

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MASTERCARD INCORPORATED AND MASTERCARD
INTERNATIONAL INCORPORATED.,

Petitioner,

v.

OV LOOP, INC.,

Patent Owner.

Case IPR2023-01289

Patent 10,032,171

PATENT OWNER'S SUR-REPLY

Mail Stop "PATENT BOARD"
Patent Trial and Appeal Board
U.S. Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

TABLE OF CONTENTS

I.	Introduction	1
II.	Collinge Provisional is not Prior Art	1
III.	Background References are not Prior Art	3
IV.	Grounds 1 and 2 (Collinge)	5
A.	Claim 1	5
1.	Limitation 1.C (“associated with the account”)	5
2.	Limitation 1.C/17.F (APDU response)	6
3.	Limitation 1.E-3 (response containing the response cryptogram and an account identifier)	7
B.	Petitioner presents inconsistent mapping of “remote computer system” as to claims 1 and 10	8
C.	Claim 10 (“the account identifier”)	16
D.	Claim 10 (calculating cryptogram using non- permanent cryptographic key)	17
E.	Claim 8	18
1.	Limitation 8.A	18
2.	Limitation 8.B	21
F.	Claim 4	22
G.	Claim 16	23

V.	Grounds 3 and 4	23
A.	Claims 8/9 “sending ... the account identifier to the mobile device”	23
B.	Claims 10-13, 27-30.....	26
1.	No “account identifier”	26
2.	No “determining a ... key ... using the account identifier”	27
C.	Claims 11/28	28
D.	Claims 1/17	29
1.	1.E-3	29
E.	Claims 4/5/20/21	30
VI.	Conclusion	30

TABLE OF AUTHORITIES

Cases

<i>Acceleration Bay, LLC v. Activision Blizzard Inc.</i> , 908 F.3d 765 (Fed. Cir. 2018)	20
<i>Amgen Inc. v. Sanofi</i> , 872 F.3d 1367 (Fed. Cir. 2017)	1
<i>Arendi SARL v. Apple Inc.</i> , 832 F.3d 1355 (Fed. Cir. 2016)	18
<i>Ariosa Diagnostics v. Verinata Health, Inc.</i> , 805 F.3d 1359 (Fed. Cir. 2015)	4
<i>Ariosa Diagnostics v. Verinata Health, Inc.</i> , No. IPR2013-00276, Paper 64 (P.T.A.B. Aug. 15, 2016)	4
<i>ATD Corp. v. Lydall, Inc.</i> , 159 F.3d 534 (Fed. Cir. 1998)	21
<i>C.R. Bard, Inc. v. Medline Indus., Inc.</i> , No. 2020-1900, 2021 WL 3574043 (Fed. Cir. Aug. 13, 2021)	17
<i>Comcast Cable Commc'ns, LLC v. Rovi Guides, Inc.</i> , No. IPR2017-01065, Paper 2 (P.T.A.B. Mar. 31, 2017)	3
<i>Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.</i> , 800 F.3d 1385 (Fed. Cir. 2015)	1
<i>Ex Parte Gary K. Michelson</i> , No. APPEAL 2012-004146, 2015 WL 5118373 (P.T.A.B. Aug. 27, 2015)	3
<i>Facebook, Inc. et al v. Uniloc Luxembourg SA et al</i> , No. IPR2017-01523, Paper 7 (P.T.A.B. Dec. 4, 2017)	8, 9
<i>Harmonic Inc. v. Avid Tech., Inc.</i> , 815 F.3d 1356 (Fed. Cir. 2016)	9

<i>Hybritech Inc. v. Monoclonal Antibodies, Inc.</i> , 802 F.2d 1367 (Fed. Cir. 1986)	17
<i>In re Paulsen</i> , 30 F.3d 1475 (Fed. Cir. 1994)	18
<i>Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.</i> , 821 F.3d 1359 (Fed. Cir. 2016)	vi, 20
<i>Koninklijke Philips N.V. v. Google LLC</i> , 948 F.3d 1330 (Fed. Cir. 2020)	18
<i>Randall Mfg. v. Rea</i> , 733 F.3d 1355 (Fed. Cir. 2013)	4
<i>Schumer v. Lab. Comput. Sys., Inc.</i> , 308 F.3d 1304 (Fed. Cir. 2002)	9
<i>Sequenom, Inc. v. Bd. of Trustees of Leland Stanford Junior Univ.</i> , No. IPR2014-00337, Paper 14 (P.T.A.B. Sep. 23, 2014)	2
<i>Yeda Rsch. v. Mylan Pharms. Inc.</i> , 906 F.3d 1031 (Fed. Cir. 2018)	4, 28
<u>Rules</u>	
37 C.F.R § 42.104	9

TABLE OF EXHIBITS

Exhibit No.	Description
2001	Declaration of Spencer Hosie in support of Motion for <i>Pro Hac Vice</i> Admission
2002	Declaration of Diane S. Rice in support of Motion for <i>Pro Hac Vice</i> Admission
2003	Declaration of Darrell Atkinson in support of Motion for <i>Pro Hac Vice</i> Admission
2004	Wikipedia Article – Host Card Emulation
2005	NFCW Article, “SimplyTapp proposes secure elements in the cloud”, dated Sept. 19, 2012
2006	Android KitKat (https://developer.android.com/about/versions/kitkat)
2007	NFCW Article, “Google gets around the carriers with Host Card Emulation for NFC payments”, dated Oct. 31, 2013
2008	Visa Inc. Press Release - Visa to Enable Secure, Cloud-Based Mobile Payments
2009	Declaration of Dr. Chuck Easttom Ph.D., D.Sc.
2010	Multisystem Technologies, Acquiring: EMV Transaction Flow. Part 4: PDOL and Contactless Cards, Characteristic Features of qVSDC and qUICS, Nov. 22, 2020
2011	Multisystem Technologies, Acquiring: EMV Transaction Flow. Part 3: GET PROCESSING OPTIONS with and without PDOL, Aug. 14, 2020
2012	Bankrate, What is EMV compliance law and should your business worry about it?, Dec. 06, 2023
2013	Minimum EMV Chip Card and Terminal Requirements
2014	Fiserv, What is EMV?
2015	EMVCo, A Guide to EMV Chip Technology, Nov. 2014
2016	SPA, Instant Issuance, A SPA White Paper, Dec. 2013
2017	AlphaCard, What’s the difference between HiCo and LoCo magnetic stripe cards?
2018	SPA, Private Label Payment Systems, Nov. 15, 2011

2019	Payment Card Industry (PCI) Data Security Standard, Oct. 05, 2010
2020	Epordo, Smart Card Technology
2021	MasterCard, M/Chip 4 Issuer Guide to Debit and Credit Parameter Management, Dec. 2004
2022	quick Visa Smart Debit/Credit Intelligent Reader Testing Process, Oct. 2008
2023	NordVPN, Session key definition
2024	Microsoft Learn, Glossary
2025	VISA, Visa Best Practices for Data Field Encryption Version 1.0, Oct. 05, 2009
2026	Cisco, Next Generation Cryptography
2027	Anderson, et al., <i>Serpent: A Proposal for the Advanced Encryption Standard</i>
2028	Anderson, et al., <i>Serpent and Smartcards</i>
2029	FasterCapital, Encryption Techniques For Financial Transactions
2030	New Softwares, How do Banks Encrypt Data?
2031	Enisa, Algorithms, Key Sizes and Parameters Report, Oct. 2013
2032	Global Payments, What is EMV Contactless?, Mar. 06, 2019
2033	SC Media, The long and winding road: EMV Adoption, Jun. 1, 2015
2034	EMV in the U.S. (2020 Update)
2035	Deposition Transcript excerpts of Dr. Stuart Fiske
2036	Discover Financial, Emvco Membership Grows with Discover
2037	CV of Dr. Chuck Easttom Ph.D., D.Sc.
2038	Declaration of Seth Lindner

I. Introduction

Petitioner's Reply fails to cure the fatal flaws in the Petition. The Reply ignores relevant claim limitations, presents numerous new obviousness theories beyond the proper scope of a reply, and presents new and inconsistent claim mappings. The Board should not permit Petitioner to disregard this Board's procedures and the law.

II. Collinge Provisional is not Prior Art

The Reply ignores and mischaracterizes Patent Owner's arguments as to the prior art status of Collinge. First, the Reply contends that "Patent Owner has not reasserted its POPR argument regarding *Dynamic Drinkware* and does not argue that the relevant disclosures are missing in the provisionals." Reply 4. This is wrong. The POR expressly discusses the requirements of *Dynamic Drinkware* and subsequent cases addressing them. POR 6-8. And, the POR explicitly identifies disclosures in Collinge for which Petitioner provided no support in the Collinge Provisional. POR 12.

Second, Petitioner ignores the Federal Circuit's decision in *Amgen Inc. v. Sanofi*, holding that provisional applications are not prior art. And, Petitioner ignores the Board decision that addresses the issue here—i.e.,

whether a petitioner may rely on disclosures found only in a provisional patent application when that provisional application is incorporated by reference into a patent application published after the priority date of the challenged patent. The panel in *Sequenom, Inc. v. Bd. of Trustees of Leland Stanford Junior Univ.* found that a petitioner must show that “the critical disclosures relied upon in the provisional application are also present in a corresponding patent, or application published under § 122(b).” *Sequenom, Inc. v. Bd. of Trustees of Leland Stanford Junior Univ.*, No. IPR2014-00337, Paper 14 at 3-4 (P.T.A.B. Sep. 23, 2014). In that case, the petitioner attempted to rely on a provisional application that predated the challenged patent and that was incorporated by reference in its entirety in a published patent application. The Board disagreed with the petitioner’s argument that *Ex parte Yamaguchi*, 88 USPQ2d 1606 (BPAI 2008) (precedential) required the Board to allow the provisional application to be relied upon as prior art for all that it teaches. *Id.*

Petitioner’s contention that the Board has rejected Patent Owner’s arguments and routinely relies on disclosures in provisional applications that are properly incorporated in a non-provisional application is wrong.

None of the cited cases involved the situation here, where the priority date of the published application relied upon in an *inter partes* review petition came after the priority date of the challenged patent. In *Comcast Cable*, the asserted prior art patent was itself 102(e) prior art because it was filed before the earliest claimed priority date of the challenged patent. *Comcast Cable Commc'ns, LLC v. Rovi Guides, Inc.*, No. IPR2017-01065, Paper 2 at 18 (P.T.A.B. Mar. 31, 2017). The decision in *Ex Parte Gary K. Michelson* did not involve a *inter partes* review and thus did not consider the impact of the statutory limitation in such a proceeding to patents and printed publications. *Ex Parte Gary K. Michelson*, No. APPEAL 2012-004146, 2015 WL 5118373, at *3-4 (P.T.A.B. Aug. 27, 2015).

III. Background References are not Prior Art

The Reply repeatedly relies on disclosures in non-prior art documents—“EMV Specifications” (EXS1019-1029), “PayPass-Magstripe” (EX1058) and “PayPass-M/Chip” (EX1059)—for limitations missing from the asserted prior art. Petitioner argues that these non-prior art references must be considered as part of the “background knowledge” of a POSITA. Reply 4-8. Yet Petitioner’s use of these

references goes well beyond illustrating the background knowledge in the art. Petitioner relies on them for alleged disclosures of claim limitations that are missing from the asserted prior art, which is not allowed. *Yeda Rsch. v. Mylan Pharms. Inc.*, 906 F.3d 1031, 1041 (Fed. Cir. 2018). The cases cited on Reply do not change this. The Federal Circuit’s decision in *Ariosa Diagnostics* related to the Board’s consideration of a background reference used by the petitioner to show that combining the asserted prior art would have been within the skill of a POSITA. *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1365 (Fed. Cir. 2015); *Ariosa Diagnostics v. Verinata Health, Inc.*, No. IPR2013-00276, Paper 64 at 15 (P.T.A.B. Aug. 15, 2016). Similarly, in *Randall Mfg. v. Rea*, the Federal Circuit noted that the proper role in considering the background knowledge in the art was to “explain why an ordinarily skilled artisan would have been motivated to combine or modify the cited references to arrive at the claimed inventions.” *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013). Petitioner’s use of non-prior art here is aimed to fill gaps in the disclosures of the relied upon prior art, not merely to provide support for an argument that a POSITA would have

combined the prior art to arrive at the claimed inventions. *See, e.g.*, Reply 11, 14-15, 21, 27.

Also, Petitioner appears to argue that two of the newly introduced references were “published” by 2008. Reply 6. But its evidence of publication is insufficient. It relies only on the date printed on the first page of each document and provides insufficient evidence of public availability. Indeed, EX1058 at 2 states “[t]he information in this document is proprietary and confidential” and that it “may not be duplicated, published, or disclosed, in whole or in part, without the prior written permission of MasterCard.” The bottom of each page of EX1058 says “Proprietary and Confidential.” EX1059 similarly indicates that it is “proprietary and confidential.” EX1059 at 2.

IV. Grounds 1 and 2 (Collinge)

A. Claim 1

1. Limitation 1.C (“associated with the account”)

The POR does not contend that KSun in Collinge is not *associated with the account* merely because it cannot be used to recover the account number. POR 18-19. Instead, the POR explains that KSun being “generated in response to an account-specific request” is insufficient

evidence that KSun is *associated with the account*, as Petitioner’s expert himself recognized. *Id.* Thus, the first of Petitioner’s alleged “three separate ways in which Collinge’s key is associated with the account” is insufficient. Reply 10.

As to the second and third “separate ways” identified in the Petition, the POR explains why these are also insufficient. POR 18-19. Petitioner does not dispute that there is no disclosure in Collinge of how KSun is generated. It relies entirely on disclosures in the Collinge Provisional that were not carried forward into Collinge. Thus, Petitioner’s contentions the KSun is associated with the account because it is mathematically generated from the account number lacks evidence in the prior art.

2. Limitation 1.C/17.F (APDU response)

Petitioner does not dispute that its analysis of this limitation (including the Petition’s section relating to limitation 1.A-3, which is cited in section 1.C) omits any explanation of how Collinge’s “encrypted payload” is *usable by the application to formulate an application protocol data unit response*. Reply 11. Instead, Petitioner argues that those details are presented in its analysis of a different limitation (1.E-3), which was

not cited in Petitioner’s 1.C analysis. *Id.* Yet limitation 1.E-3 makes no mention of the *first set of data* recited in 1.C, and Petitioner’s analysis of 1.E-3 never mentions the “encrypted payload” it relies on in 1.C. Thus, Petitioner’s attempt to cure the deficiencies in its analysis of limitation 1.C leads to a dead end.

As to obviousness, the POR explained that Petitioner improperly relies on non-prior art evidence in Exhibits 1037 and 1021 for their independent teachings that it attempts to combine with Collinge. POR 66. On Reply, Petitioner adds additional non-prior art evidence for the same prohibited purpose—i.e., to fill in limitations unquestionably missing from Collinge. Petitioner provides no contention that the technology here is unusually simple or straightforward, and it is not. Reply 11. The Board should disregard Petitioner’s obviousness argument.

3. Limitation 1.E-3 (response containing the response cryptogram and an account identifier)

Petitioner does not dispute that the document it relied on in the Petition for the implementation details of a PayPass transaction (EX1026) does not mandate the disclosed implementation for EMV compliance. Nor does Petitioner identify any argument in the Petition as to why a POSITA would have chosen to implement an optional feature.

Reply 13-16. On Reply, Petitioner attempts to fill the holes in its *prima facie* case for obviousness with (1) a newly presented “PayPass Specification,” for the details of how it structures the communications between a card and POS terminal and (2) an entirely new argument as to how and why a POSITA could/would have implemented Collinge based on “knowledge of PayPass and EMV.” *Id.* 14-16. Both arguments are improper because they are unresponsive to anything in the POR and could have been made in the Petition. For example, footnote 13 presents a new argument as to how “a POSITA would understand the author’s intent” in Exhibit 1020. *Id.* 15. In addition, Petitioner is using a non-prior art document (EX1058) for disclosures admittedly missing from the prior art, which is not allowed. *Id.*

B. Petitioner presents inconsistent mapping of “remote computer system” as to claims 1 and 10

Petitioner’s mapping of Collinge to claims 1 and 10 are inconsistent and incomplete. It is Petitioner’s obligation to identify with particularity **in the Petition** the evidence it relies on to demonstrate unpatentability. Petitioner has not done so with respect to the *remote computer system* in claims 1 and 10. *See Facebook, Inc. et al v. Uniloc Luxembourg SA et al,*

No. IPR2017-01523, Paper 7 at 15-16 (P.T.A.B. Dec. 4, 2017) (“It is not our role to pick a theory for Petitioner regarding the identity of the recited [claim element] ... between the conflicting options presented ... and then to apply that selected theory ... to the challenged independent and dependent claims where Petitioner has failed to do so.”) (citing *Schumer v. Lab. Comput. Sys., Inc.*, 308 F.3d 1304, 1316 (Fed. Cir. 2002)); *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016). A petition that includes unexplained inconsistent arguments and conflicting theories regarding the identity of a limitation across independent and dependent claims necessarily fails to “specify where each element of the claim is found,” in violation of 37 C.F.R § 42.104(b)(4). *Facebook*, IPR2017-01523, Paper 7 at 18. The Petition expressly identifies one set of elements in Collinge as a remote computer system in claim 1 and then cites to Collinge’s disclosures relating to a different set of elements in its analysis of claim 10, which recites steps performed *at the remote computer system*.

The Reply only makes matters worse. The Reply contends that when the Petition presented its analysis of claim 1 and expressly identified “remote-SE (remote-secure-element) system 110” (Pet. 38-41),

i.e., the box labeled “Cloud System” in EX1009 (and correspondingly identified as remote-SE 110 in Figure 7 of EX1011)—Petitioner contends that the *remote computer system* would also be understood as “at least the structures identified below in the blue box.” Reply 16. Numerous problems are plainly evident from the Reply.

First, the elements Petitioner identifies on Reply are inconsistent with what it identified for claim 10 in the Petition. The Reply contends that one would understand the scope of *the remote computer system* in claim 10 based on the Petition “mapping functions of claim 10 performed by the ‘remote computer system’ to the part of the payment network that allows the ‘issuer to authorize the transaction and associate it with the account.’” Reply 17 (citing Pet. 58-59). The Petition and the cited portions of Collinge show that this cannot be correct. For example, as to the preamble of claim 10, which recites *at the remote computer system, performing an authorization process*, the Petition says that Collinge discloses “performing an authorization process at a **payment network**.” Pet. 58 (citing EX1011 [0045], [0056]-[0057], [0086]-[0087]; EX1009 61 (Table 1, Steps 14-15)) (emphasis added). In cited paragraph [0045] of Collinge, it says that “acquirer **122** may submit an authorization request

to a payment network 124.” EX1011 [0045] (underline added). But, although the Petition expressly identifies the “payment network” in its analysis of *the remote computer system* element of claim 10, Collinge’s “payment network” is in fact **outside** of the “blue box” identified on Reply. In other words, Petitioner’s “blue box” excludes an element that it explicitly relied on in the Petition. Pet. 58. Petitioner relies on other elements in Collinge outside of Petitioner’s “blue box.” *See, e.g.*, EX1011 at [0056]-[0057] (describing steps performed by payment network 124 and acquirer 122), [0077] (received payment information transmitted to the acquirer processing server 312 of the acquirer 122), [0086]-[0087] (describing authorization request forwarded to payment network 124). The Petition provides no basis for deciphering which elements are part of the alleged *remote computer system* and which are not, which deprives Patent Owner the opportunity to meaningfully respond.

Additionally, for limitation 10.A, which recites *receiving an authorization request to authorize the transaction from the POS terminal*, the Petition states “Collinge explains the POS terminal ‘may transmit the received payment information [from the mobile device] and any additional transaction information.’” Pet. 58 (citing EX1011 [0077]). Yet

paragraph [0077] discloses that the payment information and additional transaction information is transmitted “to the acquirer processing server 312 of the acquirer 122.” As illustrated below, each of these elements is located **outside** of Petitioner’s blue box.

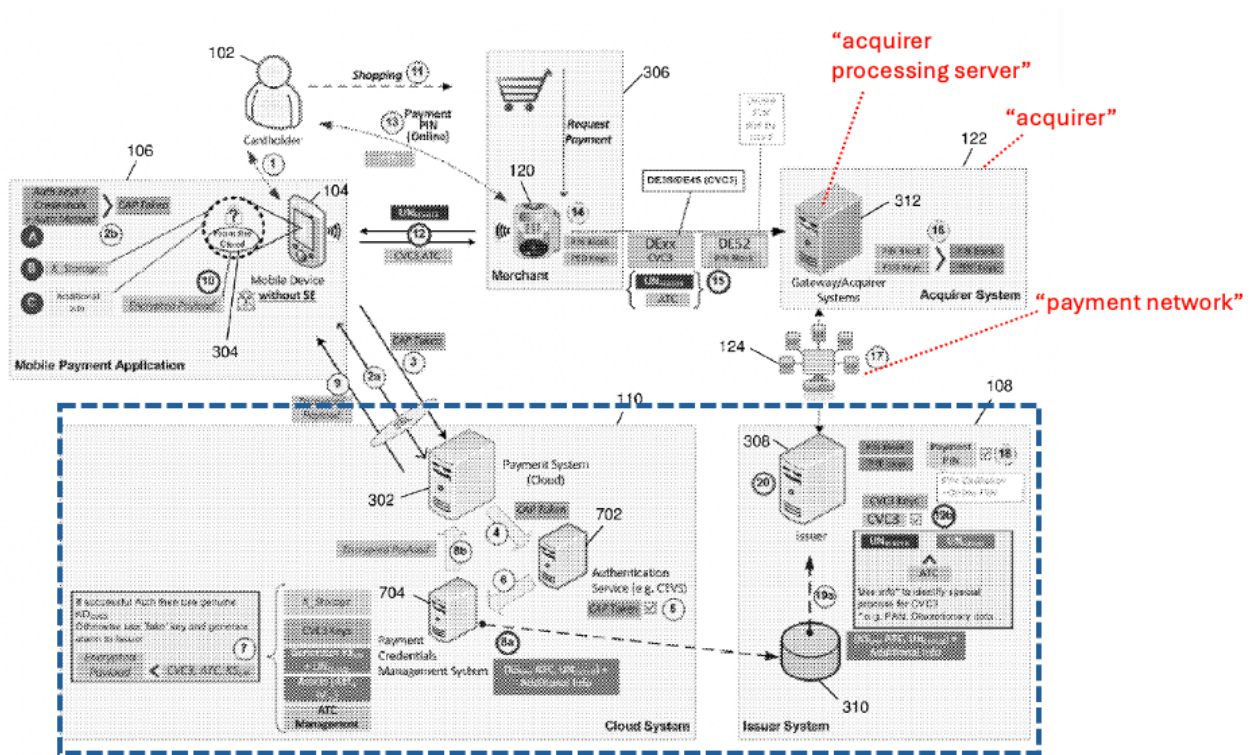


FIG. 7

EX1011 at Fig. 7 (annotations added).¹ The “Summary of the Prior Art” section of the Petition does not help. It says “Collinge teaches a remote

¹ Patent Owner includes here Figure 7 from Collinge to illustrate the elements mentioned and cited in the Petition. Figure 7 of Collinge is largely similar to Figure 7 from the Collinge Provisional that Petitioner annotates in Reply.

system (100) separate from a user mobile device....” Pet. 26. However, Figure 1 of Collinge shows that element 100 denotes the entirety of that figure.

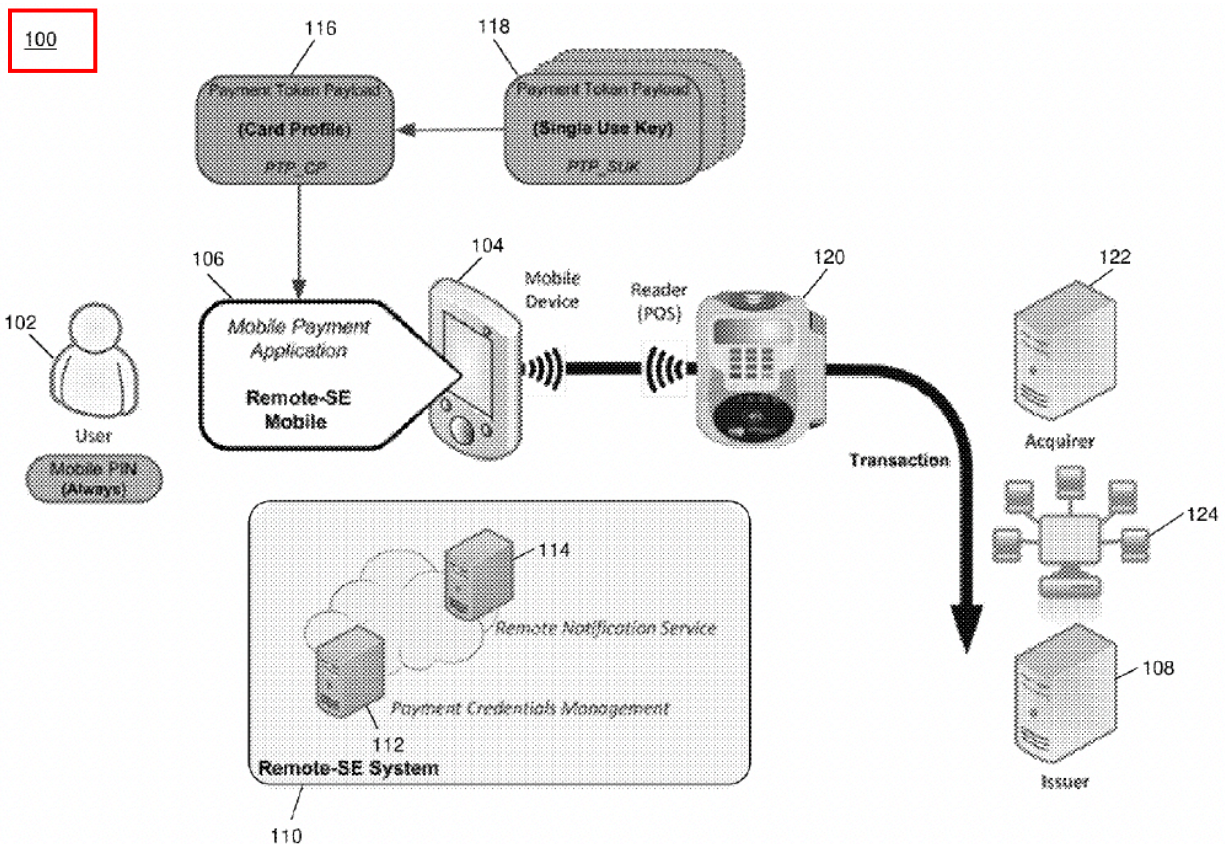


FIG. 1

EX1011 at Fig. 1 (red annotations added); *see also* EX1011, [0039], [0040], [0072], Fig. 6.

Second, on Reply, Petitioner is its mapping of claim 1 to include new elements within the claimed *remote computer system* (Reply 16-17), which calls into question the adequacy of the Petition as to this element.

At a minimum, the Petition should have provided in its analysis of claim 1, some evidence or argument that these elements in Collinge are all part of an individual *remote computer system*. The Petition does not do so, and for that reason, it has not met its burden as to claim 1 in Grounds 1 or 2 under Petitioner’s “blue box” theory.

Third, even in Reply, Petitioner leaves ambiguity in what it identifies as the claimed *remote computer system*. By stating that “the Petition mapped functionality performed in **at least** the structures identified below in the blue box” (Reply 16) (emphasis added), the Reply appears to leave open the possibility that additional elements in Collinge could be part of Collinge’s alleged *remote computer system*. See also *id.* at 18 (describing the “blue-boxed portion of the remote computer system”). Reply 18. If the blue box shows only a part of the alleged *remote computer system*, which other elements are included?

Fourth, Reply says that the separate boxes in Figure 7 of the Collinge Provisional “are expressly stated and shown to share a ‘connection 178’ therebetween.” Reply 16. Perhaps Petitioner identified this “connection” between the “Cloud System” and the “Issuer System” of Figure 7 to demonstrate that these two separately identified systems

were part a single *remote computer system*. Such an argument is inappropriate for a reply because it undoubtedly could have been made as part of the *prima facie* case in the Petition and because it is not responsive to any argument made in the POR, which did not (and could not) address whether the elements in the newly-disclosed “blue box” could together be considered a single *remote computer system*.

C. Claim 10 (“the account identifier”)

Petitioner does not dispute that neither Collinge nor the Collinge Provisionals discloses an *account identifier* used to determine a current non-permanent cryptographic key (“NPCK”) as recited in claim 10. Reply 18; *see also* EX1050 ¶45 (acknowledging that Collinge “omits” this element). Instead, the Reply argues that “the issuer must use an account identifier such as a PAN” to retrieve the correct key. Reply 18 (emphasis added). In other words, the Reply presents what appears to be an inherency theory. This new theory is inappropriate here because Petitioner made no such argument in the Petition. Pet. 18. In addition, Petitioner’s theory is flawed. Even if an account identifier were necessary to determine the current NPCK, Petitioner presents no evidence that it must be the PAN, which is what Petitioner identified as the claimed

account identifier in claim 1. Pet. 49; EX1049 at 24:21-25. Indeed, Petitioner’s statement that “an account identifier such as a PAN” must be used shows that a different account identifier could be used instead of the PAN.

D. Claim 10 (calculating cryptogram using non-permanent cryptographic key)

Collinge does not disclose calculating a cryptogram using the NPCK *at the remote computer system*. POR 35-37. Indeed, the Petition never even alleges that this calculation is disclosed or obvious. *Id.* On Reply, Petitioner appears to contend that it need not demonstrate that Collinge (or any prior art) discloses the claimed method of *calculating a cryptogram* because doing so was well known in the art. Reply 18-19. But the cases cited on Reply for this proposition make no such holding. *Hybridtech Inc. v. Monoclonal Antibodies, Inc.* relates to enablement, not the sufficiency of a prior art disclosure. *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1384 (Fed. Cir. 1986). Meanwhile *C.R. Bard, Inc. v. Medline Indus., Inc.* related to the Board’s finding that “prior art disclosures” would not have been combined. *C.R. Bard, Inc. v. Medline Indus., Inc.*, No. 2020-1900, 2021 WL 3574043, at *6 (Fed. Cir. Aug. 13,

2021). And, in *In re Paulsen*, the court rejected an argument that a piece of prior art did not anticipate the challenged claims because it was not enabling. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). That is not the issue here, where Petitioner argues that a missing limitation can be filled by the knowledge of a person of skill in the art. This is unsupported. First, contrary to the Reply’s assertion (Reply 60), Collinge does not say that “the technique for validating a message authentication code” was apparent. It says that “methods for validating a cryptogram will be apparent.” EX1011, [0077]. Second, the Federal Circuit has cautioned “invoking ‘common sense ... to supply a limitation that was admittedly *missing* from the prior art’ should generally only be done when ‘the [missing] limitation in question [is] unusually simple and the technology particularly straightforward.’ *Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1338 (Fed. Cir. 2020) (alteration in original); *Arendi SARL v. Apple Inc.*, 832 F.3d 1355 (Fed. Cir. 2016). Here, Petitioner has not demonstrated that cryptogram calculation is an unusually simple or particularly straightforward technology, which it is not. See EX2009 ¶34.

E. Claim 8

1. Limitation 8.A

Petitioner makes two new arguments on Reply, both of which are flawed and beyond the proper scope of a reply brief.

First, the Reply says that Collinge discloses receiving from the remote-SE all necessary “payment credentials” to create a transaction request message including the PAN. Reply 19 (citing Pet. 38-39). And it says that paragraph [0009] in Collinge “suggests that the remote system sends ‘static payment credentials’ which a POSITA would understand include the account number.” Reply 19 (citing Pet. 43). These arguments are flawed.

On cited pages 38-39 of the Petition, Petitioner alleges that a CAP token transmitted from the mobile device to the remote-SE causes the remote-SE system to generate and return payment credentials. Pet. 39 (citing EX1011 at [0082]-[0083], [0085]). None of these citations indicate that the PAN is part of the payment credentials. POR 38.

On page 43 of the Petition, Petitioner asserts simply that “the mobile payment application can receive an encrypted payload and payment credentials from the cloud system over a wireless network.” Nowhere does Petitioner make the argument that Collinge “suggests that the remote system sends ‘static payment credentials’ which a POSITA

would understand include the account number.” *Cf.* Reply 19 (citing Pet. 43). Petitioner’s contention as to how a POSITA would understand “static payment credentials” is pure speculation by counsel with no evidentiary support. *Id.* And, if Petitioner intended to rely on this disclosure for the *account identifier* recited in claim 8, it had the opportunity to do so in the Petition. The Reply is not the appropriate place to add such an argument. Also, a mere “suggestion” is insufficient to demonstrate literal disclosure.

Second, the Reply argues that “it would be obvious to send an account identifier along with the key, so that the mobile device knows which account’s key it is receiving.” Reply 20. This is an improper new theory of obviousness that should be disregarded. *Acceleration Bay, LLC v. Activision Blizzard Inc.*, 908 F.3d 765 (Fed. Cir. 2018); *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359 (Fed. Cir. 2016). The Petition did not present any obviousness theory for claim 8, and the POR did not address obviousness of claim 8 other than to note that Petitioner hadn’t made such an argument. POR 40. The Reply cites to no portion of the Petition in support of this new theory. Reply 20 (first full paragraph).

Petitioner's new obviousness theory is also flawed on the merits. Petitioner has presented no evidence that sending an account identifier with a non-permanent cryptographic key was ever disclosed in the prior art in any context. Reply 20. It cannot demonstrate obviousness here based on mere conjecture that a POSITA would have recognized that doing so would be beneficial. Even if Petitioner had identified a prior art disclosure of sending an account identifier with a non-permanent cryptographic key, its basis for combining that disclosure with Collinge would rely purely on improper hindsight. *See ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998). Collinge makes no mention of multiple accounts, as its disclosed mobile payment application is specific to a particular payment account. EX1050 ¶48; EX1011 at [0064]-[0070]. Lastly, even if Petitioner had demonstrated that it would be obvious (or necessary) to send an account identifier, as claimed, Petitioner provides no basis for using the alleged account identifier, i.e., the PAN (identified for claim 1), versus other account identifiers that would achieve the same result.

2. Limitation 8.B

The Reply lacks any argument or evidence that a *remote computer system* would generate a new KSun after the interrogation, instead of before the interrogation when KSun was allegedly generated in the first instance. And, the Reply still makes no mention of the claimed *account identifier*, which is not part of KSun. Reply 20.

F. Claim 4

As explained above in Section III, Petitioner's reliance on the "PayPass Specification" (Exhibit 1058) is inappropriate for a reply. Reply 21. If Petitioner intended to rely on Exhibit 1058 to independently satisfy limitations of claim 4 missing from Collinge, those arguments should have been presented in the Petition.

Even if Exhibit 1058 is considered, Petitioner still has not shown that the limitations of claim 4 are satisfied. Petitioner's contention that "interrogation is standardized" in a PayPass transaction does not demonstrate that the interrogation conforms to a card specification, the set of inputs is specified by the card specification, or that the at least one device response is formulated according to the card specification.

G. Claim 16

Petitioner does not dispute that there is no disclosure in Collinge of how its single-use keys are generated. Reply 22. As to obviousness, Petitioner raises an improper reply argument. The Petition argued that “keys are associated with an issuer master key” because it was well known to use issuer master keys to generate transaction specific keys. Pet. 62. But the Reply says that this element is obvious “because the issuer must control the ultimate key (IMK) used to derive all other keys for security and efficiency reasons.” Reply 22. This is a new theory presented for the first time in reply, and it should be disregarded.

V. Grounds 3 and 4

A. Claims 8/9 “sending ... the account identifier to the mobile device”

On Reply, Petitioner relies on three previously uncited sections of the Petition—i.e., [1.pre], [1.A-1], and [1.A-3]. Reply 23 (citing Pet. 66-67). Those arguments were not included in the *prima facie* analysis of claim 8 and should be disregarded here as beyond the proper scope of a reply. Pet. 78. In addition, Petitioner’s new theory is also entirely unpersuasive.

The Reply states “the Petition expressly notes that Fiske ... involves **receiving** digital credential data required for authorization including the primary account number (PAN) **from the remote server.**” Reply 23 (citing Pet. 66-67) (internal quotations omitted) (emphasis added). This is a mischaracterization of the Petition, which says the mobile application “will **return** ‘digital credential data’ required for authorization of transaction.” Pet. 66-67 (emphasis added). These statements about communications from the mobile device to the POS terminal do not demonstrate what is sent from the remote server to the mobile device. The Petition also doesn’t say that the PAN is received from the **remote server**. It says only that the POS terminal issues a command to read transaction related parameters “**from the device**, including the primary account number (PAN).” Pet. 66-67. Again, Petitioner points to Fiske’s disclosure regarding communications **from the mobile device** to the POS terminal, which are plainly different from the recited steps performed *at the remote computer system* that include sending the account identifier **to the mobile device**.

The Reply also contends that the PAN would be included with the cryptogram by the card when requesting payment authorization. Reply

23. This still does not show that the PAN was sent **by the remote computer system** to the mobile device. The portions of Fiske cited on Reply are also tangential to the steps recited in claim 8. For example, EX1012 at 11:34-44 simply says that the user device is provisioned with a payment application associated with the issuing bank and that user device can interact with the POS to make a purchase. EX1012 at 3:44-46 and EX1012 at 4:49-51 relate to information sent **from the card** to the POS terminal and/or read **from the card** by the POS terminal.

Finally, the Reply adds an entirely new theory that “a POSITA would find it obvious to send an account identifier to the mobile device along with the key, so that the mobile device knows which account’s key it is receiving.” Reply 23. This theory is both beyond the proper scope of a reply and substantively flawed. It is beyond the scope because it is not responsive to any argument made in the POR, which simply notes that the Petition did not make an obviousness assertion. POR 53. It is flawed because, as the Petition acknowledges (Pet. 68), Fiske already expressly discloses a method for associating the payment application with an account at the issuing bank. EX1012 at 12:45-53. Furthermore, a PAN is only one type of account identifier, so even if **an** account identifier were

needed, Petitioner provides no basis for using one specific type of account identifier, i.e., the PAN, versus other account identifiers that would achieve the same result. Claim 8 recites *the account identifier*, whose antecedent is an account identifier in claim 1, where Petitioner points to the PAN. Pet. 49; EX1049 at 24:21-25.

Finally, Petitioner's new obviousness theory (Reply 20) is purely based in hindsight. Petitioner's expert does not to any evidence in this proceeding, including the Fiske reference, which makes no mention of multiple accounts, as its disclosed payment application is specific to an issuing bank. EX1050 ¶48; EX1012 at 13:16-24, 12:45-52, 11:37-57.

B. Claims 10-13, 27-30

1. No "account identifier"

Rather than providing any explanation as to how the arguments as to claim 10 in the Petition demonstrate unpatentability, the Reply redirects the Board to the Petition's analysis of claim 1, which Petitioner says was "incorporated" in its claim 10 analysis. Reply 24. The Petition says otherwise. Petitioner's analysis of claim 10 does not cite or refer to any other portion of the Petition. Pet. 78-79. When Petitioner intended to incorporate arguments from other limitations, it did so explicitly. *See,*

e.g., Pet. 77 (basing claim 7 analysis on what was “explained in [1.A] and [1.E-1]”), *id.* at 78 (citing for claim 8 “§ [1.A],” “§ [1.B]-[1.C],” and “§ [1.F]-[1.G]”), *id.* (basing claim 9 analysis on “the reasons discussed in [1.A-3] and [1.B]”). Accordingly, the Board should disregard Petitioner’s attempt to rewrite the arguments presented in the Petition as to claim 10.

Even if Petitioner’s analysis of claim 1 had been incorporated, it still does not show that the *account identifier* limitation of claim 10 is satisfied. First, Petitioner says that “**the device receives** all necessary data to perform a transaction, including the PAN.” Reply 24 (emphasis added). But claim 10 does not recite data received **by the device**, it recites **at the remote computer system** ... receiving ... from the POS terminal ... the account identifier. Petitioner’s contention that the mobile device receives the PAN is irrelevant to the claim. In addition, Petitioner provides no explanation of how its parenthetical assertions that the PAN is “needed by the issuer” demonstrate that the PAN is received at the remote computer system from the POS terminal.

2. No “determining a ... key ... using the account identifier”

On Reply, Petitioner contends that Fiske discloses that the issuer identifies which Session Key was used and that Figure 7 of Fiske shows

the issuer examining the received ARQC. Reply 24. Petitioner then states “[n]othing else is required.” *Id.* But Petitioner ignores the words of the claim, which recite *using the account identifier*. Nothing in the Petition, the Reply, or any of the cited evidence shows that the alleged *account identifier* (i.e., the PAN) is used to determine which Session Key was used. Petitioner cannot satisfy its burden by ignoring limitations that aren’t disclosed in the prior art.

Petitioner’s citation to Dr. Fiske’s supplemental declaration cannot save it. Reply 24 (citing EX1050 ¶63). First, Petitioner cannot incorporate by reference the arguments from Dr. Fiske that do not appear in the Reply. Second, even if considered, Dr. Fiske’s arguments fail for the same reasons discussed above as to the “account identifier” limitation for Grounds 1 and 2. *See supra* § IV.C.

C. Claims 11/28

On Reply, Petitioner does not dispute that (1) Fiske does not disclose the limitations of claim 11 or (2) EMV does not “explicitly require” (as the Petition argued) that input data for generating a response cryptogram include an unpredictable number. Reply 25. Accordingly, Petitioner cannot dispute that implementing Fiske “in a

manner compliant with the EMV Specification” would not satisfy claim 11. The Reply abandons the argument about compliance with EMV and presents a new (and inappropriate for reply) argument to combine the disclosures of Fiske with disclosures of an optional feature described only in the non-prior art EMV Specifications. Reply 25. Petitioner’s use of the EMV Specifications here—i.e., as separately combinable with Fiske—is not allowed under Federal Circuit precedent. *Yeda Rsch.*, 906 F.3d 1031 at 1041 (Fed. Cir. 2018). If Petitioner intended to rely on a disclosure in an EMV Specification as evidence of a feature admittedly absent from Fiske, Petitioner should have asserted the EMV Specification as a basis for its challenge and met its burden to demonstrate that the EMV Specification was a patent or printed publication. Petitioner’s reliance on “general knowledge” is particularly problematic here where it relies on a document with indications that it was likely only an intermediate draft, such as EX1020. EX1051 at 44:12-48:7.

D. Claims 1/17

1. 1.E-3

Petitioner says that a POSITA would recognize the benefit of offering a system compatible with the Visa payment brand. Reply 28-29.

Even if that is true, Petitioner still has not shown that the limitations missing from Fiske were disclosed in the prior art. Petitioner cannot plausibly argue that the precise implementation details of an EMV Visa mode transaction—including the specifics of how such a transaction packaged data in exchanges between a card and a POS terminal—were simply “background knowledge” in 2011. Even if a POSITA would have known of the existence of EMV, the detailed disclosures regarding particular implementations relied upon here are well beyond background knowledge. In addition, as Dr. Easttom explained, there are indications that the EMV Specifications relied upon were not even final versions intended for publication. EX1051 at 44:12-48:7.

E. Claims 4/5/20/21

The Reply still provides no analysis of these claim on a limitation-by-limitation basis to demonstrate that compliance with EMV Specifications satisfies each limitation. Reply 29. And, Petitioner is again improperly using the EMV Specifications in place of prior art.

VI. Conclusion

The Board should reject Petitioner’s arguments and find that none of the challenged claims are unpatentable.

Respectfully submitted,

Dated: October 22, 2024

/s/ Seth Lindner

Seth Lindner, Reg. No. 68,119
BC Law Group, P.C.
200 Madison Avenue, 24th Floor
New York, NY 10016
(212) 951-0100

CERTIFICATE OF WORD COUNT (37 C.F.R. § 42.24(d))

The undersigned hereby certifies that the word count in this Patent Owner Response is 5,549, as counted by the word-processing program Microsoft Word that was used to generate this Patent Owner Sur-Reply, where such word count excludes the table of contents, table of authorities, mandatory notices, certificate of service, appendix of exhibits, claim listing, and this certificate of word count. This Patent Owner Sur-Reply is in compliance with the 5,600-word limit set forth in 37 C.F.R. § 42.24(c)(4).

Date: October 22, 2024

/Seth Lindner/

BC Law Group, P.C.
200 Madison Avenue, 24th Floor
New York, NY 10016
(212) 951-0100

Seth Lindner
Reg. No. 68,119
Attorney for Patent Owner

CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e))

The undersigned hereby certifies that the above document was served on October 22, 2024, by filing this document through the Patent Trial and Appeal Case Tracking System as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioner:

Eliot D. Williams (Reg. No. 50,822)
Baker Botts L.L.P.
700 K Street, N.W.
Washington, D.C. 20001
Telephone: (202) 639-1334
eliot.williams@bakerbotts.com

Jennifer Tempesta (Reg. No. 59,021)
Baker Botts L.L.P.
30 Rockefeller Plaza
New York, NY 10112
Telephone: (212) 408-2571
jennifer.tempesta@bakerbotts.com

Date: October 22, 2024

/Seth Lindner/

BC Law Group, P.C.
200 Madison Avenue, 24th Floor
New York, NY 10016
(212) 951-0100

Seth Lindner
Reg. No. 68,119
Attorney for Patent Owner