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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.,
Petitioner,

v.

CARDWARE INC.,
Patent Owner.

IPR2023-00210
Patent 10,339,520 B2

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

ROESEL, *Administrative Patent Judge.*

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

I. INTRODUCTION

A. Background and Summary

Samsung Electronics Co., Ltd. ("Petitioner") filed a Petition (Paper 3, "Pet.") seeking an *inter partes* review of claims 1 and 4–17 of U.S. Patent No. 10,339,520 B2 (Ex. 1001, "the '520 Patent"). CardWare Inc. ("Patent Owner") filed a Preliminary Response. Paper 7 ("Prelim. Resp.").

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 and the Preliminary Response, we determine that the reasonable likelihood standard is not met. Accordingly, we deny institution of an *inter partes* review.

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.). Pet. 75; Paper 4, 1 (Patent Owner's mandatory notices).

The parties also identify IPR2023-00211, which involves the same parties and the same patent. Pet. 75; Paper 4, 1.

C. The '520 Patent (Ex. 1001)

The '520 Patent is titled, "Multi-functional credit card type portable electronic device" and discloses methods of using such a device to perform transactions. Ex. 1001, codes (54), (57). According to the '520 Patent, existing types of credit cards have "security limitations" and are "susceptible to theft and/or compromise." *Id.* at 1:63–67. The '520 Patent addresses

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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 10:4–7.

D. Illustrative Claim

Petitioner challenges claims 1 and 4–17 of the '520 Patent, of which claims 1 and 10 are independent. Pet. 1. Claim 1 is illustrative and is reproduced below.

> 1. [1pre] An electronic device comprising:
>
> [1a] a near-field communication (NFC) unit;
>
> [1b] a touch sensor array; a display;
>
> [1c] a motion rate detection array;
>
> [1d] a memory for storing a user data and a currency [1e] amount;
>
> [1f] a processor operatively coupled to the NFC unit, the touch sensor array, the display, the motion rate detection array, and the memory;
>
> [1g] a computer readable medium having instructions stored thereon that, responsive to execution by the electronic device, cause the electronic device to perform operations comprising:
>
> *[1h] accepting a user input of issued payments information input at a touch screen display of the electronic device, wherein the information comprising an issuer provided payment information;*
>
> *[1i] wherein the memory comprises device-specific and user-specific information; and,*
>
> *[1j] wherein the user provided payment information is communicated wirelessly; and,*
>
> *[1k] wirelessly receiving a static device account number payment information for storage on the electronic device; and*

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> *[1l] wherein at least a portion of the payment information is a limited-use number for limited-use by the device, in place of a issuer provided payment information; and,*
>
> *[1m] dynamically-generating a one-time limited-use numbers based on at least one of a set of information including: user-identifying information; user secrets; device information; device secrets; time; merchant; facility location; sequence count; payment information; account information; amount; and transaction information; and*
>
> *[1n] using said static device account number and said dynamically generated one-time limited-use number together in the place of issuer provided payment information for making a payment transaction.*

Ex. 1001, 15:64–16:33 (bracket designations and italics added and paragraphs adjusted); *see* Pet. vii–ix (Petitioner's claim listing).

Claim 10 is directed to "[a] method of storing and generating payment information in an electronic device" and recites the above-italicized limitations of claim 1, with only minor differences. Ex. 1001, 17:8–33.

E. Asserted Grounds and Evidence

Petitioner asserts the following grounds of unpatentability:

Ground	Claim(s) Challenged	35 U.S.C. §[1]	Reference(s)/Basis
1A	10–13	103(a)	Gomez,[2] Carlson[3]

[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 '520 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. 1005, US 9,600,808 B1, issued March 21, 2017 ("Gomez").

[3] Ex. 1006, US 2008/0319905 Al, published December 25, 2008 ("Carlson").

Ground	Claim(s) Challenged	35 U.S.C. §[1]	Reference(s)/Basis
1B	14–17	103(a)	Gomez, Carlson, Mullen-915[4]
1C	1, 4–6, 8	103(a)	Gomez, Carlson, Jones[5]
1D	7	103(a)	Gomez, Carlson, Jones, Kay[6]
1E	9	103(a)	Gomez, Carlson, Jones, Mullen-701[7]
2A	10–13	103(a)	Carlson, Gomez
2B	14–17	103(a)	Carlson, Gomez, Mullen-915
2C	1, 4–6, 8	103(a)	Carlson, Gomez, Jones
2D	7	103(a)	Gomez, Carlson, Jones, Kay
2E	9	103(a)	Gomez, Carlson, Jones, Mullen-701

We note that Petitioner's Grounds 1A–1E differ from Grounds 2A–2E only with respect to the order of the first two references, Gomez and Carlson. Petitioner submits the Declaration of Michael I. Shamos, Ph.D., in support of the Petition. Ex. 1003.

II. 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

[4] Ex. 1007, WO 2012/154915 A1, published November 15, 2012 ("Mullen-915").

[5] Ex. 1008, US 2013/0262305 A1, published October 3, 2013 ("Jones").

[6] Ex. 1009, 2013/0124410 A1, published May 16, 2013 ("Kay").

[7] Ex. 1013, US 2009/0159701 A1, published June 25, 2009 ("Mullen-701").

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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

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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 technology." Pet. 5 (citing Ex. 1003 ¶¶ 39–44). According to Petitioner, "[g]raduate education could substitute for professional experience, or significant experience in the field could substitute for formal education." *Id.*

For purposes of the Preliminary Response, Patent Owner does not dispute Petitioner's definition of a POSITA. Prelim. Resp. 14.

For purposes of this Decision, we apply Petitioner's definition of a POSITA, which is consistent with the scope and content of the '520 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).

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"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)).

Both parties assert that claim construction is not required. Pet. 3; Prelim. Resp. 13. Nevertheless, Petitioner addresses the meaning of "static device account number payment information" in element [10e]. Pet. 20–22 & nn.4, 5). According to Petitioner, the "static device account number payment information" in element [10e] is the antecedent for "the payment information" in element [10f] and, consequently, "at least a portion of the static device account number payment information is a 'limited-use number for limited use by the device.'" *Id.* Based on this reasoning, Petitioner asserts that "the static device account number payment information is not required to have an unlimited lifetime." Pet. 22 n.5.

To the extent that Petitioner equates a static number with a dynamic number, we disagree. The '520 Patent uses the words, "static" and "dynamic," consistent with their ordinary and customary meanings, where "static" means fixed or unchanging, and "dynamic" means continuously changing. Exs. 3002, 3003 (Merriam-Webster online dictionary). Claims 1 and 10 recite "a static device account number" and a "dynamically generated one-time limited-use number," and further recite using these two numbers "together in the place of issuer provided payment information for making a payment transaction." Ex. 1001, 16:18–33, 17:18–33. We find that these recitations are consistent with the ordinary and customary meanings of "static" and "dynamic."

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Our finding is reinforced by the Specification, which distinguishes between a "static" number (or number portion) that is "fixed" and a "limited-duration" number (or number portion) that is "dynamically generated." Ex. 1001, 10:3–7, 10:13–23, 10:33–62. According to the '520 Patent, "[t]he limited-duration credit card number is able to be limited to only one transaction, a finite number of transactions, or may be limited to a specified period of time—e.g., 2 minutes, 10 minutes, 3 hours—after which time that particular limited-duration number would become invalid." *Id.* at 10:18–23. The '520 Patent discloses an embodiment in which "the number displayed on the credit card device is a static number, but the number transmitted during a transaction is a limited-duration credit card number as described above." *Id.* at 10:33–36. The '520 Patent discloses another embodiment in which a portion of the credit card number is "fixed" or "static" and another portion is "dynamically generated." *Id.* at 10:34–46, 10:53–56. The Specification does not support construing "a static device account number" as encompassing a number that is dynamically generated and valid for only a finite number of transactions or a specified period of time, such as two minutes, ten minutes, or three hours.

We determine that no further claim construction is necessary for purposes of this Decision.

D. Petitioner's References

We provide an overview of Gomez (Ex. 1005) and Carlson (Ex. 1006) below. An overview of Petitioner's remaining references is not necessary for purposes of this Decision.

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1. Gomez (Ex. 1005)

Gomez discloses a secure payment card called an "EPIC payment card" having a static payment card identifying number called an "EPIC account number," which is not itself a live payment card account number, but is linked to one or more live payment card accounts. Ex. 1005, codes (54), (57), 1:63–64, 5:13–18, 5:48–60, 6:7–12, Fig. 2. To prevent theft and fraud, the EPIC payment card generates an authentication cryptogram that is unique for each attempted use of the card and expires within a short period thereafter. *Id.* at code (57), 1:58–63, 5:13–18. "The authentication cryptogram is based at least upon a seed value stored within the payment card and a temporal signal value, such as the date/time of the attempted purchase, and is preferably valid for only a short lifetime after the date/time." *Id.* at 5:25–29; *see also id.* at 1:64–2:4, 14:36–17:12 (describing authentication cryptogram).

Gomez describes a traditional payment system and transaction flow for a retail purchase transaction using a credit or debit card. Ex. 1005, 3:65–4:50, Fig. 1. Gomez also describes "an exemplary EPIC payment system . . . and transaction flow" using the EPIC payment card. *Id.* at 5:48–6:64, Fig. 2. In the EPIC payment system, an authorization cryptogram is encoded in a re-writable field of the EPIC payment card's magnetic stripe. *Id.* at 5:50–56, 5:61–64. When the EPIC payment card is swiped through a magnetic card reader at a point-of-sale ("POS") terminal, the encoded information is combined with transaction information and communicated to an acquirer.[8] *Id.* at 5:64–6:6, Fig. 2 (steps 444, 448). When the account

[8] Gomez explains: "The acquirer . . . functions as an intermediary between a merchant and a card association, such as VISA, MasterCard, Discover, or American Express, to more easily provide for a merchant to be able to

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number is recognized as an EPIC account number, the acquirer sends an authentication request, including the authentication cryptogram, to an EPIC authentication server, which determines whether the authentication cryptogram is valid for the transaction. *Id.* at 6:7–24, Fig. 2 (step 452). If so, the authentication server communicates an actual payment card account number back to the acquirer. *Id.* at 6:23–38, Fig. 2 (step 456). From this point, the transaction proceeds in the same manner as for a traditional credit or debit card transaction. *Id.* at 6:39–64, Figs. 1, 2 (steps 412, 416, 420, 422, 424).

2. Carlson (Ex. 1006)

Carlson discloses a secure mobile payment system and a method of using a portable wireless device, such as a cellular phone, to conduct a contactless payment transaction. Ex. 1006, codes (54), (57), ¶¶ 2, 77. To address security concerns associated with wireless communication of sensitive information, Carlson discloses a pseudo account identifier ("PAI")[9] that corresponds to a consumer's real account identifier. *Id.* at code (57), ¶¶ 6–14, 29. According to Carlson, the PAI may be received at a portable wireless device over a network and may have been previously generated by a remote server computer. *Id.* at code (57), ¶¶ 14, 29, 32, 35. Thereafter, the portable wireless device may use the PAI to conduct one or more

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accept many different types of payment cards, without each merchant having to establish electronic connections with multiple card associations, card issuers, or other entities." Ex. 1005, 4:17–23.

[9] Carlson also uses the terms, "primary account identifier" and "pseudo primary account identifier." Ex. 1006 ¶ 13. According to Carlson, a "primary account identifier" is an example of an "account identifier" and a "pseudo primary account identifier" is an example of a "pseudo account identifier." *Id.*

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transactions by providing the PAI to an access device, such as a contactless reader of a POS terminal or an automatic teller machine ("ATM"). *Id.* ¶¶ 14, 15, 40, 41. The access device uses the PAI to form an authorization request message that is sent to a payment processing network. *Id.* at code (57), ¶¶ 14, 43. Upon receipt of an authorization request message, the payment processing network converts the PAI back to the real account identifier, which is then sent to the issuer for authorization of the transaction. *Id.* ¶¶ 47, 49; *see also* ¶¶ 73–76, Fig. 4 (flow diagram illustrating a method of processing a transaction involving a PAI).

Carlson discloses that "[t]he payment processing network may dynamically generate the pseudo primary account identifier, select it from a list of predefined pseudo primary account identifiers, or use any other means to create a pseudo primary account identifier." Ex. 1006 ¶ 35. Carlson further discloses that the payment processing network can store the relationship of the PAI to the real account identifier and may also store additional details about the relationship. *Id.* ¶ 36.

> For example, the pseudo primary account number may be set to expire after a certain number of transactions or after a certain time period. Doing so can help to ensure that if for some reason a pseudo primary account number is revealed to anyone other than an authorized user, the amount of damage that can be done is limited due to the limited lifetime of the pseudo primary account number.

Id. Carlson describes the security advantages of the PAI as follows:

> Because the pseudo primary account identifier can be transitory and may have a limited lifetime, it can be noted that this provides a level of protection to the consumer's account. If the pseudo primary account identifier transmitted between the portable wireless device and the contactless reader is intercepted, it would be of limited or no use to a person wishing to use it for conducting unauthorized transactions, as it would likely have

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> expired before any illicit use could be made. It is further noted that the primary account is also protected from unscrupulous merchants because the merchant only receives the transitory pseudo primary account identifier and never receives the real primary account identifier.

Id. ¶ 44.

E. Petitioner's Challenges

1. Independent Claims 1 and 10

Petitioner contends that claim 10 would have been obvious based on Gomez and Carlson and that claim 1 would have been obvious based on Gomez, Carlson, and Jones. Pet. 1–2, 6–25, 32–40, 48–58, 62–66. Patent Owner opposes. Prelim. Resp. 14–34.

Our analysis focuses on claim element [1k], which recites "wirelessly receiving a static device account number payment information for storage on the electronic device," and element [10e], which is identical except for the order of the words, "wirelessly" and "receiving." Ex. 1001, 16:18–19, 17:18–19.

Petitioner contends that claim elements [1k] and [10e] are taught by Carlson alone or Gomez in view of Carlson. Pet. 8, 17–20, 39, 55, 65. Patent Owner disagrees. Prelim. Resp. 15–21, 25–28.

After considering the parties' submissions and for the reasons discussed below, we determine that Petitioner's arguments and evidence for claim elements [1k] and [10e] do not meet the threshold for institution.

a) Carlson

Petitioner contends that Carlson's PAI is "static device account number payment information," as recited in claim elements [1k] and [10e], but presents no persuasive argument for why Carlson's PAI should be

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considered "static." Pet. 55, 65. We agree with Patent Owner that it is not. Prelim. Resp. 19.

As discussed above, the Specification of the '520 Patent does not support construing "a static device account number" as encompassing a number that is dynamically generated and valid for only a finite number of transactions or a specified period of time, such as two minutes, ten minutes, or three hours. Carlson's PAI is precisely that—a dynamically generated, transitory number that is valid for only a finite number of transactions or a specified period of time. Ex. 1006 ¶ 35 ("The payment processing network may dynamically generate the pseudo primary account identifier . . ."); *id.* ¶ 36 ("[T]he pseudo primary account number may be set to expire after a certain number of transactions or after a certain time period."); *id.* ¶ 44 ("Because the pseudo primary account identifier can be transitory and may have a limited lifetime, it can be noted that this provides a level of protection to the consumer's account.").

b) Gomez in view of Carlson

Petitioner contends that Gomez's EPIC payment card number is a "static device account number," as recited in claim elements [1k] and [10e]. Pet. 17–18. That much of Petitioner's contention is supported by the Gomez. Ex. 1005, 1:63–64 ("An exemplary payment card system uses a static payment card identifying number."); *id.* at 2:19–39 (discussing a "static payment card identifying number"); *id.* at 5:13–15 ("In an exemplary embodiment, an EPIC payment card uses a fully static payment card number . . ."); *id.* at 13:49–52 ("A fully static (16-digit) account number . . . may be printed or embossed on the payment card."); *id*. at 23:15–20 (claims 9, 10: "the payment card identifying number is a static number . . .").

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To account for the part of claim elements [1k] and [10e] that recites "wirelessly receiving," however, Petitioner proposes to modify Gomez's EPIC payment card number. Pet. 18–20. More particularly, Petition contends that, "[t]o the extent Gomez does not expressly disclose that the EPIC number is received wirelessly, such features would have been obvious in view of Carlson's teachings." Pet. 18 (citing Ex. 1003 ¶ 171). Petitioner directs us to Carlson's teaching that the PAI is wirelessly received by a portable wireless device. *Id.* (citing Ex. 1006 ¶¶ 32, 34, 51, 68, Figs. 2, 5). As a rationale for combining Carlson's teaching with Gomez, Petitioner contends that "[w]ireless reception of the EPIC number would have enabled the device to more readily obtain new or updated EPIC numbers from time-to-time, such as when the current EPIC number expires or in the event the EPIC account is compromised." Pet. 18–19 (citing Ex. 1003 ¶ 172). As support for this rationale, Petitioner asserts that "Carlson expressly recognizes security protections that would be realized by updating the PAI from time-to-time—i.e., a capability made possible by configuring the device to receive wirelessly new PAIs." Pet. 19 (citing Ex. 1006 ¶¶ 36, 44).

We find that Petitioner's obviousness rationale is unsupported by the evidence or in conflict with the claim requirement for a "static device account number."

To the extent that Petitioner proposes that a new or updated EPIC number would be wirelessly received "from time-to-time, such as when the current EPIC number expires or in the event the EPIC account is compromised" (Pet. 19), such a modification is not supported by Carlson, which teaches that the PAI is "transitory," has a "limited lifetime," and "may be set to expire after a certain number of transactions or after a certain time period." Ex. 1006 ¶¶ 36, 44. Moreover, Carlson does not teach or suggest

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that security would be improved by updating Gomez's EPIC number (or Carlson's PAI) merely "from time-to-time, such as when the current EPIC number expires or in the event the EPIC account is compromised," as proposed by Petitioner. Such infrequent updating would provide little or no security improvement over conventional credit card numbers that are updated only when they expire or are compromised. *See* Ex. 1005, 1:40–48 (discussing security risks associated with conventional credit card numbers that are "fixed and never change"). Petitioner fails to show that updating Gomez's EPIC number merely "from time-to-time" would provide a security improvement over Gomez, which discloses that fraudulent use of the static payment card identifying number "would not be possible because any attempted transaction would not be approved without an appropriate authentication cryptogram generated uniquely for such transaction." *Id.* at 2:19–25; *see* Prelim. Resp. 27 ("Petitioner also fails to explain why a POSITA would want or need to update the EPIC account number given that it is used in connection with a dynamically generated cryptogram.").

To the extent that Petitioner proposes that a new or updated EPIC number would be wirelessly received with the same frequency as Carlson teaches for the PAI, then we find that such a modified EPIC number would not be a "static device account number," as claimed. As already discussed, Carlson's PAI is a dynamically generated, transitory number that is valid for only a finite number of transactions or a specified period of time short enough to avoid unauthorized use. Ex. 1006 ¶¶ 35, 36, 44. If Gomez's EPIC number were modified to have the same limited lifetime of Carlson's PAI, then it would not be "static," as claimed.

2. Dependent Claims 4–9 and 11–17

Claims 4–9 depend from claim 1, and claims 11–17 depend, directly or indirectly, from claim 10. Petitioner's arguments and evidence for dependent claims 4–9 and 11–17 do not remedy the deficiencies in their arguments and evidence for independent claims 1 and 10, as discussed above.

F. Discretion under 35 U.S.C. § 314(a)

In view of our determination that Petitioner does not meet the threshold for instituting review on the merits, we do not need to address the parties' dispute about whether the Board should exercise its discretion to deny the Petition under 35 U.S.C. § 314(a). Pet. 71–74; Prelim. Resp. 35–41; Paper 9 (Petitioner's Reply to Patent Owner's Preliminary Response); Paper 10 (Patent Owner's Preliminary Sur-reply).

III. CONCLUSION

For the above reasons, we determine that Petitioner does not establish a reasonable likelihood that it would prevail in showing that at least one of claims 1 and 4–17 of the '520 Patent is unpatentable on the grounds asserted in the Petition.

IV. ORDER

It is

ORDERED that the Petition is *denied*, and no trial is instituted.

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