Trials@uspto.gov
571-272-7822

Paper 11
Entered: July 18, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

CARDWARE INC.,
Patent Owner.

IPR2023-00314
Patent 10,628,820 B2

Before BRIAN J. MCNAMARA, ELIZABETH M. ROESEL, and SHARON FENICK, *Administrative Patent Judges.*

ROESEL, *Administrative Patent Judge.*

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

GOOGLE EXHIBIT 1067
Google LLC v. Cardware Inc.
IPR2025-01514

I. INTRODUCTION

A. Background and Summary

Samsung Electronics Co., Ltd. ("Petitioner") filed a Petition (Paper 2, "Pet.") seeking an *inter partes* review of claims 1–20 (the "challenged claims") of U.S. Patent No. 10,628,820 B2 (Ex. 1001, "the '820 Patent"). CardWare Inc. ("Patent Owner") filed a Preliminary Response. Paper 6 ("Prelim. Resp."). With prior authorization, Petitioner filed a Reply (Paper 9, "Prelim. Reply"), and Patent Owner filed a Sur-reply (Paper 10, "Prelim. Sur-reply").

Pursuant to our delegated authority, we may not institute an *inter partes* review "unless . . . the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a) (2018); 37 C.F.R. § 42.4(a) (2022). After considering the information presented in the Petition, the Preliminary Response, the Preliminary Reply, and Preliminary Sur-reply, we determine that Petitioner has shown a reasonable likelihood that it would prevail in showing that at least one of the challenged claims is unpatentable and that discretionary denial is not appropriate. Therefore, we grant institution of an *inter partes* review.

Our findings and conclusions below are based on the record developed thus far. This is not a final decision as to the patentability of any challenged claim. Any final decision will be based on the full record developed during trial.

B. Related Matters

The parties identify the following as a related matter: *CardWare Inc. v. Samsung Electronics Co., Ltd.*, No. 2:22-cv-00141 (E.D. Tex.) ("district court litigation"). Pet. 74; Paper 4, 1 (Patent Owner's mandatory notices).

Petitioner also identifies IPR2023-00196, IPR2023-00210, IPR2023-00211, IPR2023-00219, in which Petitioner challenges patents that are related to the '820 Patent and asserted by Patent Owner in the district court litigation. Pet. 74.

C. The '820 Patent (Ex. 1001)

The '820 Patent is titled, "Multi-functional electronic payment device" and discloses methods of using such a device to perform transactions, including transactions using a card reader and online transactions. Ex. 1001, codes (54), (57), 2:17–23, 12:49–13:19. According to the '820 Patent, existing types of credit cards have "security limitations" and are "susceptible to theft and/or compromise." *Id.* at 1:66–2:3. The '820 Patent addresses these concerns with a credit card device having various security features, including "the capability of producing a limited-duration credit card number for performing transactions using accounts of the card." *Id.* at 10:56–59.

D. Illustrative Claims

Petitioner challenges claims 1–20 of the '820 Patent. Pet. 1. Claims 1, 11, and 15 are independent and are reproduced below with the paragraph designations used in the Petition.

> 1. [1.0] A payment device comprising:
>
> [1.1] a thin shaped body having no fixed payment numbers disposed thereon;

[1.2] a memory;

[1.3] a cryptographic processor coupled to the memory; and

[1.4] a reader interface, including at least one interface selected from a set comprising: a magnetic-stripe, a smart card reader interface, a mag-stripe inductor interface, an RF interface, an NFC interface, and a wireless interface, and

[1.5] wherein payment information for a transaction is operable to be conveyed via the reader interface and comprises limited-use payment information, and

[1.6] wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities.

11. [11.0] An online payment system, the system comprising:

[11.1] a thin payment device comprising no fixed payment numbers visible thereon; and

[11.2] a personal computing device, wherein the personal computing device comprises: a processor;

[11.3] a memory;

[11.4] a wireless interface;

[11.5] a display operable to provide a visual user-interface operable for performing online transactions; and

[11.6] a user-interface coupled to the processor, and

[11.7] wherein the wireless interface is operable to wirelessly obtain card device payment account information, and

[11.8] wherein the processor is operable to generate limited-use payment information based on the card device payment account information, and

[11.9] wherein the personal computing device is operable to generate complete payment information, including the limited-use payment information, and to convey said complete

> payment information via at least one interface of a set comprising: said display; and the wireless interface, and
>
> [11.10] wherein the limited-use payment information is configured to be used in place of a card issuer payment information.
>
> 15. [15.0] An online payment system comprising:
>
> [15.1] a thin card-shaped payment card device that bears no fixed payment numbers on the card device; and
>
> [15.2] a computing device operable for completing an online payment transaction and comprising: a display;
>
> [15.3] a user-interface;
>
> [15.4] a processor; and
>
> [15.5] a memory for storing a payment card information accessible to the processor,
>
> [15.6] wherein card issuer provided payment card information is wirelessly downloaded into the computing device, and
>
> [15.7 wherein at least one of the set comprising: the computing device; and the card-shaped payment device, is configured to dynamically generate a limited-use payment information, upon the authorization of a valid computing device user, and
>
> [15.8] wherein the payment information provided by the computing device is used in online transactions in place of a card issuers payment card information.

Ex. 1001, 19:58–20:7, 22:10–35, 23:39–59 (bracket designations added and paragraphs adjusted); *see* Pet. vi–xiii (Petitioner's claim listing).

E. Asserted Grounds and Evidence

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §[1]	Reference(s)/Basis
1, 2, 6, 10	103(a)	Mullen,[2] Kobylkin[3]
3–5, 7, 8	103(a)	Mullen, Kobylkin, Patel[4]
9	103(a)	Mullen, Kobylkin, Smith[5]
11, 12, 15–18, 20	103(a)	Smith, Kobylkin, Gomez[6]
13, 19	103(a)	Smith, Kobylkin, Gomez, Varadarajan[7]
14	103(a)	Smith, Kobylkin, Gomez, Varadarajan, Mullen

Petitioner submits the Declaration of Michael I. Shamos, Ph.D. (the "Shamos Declaration"), in support of the Petition. Ex. 1003.

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[1] The Leahy-Smith America Invents Act ("AIA"), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the '820 Patent claims the benefit of a provisional application filed before that date, we refer to the pre-AIA version of § 103. Ex. 1001, code (60).

[2] Ex. 1004, US 2008/0302876 A1, published December 11, 2008 ("Mullen").

[3] Ex. 1005, US 2013/0166441 A1, published June 27, 2013 ("Kobylkin").

[4] Ex. 1014, US 2012/0143754 A1, published June 7, 2012 ("Patel").

[5] Ex. 1006, US 2013/0232083 A1, published September 5, 2013 ("Smith").

[6] Ex. 1007, US 9,600,808 B1, issued March 21, 2017 ("Gomez").

[7] Ex. 1015, US 2011/0184867 A1, published July 8, 2011 ("Varadarajan").

II. DISCRETION UNDER 35 U.S.C. § 314(A)

A. Legal Standards

Patent Owner argues that we should exercise discretion to deny institution under 35 U.S.C. § 314(a) because the factors identified in *Apple, Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) ("*Fintiv*"), weigh in favor of denying institution. Prelim. Resp. 47–52; Prelim. Sur-reply. Petitioner argues we should not discretionarily deny institution under *Fintiv*. Pet. 71–73; Prelim. Reply.

The precedential decision in *Fintiv* identifies a non-exclusive list of factors parties may consider addressing where there is a related, parallel district court action to determine whether such action provides any basis for discretionary denial. *Fintiv*, 5–16. Those factors include:

> 1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
>
> 2. proximity of the court's trial date to the Board's projected statutory deadline for a final written decision;
>
> 3. investment in the parallel proceeding by the court and the parties;
>
> 4. overlap between issues raised in the petition and in the parallel proceeding;
>
> 5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
>
> 6. other circumstances that impact the Board's exercise of discretion, including the merits.

Id. at 5–6.

In evaluating the factors, we take a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review. *Id.* at 6. The Director has issued additional guidance on the application of *Fintiv*. *See* Katherine K. Vidal, *Interim Procedure for Discretionary*

Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation (June 21, 2022)[8] ("*Fintiv* Memo"). Additionally, we are guided by the precedential decisions of the Director in *OpenSky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102, 49–50 (Oct. 4, 2022) (precedential) and *CommScope Techs. LLC v. Dali Wireless, Inc*, IPR2022-01242, Paper 23 (Feb. 27, 2023) (precedential) ("*CommScope*").

We are instructed to consider compelling merits under *Fintiv* factor six only after a determination that the first five *Fintiv* factors favor discretionary denial. *CommScope*, 4–5. Thus, we begin by considering the first five *Fintiv* factors.

B. Fintiv Factors

1. Factor 1 - Whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted

"A district court stay of the litigation pending resolution of the PTAB trial allays concerns about inefficiency and duplication of efforts." *Fintiv*, 6. *Fintiv* indicated that, in previous Board decisions, the existence of a district court stay pending Board resolution of an *inter partes* review has weighed strongly against discretionary denial, while a denial of such a stay request sometimes weighs in favor of discretionary denial. *Id.* at 6–8.

Patent Owner notes that a stay was requested and not granted in the district court litigation, and asserts that this factor should be viewed as neutral. Prelim. Resp. 48; Ex. 2003.

Petitioner notes that the dismissal of the stay request was without prejudice, and that it maintains the right to move for a stay if we institute.

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[8] Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf

Prelim. Reply 1, 2. Petitioner argues that the factor should be considered neutral. *Id.* at 2.

The court in the district court litigation noted in its denial of the stay request that it was following "the universal practice" in the district, to deny a stay based on post-grant review requests where institution decisions have not yet been issued, and provided no additional reasoning or indication of future action with respect to any potential renewal of the stay request. Ex. 2003. Because, "[i]n the absence of specific evidence, we will not attempt to predict" whether a district court would stay "based on a variety of circumstances and facts beyond our control and to which the Board is not privy," we find this factor to be neutral. *See Sand Revolution II, LLC v. Cont'l Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative) ("*Sand Revolution*").

2. Factor 2 - Proximity of the court's trial date to the Board's projected statutory deadline for a final written decision

The proximity factor in *Fintiv* asks us to evaluate our discretion in light of a trial date that has been set in a parallel litigation. *See Fintiv*, 3, 5 ("*NHK* applies to the situation where the district court has set a trial date to occur earlier than the Board's deadline to issue a final written decision in an instituted proceeding."; "When the patent owner raises an argument for discretionary denial under *NHK* due to an earlier trial date, the Board's decisions have balanced the following factors . . . .") (citing *NHK Spring Co. v. Intri-Plex Techs., Inc.*, IPR2018-00752, Paper 8 at 20 (PTAB Sept. 12, 2018) (precedential)("*NHK*")). As noted above in the discussion of the first factor, *Fintiv* cites concern regarding "inefficiency and duplication of efforts." *Id.* at 6. In its analysis of the proximity factor, *Fintiv* echoes that concern in its guidance that "[i]f the court's trial date is at or around the

same time as the projected statutory deadline or even significantly after the projected statutory deadline, the decision whether to institute will likely implicate other factors discussed herein, such as the resources that have been invested in the parallel proceeding." *Id.* at 9. Similarly, in *NHK*, the Board expressed concern that a trial before the deadline for a final written decision addressing the same prior art and arguments would have undermined the Board's objectives of providing an effective and efficient alternative to district court litigation. *See NHK*, 20 (citing *General Plastic Indus. Co., Ltd. v. Cannon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16–17 (PTAB Sept. 6, 2017 (precedential))).

We are instructed that

> when analyzing the proximity of the court's trial date under factor two of *Fintiv*, when other relevant factors weigh against exercising discretion to deny institution or are neutral, the proximity to trial should not alone outweigh all of those other factors. Parties may present evidence regarding the most recent statistics on median time-to-trial for civil actions in the district court in which the parallel litigation resides for the PTAB's consideration. Where the parties rely on time-to-trial statistics, the PTAB will also consider additional supporting factors such as the number of cases before the judge in the parallel litigation and the speed and availability of other case dispositions.

Fintiv Memo, 8–9 (internal citations and footnote deleted).

Based on median time-to-trial data for the Eastern District of Texas, Petitioner asserts that "trial would be expected to occur in May, 2024." Pet. 71–72 (citing Ex. 1103, 35). According to Petitioner, a final written decision ("FWD") in this proceeding is anticipated in June, 2024. *Id.* Nevertheless, Petitioner argues that "[t]he Board should not deny institution due to the close proximity of the FWD and disposition date." *Id.*

Patent Owner contends that as the docket control order sets jury selection for February, 2024, the district court trial date precedes the anticipated final written decision deadline by five months. Prelim. Resp. 48 (citing Ex. 2001). Patent Owner additionally argues that, if the Board relies on median time-to-trial, then we should use specific time-to-trial data for the presiding judge, which would indicate an even earlier trial date than that scheduled in the docket control order. *Id.* at 49 (citing Ex. 2002, 1).

We "generally take courts' trial schedules at face value absent some strong evidence to the contrary," and here neither party presents strong evidence casting doubt on the trial date set in the district court's order. Because the trial in the district court litigation is scheduled to begin five months before our deadline to reach a decision, this factor weighs marginally in favor of discretionary denial. *Apple v. Fintiv*, IPR2020-00019, Paper 15, 13 (PTAB May 13, 2020) (informative).

3. Factor 3 - Investment in the parallel proceeding by the court and the parties

If, at the time of the institution decision, the district court has issued substantive orders related to the challenged patent, such as a claim construction order, this fact weighs in favor of denial. *See Fintiv*, 9–10. On the other hand, if the district court has not issued such orders, this fact weighs against discretionary denial. *Id.* at 10.

Petitioner argues that the bulk of investment in the district court litigation has yet to occur, and that no part of claim construction or document production had occurred at the time of the filing of the Petition. Pet. 72. Petitioner further argues that it was diligent in filing the Petition and that its diligence "heavily favors institution." Prelim. Reply 3.

Patent Owner argues that by the time of our decision, document production will be substantially complete and "the claim-construction process [will] be underway and completed shortly thereafter." Prelim. Resp. 50 (citing Ex. 2001, 3–4).

The docket control order shows that the claim construction hearing is not scheduled until August 1, 2023, and that substantial deadlines for the parties related to claim construction are still upcoming. Ex. 2001, 3. *Fintiv* also directs us to consider whether "the petitioner filed the petition expeditiously." *Fintiv*, 11. Although we are mindful of the investment of the parties to date, we find that, at this time, substantial work remains for the parties and no substantive orders related to the challenged patent have been issued by the district court. Additionally, on the record before us the filing of the Petition was expeditious. We determine this factor weighs against exercising discretion to deny institution.

4. Factor 4 - Overlap between issues raised in the petition and in the parallel proceeding

"[I]f the petition includes the same or substantially the same claims, grounds, arguments, and evidence as presented in the parallel proceeding, this fact has favored denial." *Fintiv*, 12. "Conversely, if the petition includes materially different grounds, arguments, and/or evidence than those presented in the district court, this fact has tended to weigh against exercising discretion to deny institution under *NHK*." *Id.* at 12–13. A stipulation as in *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 at 18–19 (PTAB Dec. 1, 2020) (precedential as to § II.A), if one is entered, would be highly relevant. "Consistent with *Sotera Wireless, Inc.*, the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a

parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB." *Fintiv* Memo 3 (footnote omitted).

Petitioner offers, in the Petition, a stipulation that, if IPR is instituted, "it will not pursue in the Related Litigation any invalidity grounds against the Challenged Claims of the '820 patent that are the same as those raised in this Petition." Pet. 72–73. It later offers an additional stipulation that "if this IPR is instituted, Petitioner will not pursue an invalidity defense in the E.D. Texas litigation with respect to the claims of the '820 Patent in the instituted IPR based on (i) any of the same grounds in the instituted IPR or (ii) any prior art reference that forms the basis of any ground in the instituted IPR." Prelim. Reply 1; Ex. 1110. Petitioner states that "this stipulation covers references that have the same (or substantially the same) disclosure but are not part of the grounds in the Petition." *Id.* Petitioner argues that this stipulation "leaves only meaningfully different prior art for use in E.D. Tex." Prelim. Reply 3.

Patent Owner argues that, in the new stipulation, Petitioner only restricts itself from pursuing "in district court the same grounds or the specific references in those grounds," but "leaves Petitioner free to pursue the very same arguments in district court under the guise of technically different references or combinations." Prelim. Sur-reply 1 (emphases omitted). Patent Owner argues that Petitioner's stipulation has "no practical effect" and, because Petitioner has not offered a *Sotera* stipulation, factor 4 favors denial. *Id.* at 2.

While not a *Sotera* stipulation, Petitioner's stipulation appears to be similar to that in *Sand Revolution*. *Sand Revolution*, 11–12 (finding that a stipulation not to pursue the same grounds in the parallel litigation

"mitigates to some degree the concerns of duplicative efforts"). We recognize that *Sand Revolution*-type stipulations are narrower in scope than *Sotera*-type stipulations. However, Petitioner's stipulation still reduces potential overlap with the district court litigation. In *Sand Revolution*, such a stipulation weighed marginally in favor of not exercising discretion. *Sand Revolution*, 12.

Additionally, we note that we have not been apprised by either party whether, in fact, the same art and arguments are anticipated to be the subject of the district court litigation. *See Fintiv*, 12.

We determine this factor weighs marginally against exercising discretion to deny institution.

5. Factor 5 - Whether the petitioner and the defendant in the parallel proceeding are the same party

If the petitioner is unrelated to the defendant in the parallel proceeding, that might weigh against discretionary denial. *See Fintiv*, 13–14.

The parties agree that Petitioner is the defendant in the related district court litigation. Pet. 74; Prelim. Resp. 52.

As with *Fintiv* factor 2, therefore, this factor weighs marginally in favor of exercising our discretion to deny the Petition.

C. Conclusion

We have considered the circumstances and facts before us in view of the first five *Fintiv* factors. Because our analysis is fact-driven, no single factor is determinative of our conclusion. Considering these five *Fintiv* factors, we determine that they do not favor a discretionary denial. As we do not find that the first five *Fintiv* factors favor discretionary denial, we

therefore do not make a determination regarding compelling merits under *Fintiv* factor 6, and our consideration ends with this conclusion. *CommScope*, 4–5.

III. REASONABLE LIKELIHOOD ANALYSIS

A. Legal Standards

"In an [*inter partes* 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) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify "with particularity . . . the evidence that supports the grounds for the challenge to each claim")); *see also* 37 C.F.R. § 42.104(b) (requiring a petition for *inter partes* review to identify how the challenged claim is to be construed and where each element of the claim is found in the prior art patents or printed publications relied upon).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved based on underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when presented, objective evidence of nonobviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of "whether there was an apparent reason to combine the known elements in

the fashion claimed by the patent at issue." *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness")). Petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements," but "must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

B. Level of Ordinary Skill in the Art

Petitioner contends that a person of ordinary skill in the art ("POSITA") would have had "(1) a bachelor's degree in computer science, computer engineering, electrical engineering, or a related field, and (2) one to two years of experience working with payment processing and/or digital authentication systems, including familiarity with short-range wireless technologies." Pet. 4–5 (citing Ex. 1003 ¶¶ 42–47). According to Petitioner, "[a]dditional education could substitute for professional experience, or vice versa." *Id.* at 5.

For purposes of the Preliminary Response, Patent Owner does not dispute Petitioner's definition of a POSITA. Prelim. Resp. 21.

For purposes of this Decision, we apply Petitioner's definition of a POSITA, which is consistent with the scope and content of the '820 Patent and the asserted prior art.

C. Claim Construction

In an *inter partes* review, we apply the same claim construction standard as would be used by a district court to construe a claim in a civil action involving the validity or infringement of a patent. 37 C.F.R.

§ 42.100(b). Under that standard, claim terms are given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *Id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–19 (Fed. Cir. 2005) (en banc); *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365–66 (Fed. Cir. 2012). "The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy." *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (quoting *Vivid Techs., Inc. v. Am. Sci. Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

We address the meaning of several claim terms below and determine that no additional claim construction is needed for purposes of this Decision. Our claim constructions are not final, and we invite the parties to address claim construction in their post-institution submissions.

1. "no fixed payment numbers"

Claim element 1.1 recites "a thin shaped body having no fixed payment numbers disposed thereon." Claim element 11.1 recites "a thin payment device comprising no fixed payment numbers visible thereon." Claim element 15.1 recites "a thin card-shaped payment card device that bears no fixed payment numbers on the card device."

Petitioner contends that the limitations that recite "no fixed payment numbers" are directed to printed matter and are entitled to no patentable weight. Pet. 4. Patent Owner argues that "these limitations do not claim the content of any information" and, even if they did, "they are entitled to

patentable weight because they are functionally related to the claimed devices within the claimed system." Prelim. Resp. 22.

On this record, we agree with Petitioner that claim elements 1.1, 11.1, and 15.1 recite printed matter entitled to no patentable weight.

"[P]rinted matter encompasses any information claimed for its communicative content, and the doctrine prohibits patenting such printed matter unless it is 'functionally related' to its 'substrate,' which encompasses the structural elements of the claimed invention." *C R Bard Inc. v. AngioDynamics, Inc.*, 979 F.3d 1372, 1381 (Fed. Cir. 2020); *see also Praxair Distribution, Inc. v. Mallinckrodt Hosp. Prod. IP Ltd.*, 890 F.3d 1024, 1031 (Fed. Cir. 2018) ("Claim limitations directed to printed matter are not entitled to patentable weight unless the printed matter is functionally related to the substrate on which the printed matter is applied."); *In re Distefano*, 808 F.3d 845, 848 (Fed. Cir. 2015) ("[I]f a limitation claims (a) printed matter that (b) is not functionally or structurally related to the physical substrate holding the printed matter, it does not lend any patentable weight to the patentability analysis.").

In our view, claim elements 1.1, 11.1, and 15.1 recite printed matter entitled to no patentable weight claim because they require that a particular type of information—"fixed payment numbers"—be absent from the face of the thin shaped body, payment device, or card device. If they were affirmatively recited, "fixed payment numbers" would no doubt qualify as information claimed for its communicative content that is not functionally related to the substrate, as no reference to or functional use of fixed payment numbers is found in claims 1, 11, or 15. The negative limitation, that "no fixed payment numbers" are on the body or device, is just as much recitation of printed matter as the affirmative recitation would be. In both cases,

information is being claimed for its communicative content. Claim elements 1.1, 11.1, and 15.1 simply recite that a particular type of information—fixed payment numbers—is not included in the communication.

Patent Owner argues that claim elements 1.1, 11.1, and 15.1 are "functionally related to the claimed devices within the claimed system" because "the claimed 'no fixed payment numbers' enhances the security of the claimed systems . . . by removing the possibility that 'a malicious third party [would] record [such information] in order to later make fraudulent transactions on the account.'" Prelim. Resp. 22 (citing Ex. 1001, 9:55–62). We disagree. Our reviewing court instructs: "In evaluating the existence of a functional relationship, we have considered whether the printed matter merely informs people of the claimed information, or whether it instead interacts with the other elements of the claim to create a new functionality in a claimed device or to cause a specific action in a claimed process." *Bard*, 979 F.3d at 1381. Fixed payment numbers inform people of particular information, and claim elements 1.1, 11.1, and 15.1 recite that the matter printed on the card or device should not inform people of that particular information. The absence of fixed payment numbers does not interact with the other elements of the claim to create a new functionality in a claimed device or to cause a specific action in a claimed process.

The foregoing analysis applies equally to dependent claims 2, 12, and 16, which recite both affirmative and negative printed matter limitations.

2. "limited-use payment information"

Claim element 1.6 recites "wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities."

Patent Owner argues that claim 1 "is directed to a card device with a limited-use number, where the nature of the use-limitation is that it is usable only for card-present transactions 'at payment card reader facilities.'" Prelim. Resp. 31. Patent Owner argues that claim 1 is directed to in-person, card-present transactions, not online transactions as in claims 11 and 15, and "[t]he limited-use payment information of claim 1 is not usable for online transactions." *Id.* at 31, 34.

We disagree with Patent Owner's interpretation of "limited-use payment information" as excluding online transactions. Claims 11 and 15 are expressly directed to an "online payment system," while claim 1 is directed to a "payment device," without distinguishing between in-person and online transactions. Yet claims 1, 11, and 15 all recite the same term, "limited-use payment information." Patent Owner's argument that this term has a different meaning in claim 1 than in claims 11 and 15 violates "the principle that the same phrase in different claims of the same patent should have the same meaning." *In re Varma*, 816 F.3d 1352, 1363 (Fed. Cir. 2016). This principle "is a strong one, overcome only if 'it is clear' that the same phrase has different meanings in different claims." *Id.* (citing *Fin Control Sys. Pty, Ltd. v. OAM, Inc.*, 265 F.3d 1311, 1318 (Fed. Cir. 2001).

Patent Owner provides no clear showing to overcome the principle that "limited-use payment information" has the same meaning in each of claims 1, 11, and 15. The '820 Patent demonstrates that the nature of the use limitation relates to the number of transactions or period of time for which the payment information is valid. Ex. 1001, code (57) ("a limited-use credit card number, which is limited in scope of use to a predetermined number of authorized transactions"); *id.* at 2:28–32 (same). The Specification does not support Patent Owner's argument that "the nature of the use-limitation is

that it is usable only for card-present transactions 'at payment card reader facilities.'" Prelim. Resp. 31.

To support that argument, Patent Owner relies on claim 1's recitation of a payment device with a "reader interface" and claim 1.6's recitation that "the limited-use payment information is to be used . . . at payment card reader facilities." Prelim. Resp. 31–32. Patent Owner is mistaken, however, in characterizing online transactions as "card-not-present transactions" and asserting that "online payment systems do not convey payment information from the card via any reader interface, such as a magnetic-stripe, chip, or NFC contactless." Prelim. Resp. 32. Contrary to Patent Owner's argument, the '820 Patent teaches that online transactions are card-present transactions that may involve a card reader. Ex. 1001, 12:59–13:19, Figs. 5, 10 (describing and illustrating online transactions using a multi-function electronic device, i.e., a card device); *see also id.* at 18:30–31 ("[T]he credit card of the present invention could also be used to make online purchases."). According to claim 1, a card reader interface may be an RF interface or an NFC interface. The '820 Patent discloses that these types of interfaces may be used for connecting a card device to a personal computer for conducting an online transaction. *Id.* at 13:3–11, 18:31–35 ("[T]he card could use RFID or near field technology so that it can connect to a personal computer and be used to uniquely generate a credit card number for online purchases."). Accordingly, we do not adopt Patent Owner's construction that "limited-use payment information" in claim 1 is not usable for online transactions. Prelim. Resp. 34.

3. "card device payment account information"

Claim element 11.7 recites "wherein the wireless interface is operable to wirelessly obtain card device payment account information." Claim element 11.8 recites "wherein the processor is operable to generate limited-use payment information based on the card device payment account information."

Patent Owner argues that "[t]he plain and ordinary meaning of a card device payment account information is information that is associated with a particular device." Prelim. Resp. 37. According to Patent Owner, "[a]t a minimum, 'card device' should at least indicate an association of the payment account information with the particular 'card device.'" *Id.* at 38. We disagree. The phrase, "card device payment account information," appears in claim 11 and nowhere else in the '820 Patent. Claim 11 does not support Patent Owner's argument that "card device payment account information" must be associated with a particular card device. The term "card device" does not appear in claim 11 except as part of the phrase, "card device payment account information." To the extent Patent Owner equates a "card device" with "a thin payment device," there is no indication in claim 11 that "card device payment account information" is associated with the "thin payment device." Claim element 11.1 recites that the thin payment device has "no fixed payment numbers visible thereon," which negates at least one way that payment account information could be associated with a particular card device.

Patent Owner does not identify support in the Specification for its interpretation of "card device payment account information" as information associated with a particular device. Contrary to Patent Owner's argument, the Specification teaches that "account information . . . may include an

account number, an expiration date, and other user information associated with the account (e.g. a username, PIN, password, email address, etc.)." Ex. 1001, 7:44–49. We see no indication in the '820 Patent that these types of account information are associated with a particular device.

D. Petitioner's Mullen-led Challenges

Petitioner challenges claims 1–10 based on Mullen and Kobylkin, adding Patel or Smith to the combination for some claims. Pet. 1, 6–37. Patent Owner opposes. Prelim. Resp. 23–36. We begin with an overview of Mullen and Kobylkin before turning to the disputed issues.

1. Mullen (Ex. 1004)

Mullen discloses a "dynamic credit card . . . in which a secure credit card number (e.g., a secret/hidden credit card number) is encoded based on a timing signal (e.g., an internal counter) to provide a dynamic credit card number." Ex. 1004, code (57). According to Mullen, the "dynamic number may be displayed to a user via a display (e.g., so that online purchases can be made) or written onto a magnetic stripe such that the number may be processed by traditional credit card merchants (e.g., swiped)." *Id.*

2. Kobylkin (Ex. 1005)

Kobylkin discloses an "instant disposable payment card" having a quick response ("QR") code, which can be scanned by the user to facilitate activation and/or funding of the payment card and/or creation of an account or activation of a pre-created account at a payment system provider. Ex. 1005, code (57). According to Kobylkin, the user "can then use the instant payment card to pay for purchases." *Id.*

3. Independent Claim 1

Petitioner challenges claim 1 based on Mullen and Kobylkin and relies on Mullen to teach most of the claim elements. Pet. 8–18.

a) Claim Element 1.1

Claim element 1.1 recites "a thin shaped body having no fixed payment numbers disposed thereon."

Petitioner contends that Mullen teaches claim element 1.1, alone or in combination with Kobylkin. Pet. 12–14.[9] Patent Owner does not dispute Petitioner contention that Mullen teaches a dynamic credit card having thin shaped body. Pet. 11; *see* Prelim. Resp. 24–30 (addressing claim element 1.1, without disputing that Mullen teaches a thin shaped body). As discussed above, we agree with Petitioner claim element 1.1's recitation of "no fixed payment numbers" is printed matter entitled to no patentable weight. We nevertheless address the parties' dispute about whether the cited art teaches that limitation.

Petitioner contends that Mullen's Figure 16 "shows an example dynamic credit card having no fixed payment numbers disposed thereon." Pet. 12–13 (citing Ex. 1004 ¶¶ 49, 50, Fig. 16). Patent Owner disputes that contention, arguing that "the full Figure 16 . . . plainly shows that the card number ("2424 242424, 24242") and the expiration date ("01/07") do not change." Prelim. Resp. 24–25. At this stage, we are not persuaded by Petitioner's contention for claim element 1.1 based on Mullen's Figure 16. According to the '820 Patent, a "fixed payment number" may include an expiration date. Ex. 1001, claim 2. Mullen's Figure 16 shows a credit card

[9] The next subsection addresses the parties' dispute about combining Mullen and Kobylkin.

bearing an expiration date, and Petitioner fails to show that the expiration date is not fixed. Ex. 1004, Fig. 16; *see id.* ¶ 49 (disclosing that "writings on a surface of the credit card" such as an expiration date "may be printed and/or pressed into a housing").

Next, Petitioner contends that, "[a]s another example," Mullen teaches a credit card number that is continually updated and encoded on a magnetic strip and not displayed to the user. Pet. 13 (citing Ex. 1004 ¶¶ 16, 70). Patent Owner disputes that contention, arguing that Mullen's dynamic credit card number "always" has "at least one *static* prefix number" that identifies "whether the remainder of the displayed payment information is static or dynamic." Prelim. Resp. 1–2 (citing Ex. 1004 ¶ 100).

For purposes of institution, we find that Petitioner makes a sufficient showing for claim element 1.1 based on Mullen's disclosure of a credit card number that is continually updated. Pet. 13 (citing Ex. 1004 ¶¶ 16, 70). Petitioner relies on Mullen paragraph 16, which discloses that "[a] dynamic credit card may also not include a display and the credit card number may be updated continually in real time." Ex. 1004 ¶ 16. Petitioner also relies on Mullen paragraph 70, which discloses "the dynamic information (e.g., the dynamic security code) may be displayed to a user" and the fixed information that identifies a user may be encoded on a magnetic stripe. *Id.* ¶ 70.

Although Patent Owner relies on Mullen's disclosure that a static or partially static number may be displayed on the dynamic credit card (Prelim. Resp. 1–2, 26 (citing Ex. 1004 ¶ 100, Fig. 12)), that is only one of several embodiments disclosed by Mullen. Mullen discloses other embodiments in which only dynamic payment numbers are displayed on the card. *Compare* Ex. 1004, Fig. 12, ¶ 100 ("A topology may be provided in display 1210 in

which a static or dynamic credit card number is provided."), *with id.* ¶ 92 ("FIG. 9 shows dynamic credit card 900 that may include display screen 931 . . . [which] may include, for example, dynamic credit card number 931, dynamic security code 932 . . ., dynamic expiration date 933, and number changing information 934."), *and* ¶¶ 95, 96 (FIG. 11 shows dynamic information topologies 1100. . . . Providing information 1121–1123 as dynamic information may allow 23 digits of dynamic information to be displayed.").

We have considered Patent Owner's argument that a continually updated card number would be "useless." Prelim. Resp. 27–28 (citing Ex. 1004 ¶¶ 16, 56). As discussed above, the cited paragraph 16 of Mullen supports Petitioner's contention. Mullen paragraph 56 addresses the speed at which the dynamic number changes and problems associated with increasing that speed. Ex. 1004 ¶ 56. On the present record, Mullen paragraph 56 does not appear to contradict Petitioner's contention for claim element 1.1.

b) Reason to Combine Mullen and Kobylkin

Citing Kobylkin's disclosure of a blank payment card, Petitioner contends that it would been obvious to modify Mullen's dynamic credit card to include "only selected, non-confidential information on its face" and "omit all fixed payment information from the front of the card." Pet. 8, 13–14 (citing Ex. 1003 ¶¶ 106–108, 115, 116; Ex. 1005 ¶ 17). According to Petitioner, there would be "less risk of fraud if confidential payment information, such as a static security code or other non-changing portion of the payment information, were not readily ascertainable simply by visually inspecting the face of the dynamic credit card." Pet 9 (citing Ex. 1004 ¶ 3;

Ex. 1005 ¶ 6). Patent Owner argues that "it makes no sense to modify [Mullen] with the disposable debit card of Kobylkin, which cannot be used for online transactions." Prelim. Resp. 2.

For purposes of institution, we find that Petitioner provides a sufficient rationale for combining Mullen and Kobylkin, as summarized above, and that Petitioner's rationale is sufficiently supported by the cited prior art and the Shamos Declaration. Pet. 8–9 (citing Ex. 1003 ¶¶ 106–108, 115, 116; Ex. 1004 ¶ 3; Ex. 1005 ¶¶ 6, 17). Petitioner relies on Mullen, which discloses "systems and methods that completely eliminate" credit card fraud involving unauthorized copying and use of credit card numbers that are glimpsed or digitally intercepted by a thief. Ex. 1004 ¶ 3. Petitioner also relies on Kobylkin, which addresses concerns about stolen payment cards and discloses a "disposable payment card [that] can be a substantially blank card" with "only a QR code or the like thereon." Ex. 1005 ¶¶ 6, 17.

Patent Owner argues that replacing (a) Mullen's capability to use a dynamic credit card for online purchases by displaying a number to the user with (b) Kobylkin's QR code-based approach would "reduce the functionality" of Mullen, which "is designed as a 'complete[]' fraud solution." Prelim. Resp. 28 (citing Ex. 1004 ¶¶ 4, 12, 20, 21).[10] Based on the present record, it appears that Patent Owner's argument misapprehends Petitioner's proposed combination, which does not appear to include modifying Mullen's dynamic credit card to include a QR code. *See* Pet. 8–9,

[10] Patent Owner mistakenly cites Mullen paragraph 4 instead of Mullen paragraph 3 when quoting Mullen's disclosure about "completely eliminat[ing]" credit card fraud. *Compare* Prelim. Resp. 28 (citing Ex. 1004 ¶ 4), *with* Ex. 1004 ¶ 3 ("It is therefore desirable to provide systems and methods that completely eliminate the possibility for such types of credit card fraud.").

13–14 (discussing the proposed combination of Mullen and Kobylkin, without mentioning a QR code).

Even if Petitioner's proposed combination included replacing Mullen's display with Kobylkin's QR code, we do not, on the present record, view the combination as reducing Mullen's functionality. Mullen discloses a number of alternative embodiments, at least one of which is a dynamic credit card that does not include a display. Ex. 1004 ¶ 16; *see* Pet. 13 (relying on this embodiment of Mullen). Although Mullen discloses that a dynamic credit card number may be displayed to a user and used for online purchases, Mullen does not require that every embodiment have that functionality. Ex. 1004, code (57) (disclosing, in the alternative, that the dynamic credit card number may be "written onto a magnetic stripe such that the number may be processed by traditional credit card merchants (e.g., swiped)."). Moreover, Kobylkin suggests that a payment card with a QR code may be used at an online store. Ex. 1005 ¶ 131 ("[T]he term 'store' can include any business or place of business. The store can be a brick and mortar store or an online store.").

Patent Owner additionally argues that a POSITA would not have expected Petitioner's Mullen-Kobylkin combination to present less risk of fraud because, according to Patent Owner, "[a] fixed number encoded into a QR graphical encoding does not enhance security, defend privacy, nor protect against duplication or theft." Prelim. Resp. 29. At this stage, Patent Owner provides no expert testimony or other evidence to support its argument about the risks associated with QR codes or whether replacing a human-readable number with a QR code would reduce the risk of fraud. *See Wasica Fin. GmbH v. Cont'l Auto. Sys., Inc.*, 853 F.3d 1272, 1284 (Fed. Cir. 2017) (it was reasonable for the Board to accept expert testimony over bare

attorney argument); *Gemtron Corp. v. Saint-Gobain Corp.*, 572 F.3d 1371, 1380 (Fed. Cir. 2009) ("unsworn attorney argument . . . is not evidence and cannot rebut" record evidence).

Even if we accepted Patent Owner's unsupported attorney argument about QR codes, it would not preclude a determination of obviousness. Petitioner is not required to show that its proposed combination of Mullen and Kobylkin avoids all risks of credit card fraud. *See Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1380–81 (Fed. Cir. 2023) ("[C]ontrary to the Board's suggestion, [petitioner] never had to show that [the proposed substitution] was an 'improvement' in a categorical sense."). It would be enough for Petitioner to show that Kobylkin's blank card with a QR code would have been a "suitable option" to replace fixed payment information on the front of Mullen's card, that credit card fraud was a "known problem . . . in the art," that Kobylkin's blank card with a QR code "helped address that issue," and that combining the teachings of Mullen and Kobylkin "wasn't beyond the skill of an ordinary artisan." *Id.* "Nothing more is required to show a motivation to combine under *KSR*." *Id.*

At this juncture, we make no determination about whether Petitioner meets this standard. We merely determine that Petitioner has articulated a sufficient rationale for combining the references, and it is reasonably likely that Petitioner's position will prevail.

c) Claim Element 1.6

Claim element 1.6 recites "wherein further the limited-use payment information is to be used in place of card issuer payment information for payment transactions by said device at payment card reader facilities."

Petitioner contends that Mullen discloses claim element 1.6. Pet. 17–18. Petitioner asserts that Mullen's dynamic credit card number ("DCCN") is the recited "limited-use payment information" and that Mullen discloses that the DCCN is "utilized to represent a credit card number" in order to provide "increased security." *Id.* (citing Ex. 1003 ¶¶ 129–131; Ex. 1004 ¶¶ 24, 68, 90). Patent Owner argues that "Mullen does not disclose that use of a DCCN is to be limited to use at payment card facilities, as required by limitation 1(6)" and "[t]o the contrary, [Mullen] repeatedly recites that the same DCCN is used for transactions at payment card reader facilities *and* for online transactions." Prelim. Resp. 35.

For purposes of institution, we find that Petitioner makes a sufficient showing for claim element 1.6 based on Mullen's disclosure of a DCCN. Pet. 17–18 (citing Ex. 1003 ¶¶ 129–131; Ex. 1004 ¶¶ 24, 68, 90). Petitioner relies on Mullen's disclosure that "[a] dynamic credit card may allow for less digits to be utilized to represent a credit card number as a result of the increased security." Ex. 1004 ¶ 90; *see also id.* ¶¶ 12, 13, 19–24, 60–64, 68, 69 (describing transmission of a DCCN to a credit card processing/ authorization facility, which decodes the DCCN to obtain a secure credit card number).

Patent Owner's arguments are unavailing for two reasons. First, Patent Owner relies on a construction for "limited-use payment information" as excluding online transactions, which we do not adopt for the reasons discussed in Section III.C. above. Second, Patent Owner's arguments rest on the incorrect assertion that "all the embodiments [of Mullen] include a display for the express purpose of facilitating unlimited use, including for online transactions." Prelim. Resp. 35 (citing Ex. 1004, code (57), ¶¶ 65, 82, 112). As discussed above, Mullen does not require that every embodiment

display a dynamic credit card number usable for online purchases. Mullen discloses at least one embodiment that does not include a display. Ex. 1004, code (57); ¶ 16; *see* Pet. 13 (relying Mullen paragraph 16).

d) Remaining Claim Elements

At this stage, Patent Owner does not dispute Petitioner's contention that the combination of Mullen and Kobylkin teaches or suggests claim elements 1.0 and 1.2–1.5. Pet. 10–11, 14–17. We determine that Petitioner's showing for independent claim 1 is sufficient for purposes of institution.

4. Dependent Claims 2–10

Claims 2–10 depend from claim 1. Petitioner challenges these claims based on Mullen and Kobylkin, adding Patel or Smith for some claims. Pet. 1, 18–37. Patent Owner does not present arguments for dependent claims 2–10 separate from its arguments for independent claim 1.

E. Petitioner's Smith-led Challenges

Petitioner challenges claims 11–20 based on Smith, Kobylkin, and Gomez, adding Varadarajan or Mullen to the combination for some claims. Pet. 1, 37–71. Patent Owner opposes. Prelim. Resp. 36–45. We begin with an overview of Smith and Gomez before turning to the disputed issues. An overview of Kobylkin is provided in Section III.D.2 above.

1. Smith (Ex. 1006)

Smith discloses using a mobile device to conduct a contactless payment transaction. Ex. 1006 ¶¶ 2–6. Smith discloses processing a financial transaction by mapping a mobile cloud account to a payment account. *Id.* at code (57), ¶¶ 2, 6–8, 15, 32, Fig. 1. According to Smith, a mobile device, such as a smart phone, stores mobile cloud account data,

including a mobile cloud account number ("MCA") that is associated with a real account number ("RCA"). *Id.* ¶¶ 33, 34. The MCA enables the user to conduct a financial transaction without storing the RCA on the mobile device, thereby reducing the potential for fraud. *Id.* ¶¶ 32, 34.

2. Gomez (Ex. 1007)

Gomez discloses a secure payment card that generates an authentication cryptogram, which is unique for each attempted use of the payment card to make a transaction and which expires within a short period of time thereafter. Ex. 1007, codes (54), (57), 1:58–63, 5:13–18, 5:48–57, Figs. 2, 9, 10.

3. Independent Claims 11 and 15

Claims 11 and 15 are directed to an online payment system. Petitioner challenges these claims based on Smith, Kobylkin, and Gomez. Pet. 38–61. Petitioner contends that it would have been obvious (i) to configure Smith's mobile device to be used in activating and/or funding Kobylkin's disposable payment card; (ii) to include only selected, non-confidential information on the face of the card, as described in Kobylkin; and (iii) to implement a user credential check prior to Smith's mobile device generating a payment cryptogram, based on the teachings of Gomez. Pet. 38–43 (citing Ex. 1003 ¶¶ 230–237).

a) Claim Elements 11.7 and 11.8

Claim element 11.7 recites "wherein the wireless interface is operable to wirelessly obtain card device payment account information." Claim element 11.8 recites "wherein the processor is operable to generate limited-use payment information based on the card device payment account information."

Petitioner contends that Smith discloses or suggests claim elements 11.7 and 11.8. Pet. 53–55. Addressing claim element 11.7, Petitioner asserts that "Smith describes that the mobile device wirelessly obtains 'mobile cloud account data' (i.e., card device payment account information) when the 'mobile cardlet' including the mobile cloud account data is provisioned 'over-the-air (OTA)' (i.e., wirelessly) to the mobile device." Pet. 53 (citing Ex. 1003 ¶¶ 264–268; Ex. 1006 ¶¶ 44, 45, 50). Addressing claim element 11.8, Petitioner asserts that "Smith describes 'generating . . . a payment cryptogram' (i.e., limited-use payment information) based on at least a portion of the mobile cloud account data 802" (i.e., the card device payment account information." Pet. 54 (citing Ex. 1003 ¶¶ 269–272; Ex. 1006 ¶ 103).

Patent Owner disputes Petitioner's contention that Smith's mobile cloud account data is "card device payment account information," as recited in claim elements 11.7 and 11.8. Prelim. Resp. 37, 39–41. According to Patent Owner, "Smith never once states that the 'mobile cloud account data' is associated with the device that receives it as required by claim 11." *Id.*

For purposes of institution, we find that Petitioner makes a sufficient showing for claim element 11.7. Pet. 53–54 (citing Ex. 1003 ¶¶ 264–268; Ex. 1006 ¶¶ 44–50, 58, 59). Petitioner relies on Smith's disclosure that a mobile cardlet may be provisioned over-the-air to a secure element of a mobile device, where the mobile cardlet stores mobile cloud account data. Ex. 1006 ¶¶ 44, 45. We also find that Petitioner makes a sufficient showing for claim element 11.8. Pet. 54–55 (citing Ex. 1003 ¶¶ 269–272; Ex. 1006 ¶¶ 67, 99, 103, Fig. 12; Ex. 1013[11] ¶¶ 7, 21, 22, 29–31). Petitioner relies on

[11] US 2005/0043997, published February 24, 2005 ("Sahota").

Smith's disclosure of "generating . . . a payment cryptogram based on at least a portion of the mobile cloud account data." Ex. 1006 ¶ 103.

Patent Owner's preliminary response regarding claim elements 11.7 and 11.8 is premised on the argument that "[t]he plain and ordinary meaning of a card device payment account information is information that is associated with a particular device." Prelim. Resp. 37. For the reasons discussed above, we do not adopt Patent Owner's proposed construction.

Nevertheless, we determine that Petitioner's showing is sufficient even under Patent Owner's construction. At this stage, Patent Owner does not dispute Petitioner's contention that, according to Smith, mobile cloud account data is wirelessly provisioned to a mobile device. Pet. 53–54; Prelim. Resp. 39–40; *see also id.* at 43 (In Smith, "the mobile cloud account data is generated and provided to a mobile device."). Patent Owner argues that Smith's "mobile cloud account data" is not associated with the mobile device that receives it. *Id.* But Patent Owner acknowledges that "mobile cloud account data" includes a "mobile account number (MCA)" and that Smith's "master key identifier" is "unique" to the mobile device. *Id.* (citing Ex. 1006 ¶¶ 7, 9, 43, 49). Patent Owner's argument overlooks Smith's teaching of "a mapping database . . . wherein each mapping record includes at least a master key identifier, a mobile cloud account number (MCA), and a real card account number (RCA)." Ex. 1006 ¶ 8. In our preliminary view, this teaching shows an association between at least one component of Smith's mobile cloud account data—the mobile account number (MCA)—and a master key identifier that is unique to the mobile device.

b) Reason to Combine Smith with Kobylkin and Gomez

Petitioner contends that a POSITA would have been motivated to configure Smith's mobile device to be used in activating and/or funding Kobylkin's disposable payment card "so that the user could make beneficial and convenient use of disposable payment cards." Pet. 39. Petitioner further contends:

> Kobylkin's activation and funding operations on the same mobile device used for other purposes such as making contactless payment transactions in Smith's system, especially since using the same device for multiple tasks would have increased convenience to the user by not requiring the user to access different devices for Smith's payment transactions and Kobylkin's funding/activation of disposable cards.

Pet. 40 (citing Ex. 1003 ¶ 233).

Patent Owner argues that Petitioner does not "explain how or why a POSITA would activate or fund Kobylkin's instant disposable payment card (i.e., a physical card) in the context of the online (i.e., card-not-present) transactions claimed in claims 11 and 15." Prelim. Resp. 41 (citing Ex. 1005, code (57), ¶ 3).

For purposes of institution, we find that Petitioner provides a sufficient rationale for combining Smith and Kobylkin, as summarized above, and that Petitioner's rationale is sufficiently supported by the cited prior art and the Shamos Declaration. Pet. 39–41 (citing Ex. 1003 ¶¶ 230–234; Ex. 1005 ¶¶ 31, 50, 52; Ex. 1006 ¶¶ 33, 44). Petitioner relies on Kobylkin, which discloses that disposable payment cards are "easily made" and "have no value to anyone unless and when the user funds the . . . disposable payment cards;" that funding the disposable payment cards "can be easily accomplished anywhere by the user scanning the QR code with a

user smart phone;" and the disposable payment cards "provide a safe way for the user to make payments, while limiting exposure that a credit or debit card can have." Ex. 1005 ¶ 52. Petitioner also relies on Smith's reference to "NFC-capable mobile devices." Ex. 1006 ¶¶ 3, 4.

Patent Owner's argument rests on a mistaken interpretation of claims 11 and 15 as involving "card-not-present" transactions. Prelim. Resp. 41–42. Claim 11 recites "a thin payment device,' i.e., a card, and further recites that a personal computing device obtains "card device payment account information" and uses it "to generate complete payment information, including the limited-use payment information" which is conveyed via an interface. Claim 15 requires "a thin card-shaped payment card device" and "card issuer provided payment card information is wirelessly downloaded into the computing device." These recitations demonstrate that the "online payment system" of claims 11 and 15 involves card-present transactions.

Petitioner contends that "a POSITA would have been motivated . . . to implement a user credential check prior to Smith's mobile device generating a payment cryptogram, based on the teachings of Gomez." Pet. 41 (citing Ex. 1003 ¶ 236). Petitioner further contends:

> Implementing Gomez's credential checking in Smith's mobile device would further Smith's aim of "reducing the potential for fraud" by preventing the use of a stolen mobile device to initiate fraudulent transactions, such as by the mobile device verifying a user's fingerprint prior to initiating a payment transaction, as taught by Gomez.

Pet. 42 (citing Ex. 1003 ¶ 236; Ex. 1006 ¶¶ 34, 45; Ex. 1007, 5:14–18).

Patent Owner argues that Smith "already includes security measures to prevent fraudulent access to the functions of the mobile device" and that Gomez discloses a less secure payment card. Prelim. Resp. 42–43.

For purposes of institution, we find that Petitioner provides a sufficient rationale for combining Gomez with Smith and Kobylkin, as summarized above, and that Petitioner's rationale is sufficiently supported by the cited prior art and the Shamos Declaration. Pet. 41–43 (citing Ex. 1003 ¶¶ 236, 237; Ex. 1006 ¶¶ 33, 34, 45; Ex. 1007, 5:14–18, 10:34–42). Petitioner relies on Smith, which indicates that "reducing the potential for fraud" is one aim of the disclosed system. Ex. 1006 ¶ 34. Petitioner also relies on Gomez, which discloses a payment card that "generates an authentication cryptogram for each attempted transaction only after the cardholder successfully presents a credential, such as a fingerprint or PIN number, into the payment card." Ex. 1007, 5:14–18.

Patent Owner's counterargument raises factual issues as to the motivations of a POSITA, but does not preclude a determination of obviousness. *See Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1331 (Fed. Cir. 2019) ("Whether a skilled artisan would have been motivated to combine prior art references is . . . a question of fact."); *see also Intel*, 61 F.4th at 1380–81 (holding that the Board improperly rejected *KSR*'s known-technique rationale when it reasoned that Kabemoto "already addresses" the prior art problem and that it "fail[ed] to see why" a POSITA would regard Bauman's technique as an obvious improvement to Kabemoto).

c) Claim Element 15.6

Claim element 15.6 recites "wherein card issuer provided payment card information is wirelessly downloaded into the computing device."

For claim element 15.6, the parties dispute whether Smith's mobile cloud account data is "card issuer provided payment card information." *Compare* Pet. 59 (citing Ex. 1003 ¶¶ 290–292; Ex. 1006 ¶¶ 37, 44, Figs. 3, 4), *with* Prelim. Resp. 43–44 (arguing that Smith's mobile cloud account data "is generated and provided to a mobile device by a mobile cloud service provider, not the card issuer"). We find that Petitioner's contention is sufficient for purposes of institution. Petitioner relies on Smith's disclosure that "the service provider 110 . . . may be operated by or on behalf of the issuer 112." Ex. 1006 ¶ 37.

The parties also dispute whether "Kobylkin describes the mobile device wirelessly downloading the card number of a disposable payment card via an NFC channel when a user uses his or her device to activate or fund the disposable payment card." *Compare* Pet. 59 (citing Ex. 1005 ¶¶ 31, 50, 70, 71), *with* Prelim. Resp. 45 (arguing that Kobylkin's mobile device is merely a "transient conduit" for the card account number, which is not downloaded or saved on the device, citing Ex. 1005 ¶ 31). On the current record, it is unclear whether Kobylkin discloses or suggests downloading a card number to the mobile device. We do not need to resolve this issue because we determine that Petitioner provides a sufficient contention for claim element 15.6 based on Smith.

d) Remaining Claim Elements

At this stage, Patent Owner does not dispute Petitioner's contention that the combination of Smith, Kobylkin, and Gomez teaches or suggests the

claim elements 11.0–11.6, 11.9, 11.10, 15.0–15.5, 15.7, and 15.8. Pet. 43–53, 55–61. We determine that Petitioner's showing for independent claims 11 and 15 is sufficient for purposes of institution.

4. Dependent Claims 12–14 and 16–20

Claims 12–14 depend from claim 11, and claims 16–20 depend from claim 15. Petitioner challenges these claims based on Smith, Kobylkin, and Gomez, adding Varadarajan or Mullen for some claims. Pet. 1, 57–58, 61–71. Patent Owner does not present arguments for dependent claims 12–14 and 16–20 separate from its arguments for independent claims 11 and 15.

IV. CONCLUSION

For the above reasons, we determine that Petitioner establishes a reasonable likelihood that it would prevail in showing that at least one of claims 1–20 of the '820 Patent is unpatentable. Accordingly, we institute an *inter partes* review of all challenged claims on all grounds asserted against those claims in the Petition. 37 C.F.R. §§ 42.107(e), 42.108(a); *see* Guidance on the Impact of SAS on AIA Trial Proceedings (April 26, 2018);[12] *see also SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

[12] Available at https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial.

V. ORDER

It is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–20 of the '820 Patent is instituted commencing on the entry date of this Decision; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of trial.

For PETITIONER:

W. Karl Renner
Jeremy J. Monaldo
Nicholas Stephens
Daniel Smith
FISH & RICHARDSON P.C.
renner@fr.com
jjm@fr.com
nstephens@fr.com
dsmith@fr.com

For PATENT OWNER:

Matt Berkowitz
Patrick Colsher
Yue (Joy) Wang
REICHMAN JORGENSEN LEHMAN & FELDBERG LLP
mberkowitz@reichmanjorgensen.com
pcolsher@reichmanjorgensen.com
ywang@reichmanjorgensen.com