional activity in the field. *See, e.g., id.* § 2106.05 (listing various factors to consider in Step 2B, only one of which is well-understood, routine, and conventional activity in the field). We do add for Step 2B, however, that the “long-range transceiver” recited in claim 4 is described in the ’423 patent specification as a generic hardware

component that is well-known in the field. *See, e.g.*, Ex. 1001, 2:66–3:6, 9:43–10:2, 10:39–42, 13:41–58, 14:10–17, 15:1–6, 15:54–59.

We conclude Petitioner has shown claims 3, 4, and 17 are unpatentable as claiming ineligible subject matter under 35 U.S.C. § 101.

6. *Claims 5, 6, 18, and 19*

Claim 5 of the '423 patent depends from claim 1 to add that the information exchanged with the payment accepting unit “indicates abortion of the transaction initiated by the user of the mobile device.” Ex. 1001, 47:36–38 (parent claim 1), 47:59–61 (claim 5). Claim 18 depends from independent claim 15 and recites the same limitation as claim 5. *See id.* at 50:26–28.

Claim 6 of the '423 patent depends from claim 1 to add that the information exchanged with the payment accepting unit “indicates failure of the transaction initiated by the user of the mobile device or a malfunction associated with the available payment accepting unit.” *Id.* at 47:62–65. Claim 19 depends from independent claim 15 and recites the same limitation as claim 6. *See id.* at 50:29–33.

Petitioner argues claims 5, 6, 18, and 19 do not add meaningful limitations to the abstract idea of the independent claims. *See* Pet. 89 (citing PGR2021-00093, Paper 38, at 44–46). Petitioner particularly asserts “[n]one of these claims improve the technology used to exchange information and each of these claims could be performed by a merchant delivering the same information . . . verbally.” *Id.* (citing PGR2021-00093, Paper 38, at 44–45; *Ex parte James*, 2019 WL 2763407, at *6–8); Ex. 1003 ¶ 326.

Patent Owner argues in Step 2A that Petitioner ignores that claims 5, 6, 18, and 19 “specify the particular components and hardware by which the

information is exchanged (*i.e.*, between the mobile device and the available payment accepting unit via the one or more radio transceivers),” and that “Petitioner presents no evidence that these limitations ‘could be performed by a merchant delivering the same information verbally.’” PO Resp. 54–55 (citing Pet. 89); Ex. 2008 ¶ 121. Patent Owner argues in Step 2B that there is “no evidence” indicating the limitations of these dependent claims “as a whole, were well-understood, routine, and conventional.” PO Resp. 55 (citing Pet. 89); Ex. 2008 ¶ 121.

Petitioner replies that “the Board [in PGR2021-00093] already concluded that the additional limitations in nearly identical claims did not add ‘meaningful limitations to the judicial exception and that the claimed subject matter of each of those claims is patent ineligible.’” Pet. Reply 21 (citing Ex. 1011; PGR2021-00093, Paper 38, at 45–46). Further: “These claims are also analogous to those found ineligible in” *Ex parte James*. *Id.* (citing *Ex parte James*, 2019 WL 2763407, at *7–8).

Patent Owner responds as with claims 2 and 16 discussed above. *See* PO Sur-reply 22.

In Step 2A, we conclude claims 5, 6, 18, and 19 are each directed to the abstract idea of identifying a merchant and enabling completion of a purchase from the merchant, as discussed above in relation to claim 1. The dependent claim limitations fail to integrate that abstract idea into a practical application because exchanging information to indicate abortion or failure of the transaction, or malfunction of the payment accepting unit, adds only insignificant extra-solution activity to the abstract idea. *See* MPEP § 2106.04(d)(I) (“[a]dding insignificant extra-solution activity to the [abstract idea]” does not integrate the abstract idea into a practical application); *id.* § 2106.05(g) (“**Mere Data Gathering**” is extra-solution

activity that does not integrate an abstract idea into a practical application); *buySAFE*, 765 F.3d at 1355.

Turning to each of claims 5, 6, 18, and 19 as a whole, the claims do not specify how notifying the mobile device that the transaction has been aborted or has failed, or notifying the mobile device that the payment accepting unit has malfunctioned, might improve the functioning of the overall system. *See* MPEP § 2106.04(d) (“claims that improve the functioning of a computer or other technology or technological field” integrate an abstract idea into a practical application); *see also id.*

§ 2106.04(d)(1) & § 2106.05(a) (discussing this principle in detail); 2025 Guidance, at 4 (“***Improvements consideration***”). An “important consideration” in this context “is the extent to which the claim covers a particular solution to a problem or a particular way to achieve a desired outcome, as opposed to merely claiming the idea of a solution or outcome.” 2025 Guidance, at 4. Because claims 5, 6, 18, and 19 stop at transmitting information, without specifying how that information is used upon receipt, they merely claim the idea of a solution or outcome rather than covering the solution to a problem or providing a particular way to achieve a desired outcome.

In other words, the exchange of information recited in these claims is not a practical application of anything. The claims instead are “a drafting effort designed to monopolize” the abstract idea which does not “apply, rely on, or use the [abstract idea] in a manner that imposes a meaningful limit on the [abstract idea].” MPEP § 2106.04(d); *see also Mobile Acuity*, 110 F.4th at 1292–93; *Intellectual Ventures v. Symantec*, 838 F.3d at 1316.

In Step 2B, we conclude the additional limitations in claims 5, 6, 18, and 19 do not transform the abstract idea into an inventive concept by

amounting to significantly more than the abstract idea, either alone or in combination with other claim elements. *See, e.g.*, MPEP § 2106.05. We rely on our reasoning in Step 2A as also applying here in Step 2B. *See id.* § 2106.04(d)(I) (“Step 2A Prong Two is similar to Step 2B in that both analyses involve evaluating a set of judicial considerations to determine if the claim is eligible,” and “most of these considerations overlap (i.e., they are evaluated in both Step 2A Prong Two and Step 2B).”) & § 2106.05(II). Thus, we need not, and we do not, reach the issue of whether the additional information exchange limitations in claims 5, 6, 18, and 19 represent well-understood, routine, and conventional activity in the field. *See, e.g., id.* § 2106.05 (listing various factors to consider in Step 2B, only one of which is well-understood, routine, and conventional activity in the field).

We conclude Petitioner has shown claims 5, 6, 18, and 19 are unpatentable as claiming ineligible subject matter under 35 U.S.C. § 101.

7. Claim 7

Claim 7 of the '423 patent recites:

7. The method of claim 1, wherein the mobile device includes an accelerometer and the method further comprises:

based on data from the accelerometer, determining whether the user is walking away from the available payment accepting unit; and

in accordance with a determination that the user is walking away from the available payment accepting unit, canceling the wireless communication path.

Ex. 1001, 47:66–48:6.

Petitioner argues the claimed “use of an accelerometer to detect when a user has departed and then to cancel the transaction . . . is no different than ending a transaction when a customer walks out of a store.” Pet. 90 (citing

Ex. 1001, 48:5–13). Petitioner also asserts that “using a standard accelerometer inherent to a mobile device to detect movement was already well-known.” *Id.* (citing Ex. 1001, 8:62–9:30, 11:21–25; Ex. 1006, 13:28–35; Ex. 1008, 7:61–8:3; *Ex parte James*, 2019 WL 2763407, at *16); Ex. 1003 ¶¶ 330–332.

Patent Owner argues in Step 2A that claim 7 “recites the use of data from a particular hardware component (*i.e.*, *an accelerometer*) to make a specific determination (*i.e.*, *whether the user is walking away from the available payment accepting unit*) and *canceling the wireless communication path . . . upon a determination that the user is walking away.*” PO Resp. 55–56; Ex. 2008 ¶ 122. Patent Owner also asserts Petitioner fails to explain “why this specific combination of features ‘is no different than ending a transaction when a customer walks out of a store.’” PO Resp. 56 (quoting Pet. 90).

Patent Owner argues in Step 2B that there is “no evidence” indicating that the subject matter of claim 7 “was disclosed in the art [*i.e.*, Low and Arora],” and Petitioner “fails to show that the use of an accelerometer **as specifically claimed** was well-known.” PO Resp. 56. Patent Owner cites *Thales Visionix Inc. v. United States*, 850 F.3d 1343, 1348–49 (Fed. Cir. 2017), as “finding eligible claims ‘that use inertial sensors in a non-conventional manner.’” PO Resp. 56.

Petitioner replies that “[c]laim 7’s recitation of a standard accelerometer ‘as specifically claimed’ in a conventional mobile device to detect movement and determine that a user is walking away from a vending machine was already well-known and conventional,” as evidenced by Dr. Neuman’s testimony and “certain prior art.” Pet. Reply 21 (citing Ex. 1003 ¶¶ 330–333; *Ex parte James*, 2019 WL 2763407, at *16).

Patent Owner responds as with claims 2 and 16 discussed above. *See* PO Sur-reply 22.

In PGR2021-00093, the Board determined that the petitioner had not proven unpatentable a claim with nearly identical limitations. PGR2021-00093, Paper 38 at 45–46; *see* Ex. 1011, 5 (noting the only difference is that claim 7 of the ’423 patent recites “canceling the wireless communication path,” whereas the claim in PGR2021-00093 recited “canceling the wireless connection”). We reach the same determination.

In Step 2A, we are not persuaded that claim 7 is directed to the same abstract idea as parent claim 1 of identifying a merchant and enabling completion of a purchase from the merchant. Petitioner argues that the claim 7 limitations are “no different than ending a transaction when a customer walks out of a store.” Pet. 90. Petitioner, however, provides no explanation why and Dr. Neuman does not address the issue in his declaration. *See id.* Petitioner’s analogy also does not accurately characterize the claim language. *See McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1313 (Fed. Cir. 2016) (we “‘must be careful to avoid oversimplifying the claims’ by looking at them generally and failing to account for the specific requirements of the claims”). Claim 7 recites “canceling the wireless communication path”—not ending a transaction—based on a determination that the user is walking away. The wireless communication path is established in Limitation [1.8], after which user interaction with the user interface is enabled “to complete a transaction” with the selected payment accepting unit in Limitation [1.9]. In other words, establishing a wireless communication path begins a period of time when the user is able to complete a transaction. *See* Ex. 1001, 21:13–22, 26:23–35, Fig. 9C (depicting a determination as to whether the user has walked away at

block 328, prior to the user performing a transaction by selecting an item at block 334). It does not begin a transaction itself, such that the transaction would “end” when the user walks away as Petitioner contends. Therefore, Petitioner’s analogy to a customer walking out of a store is unpersuasive.

We agree with Patent Owner that the instant facts are similar to those of *Thales*, where the Federal Circuit determined that the claims at issue “use[d] inertial sensors *in a non-conventional manner* to reduce errors in measuring the relative position and orientation of a moving object on a moving reference frame” and thus were not directed to an abstract idea. *See Thales*, 850 F.3d at 1348–49 (emphasis added); PO Resp. 56. Rather than using an accelerometer to detect movement of a device generally, claim 7 recites a particular way of using an accelerometer (determining whether a user is “walking away” from an available payment accepting unit) and taking a particular action (canceling a wireless communication path that had been established previously) based on the determination with the accelerometer. *See Ollnova Techs. Ltd. v. ecobee Techs. ULC*, 177 F.4th 1343, 1361 (Fed. Cir. 2026) (determining that the claims at issue “do not merely describe collecting and communicating data in the abstract,” but rather “recite a particular technique governing when and how information is transmitted within a network using a wireless automation device” (emphasis omitted)); *Thales*, 850 F.3d at 1349 (determining that the claims at issue “specify a particular configuration of inertial sensors and a particular method of using the raw data from the sensors in order to” achieve a particular result). In that respect, claim 7 also is different from the other dependent claims discussed herein, which only recite information exchange or add insignificant extra-solution activity to the abstract idea. *See* Sections II.H.3–6, II.H.8–11; 2025 Guidance, at 4 (distinguishing claims that recite

“a particular way to achieve a desired outcome” from those that “merely claim[] the idea of a solution or outcome”).

Even if Petitioner had made a sufficient showing at Step 2A, though, Petitioner has not shown sufficiently at Step 2B that the additional limitations in claim 7 do not transform the alleged abstract idea into a patent-eligible concept. Petitioner argues that “using a standard accelerometer inherent to a mobile device to detect movement was already well-known.” Pet. 90. But that assertion is not commensurate with the claim language. Claim 7 does not recite using an accelerometer to detect movement. Rather, it requires a determination as to “whether the user is *walking away* from the available payment accepting unit” “based on data from [an] accelerometer” and, “in accordance with a determination that the user is *walking away* from the available payment accepting unit, canceling the wireless communication path” (emphasis added). Petitioner does not explain how the particular recited use of an accelerometer to detect that a user is “walking away” from a payment accepting unit and canceling a wireless communication path based on that determination—as opposed to merely the use of an accelerometer itself, which detects movement—was well-understood, routine, and conventional and is not indicative of an innovative concept.

Nor does the evidence cited by Petitioner and Dr. Neuman show that the recited steps were well-understood, routine, and conventional. *See* Pet. 90 (citing Ex. 1001, 8:62–9:30, 11:21–25; Ex. 1006, 13:28–35; Ex. 1008, 7:61–8:3; Ex. 1003 ¶¶ 330–332; *Ex parte James*, 2019 WL 2763407, at *16); Ex. 2008 ¶ 122. The cited portions of the ’423 patent specification describe mobile device 150 and state that mobile devices can be “smart phones, tablet or laptop computers, or personal digital assistants

(PDAs), smart cards, or other technology (e.g., a hardware-software combination) known or yet to be discovered that has structure and/or capabilities similar to the mobile devices described herein,” where an “app” on the mobile device can be “any software program(s) capable of implementing the features described herein.” Ex. 1001, 8:63–9:30. The specification also discloses that “accelerometer data (e.g., is the user moving or stationary) . . . may . . . be logged.” *Id.* at 11:22–25. These portions show, at most, that a mobile device can have an accelerometer. They do not pertain to the particular recited use of an accelerometer to determine that a user is “walking away” from a payment accepting unit or canceling a wireless communication path based on such a determination.

Arora likewise does not support Petitioner’s position. Arora discloses “[d]etermining customer 17 location [using] one or more technologies,” such as GPS, cellular geolocation, vision-based location determination, manual location entry, or “inertial guidance,” which “may use an accelerometer and other sensors in the customer 17’s personal electronic device 18.” Ex. 1006, 13:28–35. Arora “determine[s] whether or not a customer is within a particular transaction distance of a particular vending machine or vending group.” *Id.* at 12:41–13:5 (describing various exemplary distances away from a vending machine, i.e., “dispensing” distance, “identification” distance, “within sight” distance, and “potential buyer” distance), 18:39–42, Figs. 1, 6 (step 90). In the context of Figure 6, a “message appropriate to the potential transaction is sent to the customer” when the customer is within the “transaction distance” (step 92), then the system “waits for a customer response” (step 94) and checks again whether the customer is within the “transaction distance” if “no response is received within a timeout period” or, if the customer does respond, waits until the customer is within a

“dispensing distance” (step 97). *Id.* at 18:44–19:4. Arora, therefore, periodically determines a customer’s distance from a vending machine to determine whether that distance is within a predetermined range. It does not use an accelerometer to determine how a customer is moving relative to the vending machine or make a determination that the customer is “walking away” from the vending machine.

Neither does Casey. The cited portion of Casey merely states that its motion sensing device 62 “may be any device configured to measure motion or acceleration, such as an accelerometer,” and “may be configured to sense and measure various types of motion including, but not limited to, velocity, acceleration, rotation, and direction.” Ex. 1008, 7:61–8:3. The ability to use an accelerometer generally to sense direction does not mean that the particular recited use to determine that a user is “walking away” from a payment accepting unit and canceling a wireless communication path based on that determination were well-understood, routine, and conventional. Petitioner’s evidence and argument are insufficient because they do not account for the specific use of an accelerometer recited in claim 7 (as opposed to just the use of an accelerometer generally).

We determine that Petitioner fails to articulate adequately and with particularity why dependent claim 7 is unpatentable. Petitioner has not shown, by a preponderance of the evidence, that claim 7 is unpatentable as claiming patent-ineligible subject matter under 35 U.S.C. § 101.

8. Claims 8, 9, 12, 14, and 20

Petitioner provides arguments and evidence contending claims 8, 9, 12, 14, and 20 of the ’423 patent are unpatentable as claiming ineligible subject matter under 35 U.S.C. § 101. *See* Pet. 86–88 (claim 8),

89 (claim 9), 89–90 (claim 14), 92 (claims 12 and 20); Ex. 1003 ¶¶ 324, 327, 329, 338.

Patent Owner does not argue for the patentability of these claims separately from their parent independent claims. *See* PO Resp. 52–57 (arguments directed to dependent claims); Pet. Reply 20.

We have reviewed Petitioner’s arguments and cited supporting evidence concerning these claims, as cited above. We are persuaded by the arguments, so we adopt them as our own in this Decision, and we conclude Petitioner has shown the claims are unpatentable as claiming ineligible subject matter under 35 U.S.C. § 101.

9. *Claim 10*

Claim 10 of the ’423 patent depends from claim 1 to add that the user interface of the mobile device “after establishing the wireless communication path [with the payment accepting unit], indicates that the wireless communication path has been established.” Ex. 1001, 47:32–35 (parent claim 1), 48:16–20 (claim 10).

Petitioner argues claim 10 does not add meaningful limitations to the abstract idea of its parent claim 1. *See* Pet. 89 (citing PGR2021-00093, Paper 38, at 44–46). In support, Petitioner asserts claim 10 “recites a generic notification that a conventional communication path has been established,” does not “improve the technology used to exchange information,” and “could be performed by a merchant delivering the same information . . . verbally.” *Id.* (citing PGR2021-00093, Paper 38, at 44–45; *Ex parte James*, 2019 WL 2763407, at *6–8); Ex. 1003 ¶ 328.

Patent Owner argues in Step 2A that Petitioner “ignores that claim 10 specifies information indicating that *the wireless communication path* (not

any ‘conventional communication path,’ as characterized by Petitioner) has been established.” PO Resp. 54–55; Ex. 2008 ¶ 121. Claim 10 further specifies, according to Patent Owner, “the particular devices and hardware that are included as part of the path (*i.e., the mobile device and the available payment accepting unit of the one or more payment accepting units* that is established *via the one or more radio transceivers[]*.” PO Resp. 54–55; Ex. 2008 ¶ 121. Moreover: “Petitioner presents no evidence that these limitations ‘could be performed by a merchant delivering the same information verbally.’” PO Resp. 55 (citing Pet. 89); Ex. 2008 ¶ 121. Patent Owner argues in Step 2B that there is “no evidence” indicating the limitations of claim 10 “as a whole, were well-understood, routine, and conventional.” PO Resp. 55 (citing Pet. 89); Ex. 2008 ¶ 121.

Petitioner replies that “the Board [in PGR2021-00093] already concluded that the additional limitations in nearly identical claims did not add ‘meaningful limitations to the judicial exception and that the claimed subject matter . . . is patent ineligible.’” Pet. Reply 21 (citing Ex. 1011; PGR2021-00093, Paper 38, at 45–46). Further according to Petitioner, claim 10 also is “analogous to [claims] found ineligible in” *Ex parte James*. *Id.* (citing *Ex parte James*, 2019 WL 2763407, at *7–8).

Patent Owner responds as with claims 2 and 16 discussed above. *See* PO Sur-reply 22.

In Step 2A, we conclude claim 10 is directed to the abstract idea of identifying a merchant and enabling completion of a purchase from the merchant, as discussed above in relation to claim 1. The dependent claim limitation fails to integrate that abstract idea into a practical application because notifying the user that a wireless communication path has been established between the mobile device and a payment accepting unit adds

only insignificant extra-solution activity to the abstract idea. *See* MPEP § 2106.04(d)(I) (“[a]dding insignificant extra-solution activity to the [abstract idea]” does not integrate the abstract idea into a practical application); *id.* § 2106.05(g) (“An example of post-solution activity is an element that is not integrated into the claim as a whole, *e.g.*, a printer that is used to output a report . . .”).

Moreover, simply notifying the user that the wireless communication path has been established does not improve the functioning of the mobile device or the payment accepting unit. *See* MPEP § 2106.04(d) (“claims that improve the functioning of a computer or other technology or technological field” integrate an abstract idea into a practical application); *see also id.* § 2106.04(d)(1) & § 2106.05(a) (discussing this principle in detail); 2025 Guidance, at 4 (“***Improvements consideration***”). An “important consideration” in this context “is the extent to which the claim covers a particular solution to a problem or a particular way to achieve a desired outcome, as opposed to merely claiming the idea of a solution or outcome.” 2025 Guidance, at 4. Claim 10 falls into the latter category, by merely updating the user as to the status of the wireless communication path.

In other words, notifying the user that the wireless communication path has been established is not a practical application of anything. Claim 10 instead is “a drafting effort designed to monopolize” the abstract idea which does not “apply, rely on, or use the [abstract idea] in a manner that imposes a meaningful limit on the [abstract idea].” MPEP § 2106.04(d); *see also Mobile Acuity*, 110 F.4th at 1292–93; *Intellectual Ventures v. Symantec*, 838 F.3d at 1316.

In Step 2B, we conclude the additional limitation in claim 10 does not transform the abstract idea into an inventive concept by amounting to

significantly more than the abstract idea, either alone or in combination with other claim elements. *See, e.g.*, MPEP § 2106.05. We rely on our reasoning in Step 2A as also applying here in Step 2B. *See id.* § 2106.04(d)(I) (“Step 2A Prong Two is similar to Step 2B in that both analyses involve evaluating a set of judicial considerations to determine if the claim is eligible,” and “most of these considerations overlap (i.e., they are evaluated in both Step 2A Prong Two and Step 2B).”) & § 2106.05(II). Thus, we need not, and we do not, reach the issue of whether the additional limitation in claim 10 represents well-understood, routine, and conventional activity in the field. *See, e.g., id.* § 2106.05 (listing various factors to consider in Step 2B, only one of which is well-understood, routine, and conventional activity in the field).

We conclude Petitioner has shown claim 10 is unpatentable as claiming ineligible subject matter under 35 U.S.C. § 101.

10. Claim 11

Claim 11 of the '423 patent depends from claim 1 to add that the user interface of the mobile device, after establishing the wireless communication path with the payment accepting unit, includes

- a visual representation of the available payment accepting unit;

- an indication of a prepaid balance; and

- an affordance that when slid, indicates the initiation of the transaction;

- wherein the affordance is slid in response to receiving a user input of swipe on the affordance displayed on the display of the mobile device.

Ex. 1001, 47:32–35 (parent claim 1), 48:21–31 (claim 11).

Petitioner argues claim 11 merely recites “communicating generic information regarding a transaction using a well-known, generic and conventional ‘user interface.’” Pet. 91 (citing *Ex parte James*, 2019 WL 2763407, at *6–8); Ex. 1003 ¶¶ 333–334. Petitioner asserts that “the claims and specification provide no guidance as to how the information is displayed” and the “inclusion of generalized steps using conventional technology does not render the claims directed to improvements in the underlying technology.” *Id.* (citing Ex. 1003 ¶¶ 333–336). With respect to the “affordance” recited in claim 11, Petitioner contends that it “is slid in response to receiving a user input of swipe,” the ’423 patent specification “describes only a generic ‘swipe-to-pay’ and ‘affordance,’” and “the use of a ‘swipe’ on a generic user interface of a mobile phone to initiate a transaction was well-known, routine, and conventional at the time of the invention.” *Id.* at 91–92 (citing Ex. 1001, 7:13–32, 37:9–12, 38:50–52; Ex. 1003 ¶ 337).

Patent Owner argues in Step 2A that claim 11 recites that “the user interface includes specific user interface elements” that “work together to provide specific features on a mobile device that a user must interact with to engage with the payment accepting unit, while also providing specific assurances that the user will be able to conduct the transaction that the user desires.” PO Resp. 56–57 (citing Ex. 2008 ¶¶ 123–124). Patent Owner further contends that Petitioner fails to prove that the combination of Low, Arora, Freeny, and Casey teaches the limitations of claim 11 and Petitioner provides “no explanation or evidence that the specific combination of user interface elements recited in claim 11 was well-understood, routine, and conventional.” *Id.* at 57 (citing *id.* at 27–32; Ex. 2008 ¶ 125).

Petitioner replies that “Patent Owner made similar arguments in [PGR2021-00093], which the Board properly rejected.” Pet. Reply 21–22 (citing PGR2021-00093, Paper 38, at 28).

Patent Owner responds as with claims 2 and 16 discussed above. *See* PO Sur-reply 22.

As an initial matter, we note that the Board in PGR2021-00093 considered dependent claim 11 in the ’614 patent, which “elaborate[d] on the user interface requirement of independent claim 1 and call[ed] for the visual representation of the vending machine, a ‘prepared balance,’ and ‘an affordance that when slid, indicates the initiation of the vending transaction.’” PGR2021-00093, Paper 38, at 46–47; *see* Ex. 1011, 6–7. The Board concluded the petitioners there (KioSoft and TechTrex) “failed to adequately address the claim as a whole” and “fail[ed] to articulate adequately and with particularity” why claim 11 was patent ineligible under § 101. PGR2021-00093, Paper 38, at 47. In particular:

Simply asserting that swiping as a general concept was known does not explain adequately, for example, whether the use as recited in the claim and in conjunction with the other displayed information is indicative that an inventive concept may be present or simply appends well-understood, routine, conventional activities previously known to the industry.

Id. Thus, the gist of the Board’s decision was that those petitioners had failed to explain why claim 11 was patent ineligible under § 101, not that claim 11 was in fact patent eligible under § 101. Therefore, the decision has little bearing in this case, which was brought by a different petitioner with different unpatentability contentions.

In Step 2A, we conclude claim 11 is directed to the abstract idea of identifying a merchant and enabling completion of a purchase from the

merchant, as discussed above in relation to claim 1. Claim 1 recites that the user interacts with the user interface to “complete” the transaction; claim 11 adds that sliding an affordance indicates “initiation” of the transaction. Claim 11 recites that the user interface: displays a visual representation of a payment accepting unit (i.e., a merchant) available for selection; includes an indication of a balance (i.e., available funds for making a purchase); and includes an affordance that, in response to a user input (i.e., swiping), indicates initiation of the transaction (i.e., notifying the user that the transaction has been initiated). These user interactions with the mobile device are routine aspects of identifying a merchant and enabling completion of a purchase from the merchant, so they are appropriately considered part of the recited abstract idea.

They also fail to integrate that abstract idea into a practical application because the “user interface” limitations merely apply the recited abstract idea on a generic mobile device without meaningfully limiting the abstract idea. *See* 2025 Guidance, at 4–5. For example, these limitations do not reflect an improvement to the functioning of the mobile device (or any other computer device), and instead are “mere instructions to implement an abstract idea or other exception on” the mobile device. *Id.* Indeed, the ’423 patent specification describes only a generic “swipe-to-pay” feature. *See, e.g.,* Ex. 1001, 7:13–33, Figs. 8C, 10A–10D. This supports our conclusion here that the claim 11 limitations do not integrate the recited abstract idea into a practical application. *See* MPEP § 2106.04(d)(1) (“[T]he specification should be evaluated to determine if the disclosure provides sufficient details such that one of ordinary skill in the art would recognize the claimed invention as providing an improvement,” and “it must describe

the invention such that the improvement would be apparent to one of ordinary skill in the art.”).

In Step 2B, we conclude the additional limitations in claim 11 do not transform the abstract idea into an inventive concept by amounting to significantly more than the abstract idea, either alone or in combination with other claim elements. *See, e.g.*, MPEP § 2106.05. The ’423 patent specification states that mobile devices can be “smart phones, tablet or laptop computers, or personal digital assistants (PDAs), smart cards, or other technology (e.g., a hardware-software combination) known or yet to be discovered that has structure and/or capabilities similar to the mobile devices described herein.” Ex. 1001, 9:9–14; *see also id.* at 21:2–6 (describing an iPhone 5 as the mobile device). Petitioner and Dr. Neuman provide persuasive evidence that swiping an affordance on a mobile device to initiate a transaction was well-understood, routine, and conventional activity in the field, including, for example, Casey’s “swipe-to-pay” feature on an iPhone, which we discuss above. *See* Pet. 91–92; Ex. 1003 ¶ 337 (citing Ex. 1008, 1:51–58, 3:22–25, 8:9–11, 9:40–45, 20:14–31, Fig. 5); Ex. 1018, 13; *supra* Section II.G.

We conclude Petitioner has shown claim 11 is unpatentable as claiming ineligible subject matter under 35 U.S.C. § 101.

III. CONCLUSION¹⁴

Petitioner has demonstrated, by a preponderance of the evidence, that claims 1–6 and 8–20 of the '423 patent are unpatentable on the bases set forth in the following table, but has not demonstrated, by a preponderance of the evidence, that claim 7 of the '423 patent is unpatentable based on the asserted grounds in this proceeding.

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–6, 8, 10, 12–20	102	Low	1, 2, 5, 6, 8, 10, 12–16, 18–20	3, 4, 17
7, 9	103	Low, Arora	9	7
11	103	Low, Arora, Freeny, Casey	11	
1–20	101	Eligibility	1–6, 8–20	7
Overall Outcome			1–6, 8–20	7

¹⁴ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this Decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. §§ 42.8(a)(3), 42.8(b)(2).

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–6 and 8–20 of the '423 patent are determined to be unpatentable;

FURTHER ORDERED that claim 7 of the '423 patent is not determined to be unpatentable; and

FURTHER ORDERED that, because this is a Final Written Decision, 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.

PGR2025-00028
Patent 11,972,423 B2

FOR PETITIONER:

Sarah Waidelich
Scott Barnett
David Thomas
Jenna Saunders
HONIGMAN LLP
swaidelich@honigman.com
sbarnett@honigman.com
dthomas@honigman.com
jsaunders@honigman.com

FOR PATENT OWNER:

Matthew Argenti
Michael Rosato
Jad Mills
Tasha Thomas
WILSON SONSINI GOODRICH & ROSATI
margenti@wsgr.com
mrosato@wsgr.com
jmills@wsgr.com
tthomas@wsgr.com