

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ASKELADDEN, L.L.C.

Petitioner

v.

OHVA, INC.

Patent Owner

IPR2023-00921

U.S. Patent 9,679,286

PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT 9,679,286
CHALLENGING CLAIMS 1-4

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PETITIONER’S EXHIBIT LIST

EX1001	U.S. Patent No. 9,679,286 to Colnot et al. (“’286 Patent”)
EX1002	Prosecution History of U.S. Patent No. 9,679,286 (U.S. Application No. 14/636,674) (“’674 Application”)
EX1003	Declaration of Bruce McNair
EX1004	<i>Curriculum Vitae</i> of Bruce McNair
EX1005	U.S. Patent No. 9,330,385 to Cho et al. (“Cho”)
EX1006	U.S. Patent Publication No. 2013/0185208 to Aaron et al. (“Aaron”)
EX1007	U.S. Patent Publication No. 2014/0008432 to de Geer et al. (“de Geer”)
EX1008	U.S. Patent Publication No. 2013/0124606 to Carpenter et al. (“Carpenter”)
EX1009	Declaration of Glenn J. Perry
EX1010	Letter Agreement Between Glenn J. Perry and Askeladden L.L.C dated May 20, 2020
EX1011	U.S. Application No. 14/524,842 (“’842 Application”)
EX1012	U.S. Application No. 11/533,030 (“’030 Application”)
EX1013	U.S. Provisional Application No. 60/719,273 (“’273 Provisional”)
EX1014	Comparison of the as-filed specification of the ’674 Application (filed 2015) with the as-filed specification of the ’842 Application (filed 2014)
EX1015	Comparison of the as-filed specification of the ’674 Application (filed 2015) with the as-filed specification of the ’030 Application (filed 2006)
EX1016	Comparison of the as-filed specification of the ’842 Application (filed 2014) with the as-filed specification of the ’030 Application (filed 2006)
EX1017	U.S. Patent No. 9,436,855 to Marcus et al. (“Marcus”)
EX1018	U.S. Patent No. 8,302,860 to McKelvey (“McKelvey”)
EX1019	KR 2003 0076045 (“Bluetooth”)
EX1020	U.S. Patent No. 6,607,136 to Atsmon et al. (“Atsmon”)
EX1021	U.S. Patent No. 7,761,374 to Sahota et al. (“Sahota”)
EX1022	U.S. Application No. 2004/0093436 to Colnot (“Colnot”)

EX1023	U.S. Patent Application No. 2005/0075134 to Steenstra et al. (“Steenstra”)
EX1024	“Turning your mobile into a magnetic stripe reader,” Deepquest (“Deepquest”)
EX1025	U.S. Patent Application No. 2004/0230489 to Goldthwaite et al. (“Goldthwaite”)
EX1026	U.S. Patent Application No. 2004/039919 to Takayama et al. (“Takayama”)
EX1027	U.S. Patent No. 9,016,572 to Babu et al. (“Babu”)
EX1028	U.S. Patent No. 7,490,777 to Walsh (“Walsh”)
EX1029	U.S. Patent No. 7,240,836 to Vrotsos et al. (“Vrotsos”)
EX1030	“Application Programmer’s Guide, IBM, 2011
EX1031	U.S. Patent No. 9,003,508 to Colnot et al. (“’508 Patent”)
EX1032	U.S. Patent Publication No. 2007/0064833 to Colnot et al. (“’833 Publication”)
EX1033	Memorandum of Director Katherine K. Vidal, “Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation,” June 21, 2022 (“ <i>Fintiv</i> Guidance”)
EX1034	United States District Court – National Judicial Caseload Profile (March 2023)
EX1035	Apple Store, (September 14, 2005, Internet Archive Capture), available at https://web.archive.org/web/20050914225016/http://store.apple.com:80/1-800-MY-APPLE/WebObjects/AppleStore.woa
EX1036	<i>Identify your iPod Model</i> , Apple, available at https://support.apple.com/en-us/HT204217
EX1037	<i>Apple Announces iPhone 2.0 Software Beta</i> , Apple Press Release, March 6, 2008, available at https://www.apple.com/newsroom/2008/03/06Apple-Announces-iPhone-2-0-Software-Beta/
EX1038	<i>iPhone App Store Downloads Top 10 Million in First Weekend</i> , Apple Press Release, July 14, 2008, available at https://www.apple.com/newsroom/2008/07/14iPhone-App-Store-Downloads-Top-10-Million-in-First-Weekend/

EX1039	<i>Identify your iPhone model, Apple</i> , available at https://support.apple.com/en-us/HT201296
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I. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real Party-in-Interest

Pursuant to 37 C.F.R. § 42.8(b)(1), Petitioner Askeladden L.L.C. certifies that it is the real party-in-interest in this proceeding. In this regard, Petitioner submits the Declaration of Glenn J. Perry (EX1009) and supporting exhibit (EX1010). As demonstrated in the Perry Declaration and supporting exhibit, no other party is in privity with or exercised control or could exercise control over Petitioner's participation in this proceeding, the filing of this Petition, or the conduct of any ensuing trial. EX1009, ¶¶22-28; EX1010.

B. Related Matters

According to assignment records, U.S. Patent No. 9,679,286 ("the '286 Patent" (EX1001)) is currently assigned to OHVA, Inc. ("OHVA" or "Patent Owner").

As of the filing date of this Petition, and to the best knowledge of Petitioner, the '286 Patent is or has been involved in:

Case Caption	Number	Court	Filed	Status
<i>OHVA, Inc. v. Helcim USA Inc.</i>	1:18-cv-01945	D.Del.	2018-12-10	Terminated
<i>OHVA, Inc. v. CardFlight, Inc.</i>	1:18-cv-01992	D.Del.	2018-12-14	Terminated
<i>OHVA, Inc., v. PayStand Inc.</i>	1:19-cv-00083	D.Del.	2019-01-15	Terminated

<i>OHVA, Inc., v. Unified Payments, LLC</i>	1:19-cv-00084	D.Del.	2019-01-15	Terminated
<i>OHVA, Inc. v. Payroc LLC</i>	1:19-cv-03750	N.D.Ill.	2019-06-05	Terminated
<i>OHVA, Inc. v. Eventbrite, Inc.</i>	3:19-cv-03342	N.D.Cal.	2019-06-12	Terminated
<i>OHVA, Inc. v. National Bankcard Inc.</i>	1:19-cv-06114	S.D.N.Y.	2019-06-30	Terminated
<i>OHVA, Inc. v. Blackbaud, Inc.</i>	2:19-cv-00309	E.D.Tex.	2019-09-14	Terminated
<i>OHVA, Inc. v. Shift4 Payments, LLC</i>	1:19-cv-01857	D.Del.	2019-10-02	Terminated
<i>OHVA, Inc. v. AffiniPay, LLC</i>	1:20-cv-00065	W.D.Tex.	2020-01-21	Terminated
<i>OHVA, Inc. v. AnywhereCommerce Services LLC</i>	1:20-cv-00214	D.Del.	2020-02-13	Terminated
<i>OHVA Inc. v. eProcessing Network LLC</i>	4:20-cv-01247	S.D.Tex.	2020-04-08	Terminated
<i>OHVA Inc. v. Ace Merchant Processing LLC</i>	4:20-cv-01244	S.D.Tex.	2020-04-08	Terminated
<i>OHVA, Inc. v. AnywhereCommerce Inc.</i>	6:20-cv-01191	W.D.Tex.	2020-12-29	Terminated
<i>OHVA, Inc. v. Bbpos Corp.</i>	1:22-cv-00468	D.Del.	2022-04-12	Terminated
<i>OHVA, Inc. v. Fiserv, Inc.</i>	6:22-cv-00366	W.D.Tex.	2022-04-12	Pending
<i>OHVA, Inc. v. Electronic Merchant Systems, LLC</i>	6:22-cv-00935	W.D.Tex.	2022-09-12	Terminated
<i>OHVA, Inc. v. Feitian Technologies Co., Ltd.</i>	6:22-cv-00936	W.D.Tex.	2022-09-12	Terminated
<i>OHVA, INC. v. MAGTEK, INC.</i>	2:22-cv-03628	E.D.Pa.	2022-09-12	Terminated
<i>OHVA, Inc. v. Payzer, LLC</i>	1:22-cv-01199	D.Del.	2022-09-13	Terminated

<i>OHVA, Inc. v. VeriFone, Inc.</i>	1:22-cv-01204	D.Del.	2022-09-14	Terminated
<i>OHVA, Inc. v. Shopify, Inc.</i>	6:22-cv-01270	W.D.Tex.	2022-12-08	Pending

The '286 Patent claims priority to U.S. Patent No. 9,003,508 ("the '508 Patent" (EX1031)), filed October 27, 2014, which claims priority to abandoned U.S. Patent Application No. 11/533,030 ("the '030 Application" (EX1012, 321-366)), filed September 19, 2006. The '286 Patent, the '508 Patent, and the '030 Application claim priority to U.S. Provisional Application No. 60/719,273 ("the '273 Provisional" (EX1013)), filed September 20, 2005.

C. Lead and Back-up Counsel and Service Information

<u>Lead Counsel</u> Jonathan R. Bowser HAYNES AND BOONE, LLP 2323 Victory Avenue, Suite 700 Dallas, TX 75219	Phone: 202-654-4503 Fax: 214-200-0853 jon.bowser.ipr@haynesboone.com USPTO Reg. No. 54,574
<u>Backup Counsel</u> Joseph Matal HAYNES AND BOONE, LLP 2323 Victory Avenue, Suite 700 Dallas, TX 75219 Matthew Beck HAYNES AND BOONE, LLP 2323 Victory Avenue, Suite 700 Dallas, TX 75219	Phone: 202-654-4533 Fax: 214-200-0853 joseph.matal.ipr@haynesboone.com Limited Reg. No. L1362 Phone: 202-654-4573 Fax: 214-200-0853 matthew.beck.ipr@haynesboone.com USPTO Reg. No. 79,791

Please address all correspondence to lead and back-up counsel. Petitioner consents to electronic service and asks Patent Owner to do the same.

II. CERTIFICATION OF GROUNDS FOR STANDING

Petitioner certifies that the '286 Patent is available for *inter partes* review (IPR) and that Petitioner is not barred or estopped from requesting IPR of the patent's claims.

III. OVERVIEW OF CHALLENGE AND RELIEF REQUESTED

Petitioner challenges claims 1-4 ("challenged claims") of the '286 Patent.

A. Prior Art Patents and Printed Publications¹

The '286 Patent is a continuation-in-part of the '842 Application (EX1011, issued as the '508 Patent (EX1031)), filed October 27, 2014, which is an alleged continuation of the '030 Application (EX1012, 321-366),² and claims priority to the

¹ Because the '286 Patent is entitled only to its March 3, 2015, filing date (*see* Section IV.D), it is an AIA patent.

² Patent Owner abandoned the '030 Application after the Board affirmed the final rejection of the claims in the '030 Application. EX1012, 1-2 (Notice of Abandonment), 3-9 (Board's decision affirming rejection of claims), 42 (Patent Owner informing Board that the '030 Application is assigned to "OHVA, Inc."). The '030 Application was published as U.S. Patent Application Publication No.

'273 Provisional (EX1013), filed September 20, 2005. As explained in Section IV.D below, the challenged claims are not entitled to the filing date of the '273 Provisional, the filing date of the '030 Application, or the filing date of the '508 Patent. Therefore, the challenged claims are entitled to an effective filing date no earlier than March 3, 2015 (i.e., the “earliest effective filing date of the challenged claims” as used herein).

These references are pertinent to the grounds of unpatentability explained below:

1. U.S. Patent 9,330,385 (“Cho”) (EX1005); filed August 29, 2013; issued May 3, 2016. Cho qualifies as prior art under 35 U.S.C. §102(a)(2).
2. U.S. Patent Publication 2013/0185208 (“Aaron”) (EX1006); published July 18, 2013. Aaron qualifies as prior art under §102(a)(1).
3. U.S. Patent Publication 2013/0124606 (“Carpenter”) (EX1008); published May 16, 2013. Carpenter qualifies as prior art under §102(a)(1).
4. U.S. Patent Publication 2014/0008432 to de Geer et al. (“de Geer”) (EX1007); published January 9, 2014. De Geer qualifies as prior art under §102(a)(1).

These references were not considered or cited during prosecution of the '286

2007/0067833 (EX1032).

Patent.

B. Statutory Grounds for Challenges

This Petition, supported by the declaration of Bruce McNair (EX1003), requests cancellation of claims 1-4 under the Grounds listed below:

Ground	Claim	Obviousness Basis
#1	1	Cho in view of Aaron and Carpenter
#2	2	Cho in view of Aaron, Carpenter, and de Geer
#3	3	Cho in view of Aaron
#4	4	Cho in view of Aaron and de Geer

Grounds 3 and 4 present analysis of method claims 3 and 4, respectively. While claims 3 and 4 are generally similar to claims 1 and 2, claims 3 and 4 do not recite a feature corresponding to limitation [1.2] of claim 1 identified in Section VI.A.6.a below. In ground 1, Carpenter is cited to show that limitation [1.2] is merely a conventional implementation. Accordingly, grounds 3 and 4 differ in that Carpenter is not a part of the obviousness analysis for grounds 3 and 4.

IV. U.S. PATENT 9,679,286

A. Summary

The '286 Patent relates to network-based transactions, and more specifically, to “[m]ethods and [a]pparatus for [e]nabling [s]ecure [n]etwork-based

[t]ransactions.” EX1001, Title. The claims of the ’286 Patent relate to a card reader that “accepts the data from the output interface of [a] transaction card” and sends the data as an analog signal to a smartphone via a microphone port. EX1001, Abstract, Claim 1. The data is then converted from analog data to digital data by the smartphone according to coded instructions, a direct data exchange is established between the smartphone and an Internet-connected server, and the digital data is transmitted to the Internet-connected server to facilitate transactions or purchases. EX1001, 2:43-55, Claim 1.

B. Level of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSITA”) at and before the earliest effective filing date of the challenged claims of the ’286 Patent would have had a bachelor’s degree in electrical engineering, computer engineering, computer science, or a related subject, and one to two years of work experience in mobile payment transactions or a related field. Less experience is necessary with additional education (e.g., a Master’s degree), and likewise, less education is necessary with additional work experience (e.g., 5-6 years). EX1003, ¶¶57-60.

C. Prosecution History³

Application No. 14/636,674 (“the ’674 Application”), which issued as the

³ Unless otherwise noted, the claims referenced in this section are claims that were

'286 Patent, was filed on March 3, 2015. EX1002, 479. As discussed below, five office actions were issued during prosecution of the '674 Application. The issued claims of the '286 Patent are significantly different than what was originally filed. Over the course of prosecution, the applicant changed the focus of the claims from a “computerized appliance” to a “smart telephone” that operates in connection with a “card reader,” as described in more detail below. EX1003, ¶¶52-56.

A first non-final office action rejected all original claims. EX1002, 370. Claims 1 and 9 (issued claims 1 and 3) were rejected as being anticipated by KR 2003/0076045 (“Bluetooth”⁴ (EX1019)), and claims 8 and 16 (issued claims 2 and 4) were rejected as being obvious over Bluetooth in view of U.S. 6,607,136 (“Atsmon” (EX1020)) and U.S. 7,761,374 (“Sahota” (EX1021)). EX1002, 373-374, 378-379. In response, the applicant amended claims 1 and 9, in part to replace terminology of “computerized appliance” with “personal computing device or a smart telephone,” and amended claims 8 and 16 to remove references to “card data.” EX1002, 360-363.

A final office action then issued. Claims 1 and 9 were rejected under §102(b)

presented during prosecution, rather than the issued claims of the '286 Patent.

⁴ The Examiner referred to KR 2003/0076045 as “Bluetooth” during prosecution. EX1002, 373.

as being anticipated by U.S. 2004/0093436 (“Colnot” (EX1022)), and claims 8 and 16 were rejected as being obvious over Colnot in view of Atsmon and Sahota. EX1002, 318-319, 321-322. The applicant amended claims 1 and 9 to remove the “personal computing device” element added in the prior amendments, and incorporated an additional limitation describing a smart telephone from a dependent claim. EX1002, 307-308. In an advisory action, the Examiner indicated that the amendments changed the scope of the claims, and cited to U.S. 2005/0075134 (“Steenstra” (EX1023)) as a new prior art reference. EX1002, 301-302. The applicant filed a second response to the final office action further amending claims 1, 8-9, and 16. EX1002, 288-290. These amendments removed the claim language reciting a card reader converting data received from a transaction card, and instead added elements for coded instructions to provide functionality for a device when data is received from a card reader. EX1002, 288-290.

A non-final office action then issued rejecting claim 1 as being indefinite and rejecting claims 9 and 16 on §101 grounds. EX1002, 215-221. Claims 1 and 9 were also rejected as being obvious over “Turning your mobile into a magnetic stripe reader” (“Deepquest” (EX1024)) in view of U.S. 2004/0230489 (“Goldthwaite” (EX1025)), and claims 8 and 19 were rejected as being obvious over Deepquest in view of Goldthwaite, Sahota and U.S. 2004/039919 (“Takayama” (EX1026)). EX1002, 224-232. In response, the applicant amended the claims to further

incorporate structure for the smart telephone element of the claims, such as executing coded instructions on a smart telephone processor. EX1002, 193-194.

A final office action then issued in which the Examiner indicated that the '674 Application was a continuation-in-part, rather than a continuation, based on support for the applicant's claim amendments. EX1002, 109-110. Accordingly, the Examiner determined that the "[a]pplicant will receive the filing date of the instant application" (March 3, 2015) as the priority date. EX1002, 115-116. Claims 1, 8-9, and 16 were rejected as failing to comply with the written description requirement, and as being anticipated by U.S. 9,016,572 ("Babu" (EX1027)). EX1002, 113-118. Claims 1 and 9 were also rejected as being obvious over Deepquest in view of Goldthwaite, and claims 8 and 19 were rejected as being obvious over Deepquest in view of Goldthwaite, Sahota and Takayama. EX1002, 119-126.

On April 19, 2017, a Notice of Allowance was issued, indicating it was in response to a communication from March 29, 2017.⁵ EX1002, 32. The Notice of Allowance included an Examiner's Amendment for claims 1 and 9. EX1002, 33-35.

The Examiner amended the following features of claim 1 (amendments made to limitations [1.1.1] and [1.1.2] of issued claim 1 below):

⁵ There is no record of this March 29, 2017 communication in the file history of the '286 Patent.

a card reader having an input interface configured to accept transaction data from an output interface of a transaction card, and an output pin, as a part of the card reader, configured to directly connect the card reader ~~in~~ to a microphone port of a smart telephone, the card reader providing the transaction data accepted from the output interface of the transaction card to the output pin, and hence to the microphone port, as an analog variable voltage audio signal; and

EX1002, 34.

In addition, the Examiner amended the following features of claim 1 (amendments made to limitation [1.3.1] of issued claim 1 below).

wherein the coded instructions, when executed on a processor in the smart telephone, convert the analog variable voltage audio signal received at ~~on~~ the microphone port to the transaction data as digital data, establish direct data exchange between the smart telephone and a second Internet-connected server and facilitate transactions by a financial institution, or purchases from an online-merchant, using the transaction data.

EX1002, 34.

In addition, the Examiner amended the following features of claim 9 (amendments made to limitations [3.2] and [3.3] of issued claim 3 below).

receiving the transaction data in the smart telephone as an analog variable
voltage audio signal from the microphone port of the smart telephone;

~~converting the transaction data as an analog variable voltage signal in the smart
telephone to digital data;~~

converting the analog variable voltage audio signal received at the microphone
port to the transaction data as digital data;

EX1002, 35.

The Examiner found that the prior art of record did not teach “a card reader having an input interface configured to accept transaction data from an output interface of a transaction card, and an output pin, as part of the card reader, configured to directly connect the card reader to a microphone port of a smart telephone.” EX1002, 36; *see also* EX1002, 36-38 (citing EX1025 (Goldthwaite), EX1028 (Walsh), and EX1029 (Vrotsos) as the closest prior art of record).

The Petition shows how prior art before the earliest effective filing date of the challenged claims, March 3, 2015, renders the claims unpatentable. The prior art relied-upon in grounds 1-4 was not of record or considered during prosecution of the '286 Patent.

D. Earliest Effective Filing Date of Challenged Claims

The earliest effective filing date of claims 1-4 of the '286 Patent is March 3, 2015, the filing date of the '674 Application that resulted in the '286 Patent. The

'286 Patent is not entitled to the priority date of any of the applications to which it claims priority (14/524,842 (“the ’842 Application,” (EX1011, 50-94)), 11/533,030 (“the ’030 Application,” (EX1012, 321-366)), and 60/719,273 (“the ’273 Provisional,” (EX1013))).⁶

For a patent to receive “the benefit of the filing date of an earlier application under 35 U.S.C. § 120, each application in the chain leading back to the earlier application must comply with the written description requirement of 35 U.S.C. § 112.” *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1571 (Fed. Cir. 1997). “Original disclosure may not be relied upon unless it ‘constitute[s] a full, clear, concise and exact description’ of the invention claimed in the patent to one of ordinary skill.” *Regents of the Univ. of Minnesota v. Gilead Scis., Inc.*, 61 F.4th 1350, 1356 (Fed. Cir. Mar. 6, 2023) (citing *In re Wertheim*, 646 F.2d 527, 538-539 (CCPA 1981)). Simply put, “claims added during prosecution must find support sufficient to satisfy § 112 in the written description **of the original priority application[s].**” *Novozymes A/S v. DuPont Nutrition Biosciences APS*, 723 F.3d 1336, 1344 (Fed.

⁶ The ’273 Provisional was filed September 20, 2005; the ’030 Application was filed September 19, 2006, published as U.S. Patent Publication No. 2007/0064833 (EX1032), and is abandoned; and the ’842 Application was filed October 27, 2014, and issued as U.S. Patent 9,003,508 (EX1031).

Cir. 2013) (emphasis added).

As shown in further detail below, the '286 Patent's claims lack sufficient written description support in any of the priority applications. EX1003, ¶¶61-91. Accordingly, the '286 Patent is entitled only to its March 3, 2015, filing date.

1. The file history of the '286 Patent supports its being afforded only its March 3, 2015, filing date as the priority date

The issued claims of the '286 Patent are significantly different than what was originally filed. The claims originally described a “computerized appliance,” but issued claiming a “smart telephone.” EX1002, 456 (original claims reciting “computerized appliance”), 34 (claims in Notice of Allowance reciting “smart telephone”). After the first rejection, the claimed “computerized appliance” was amended to claim a “personal computing device or a smart telephone.” EX1002, 360. Later, the claims were amended to encompass just a “smart telephone” when the Examiner presented prior art showing “a personal computing device,” including art by the same inventor as the '286 Patent. EX1002, 307, 320. In the final office action before allowance, the Examiner stated that “the claims no longer receive the early filing date” of the prior applications, such that the “[a]pplicant will receive the filing date of the instant application (3/03/15).” EX1002, 115-116; *see also* EX1002, 109 (“the filing date of the instant application is used for prior art purposes”). EX1003, ¶¶63-65.

The Examiner further noted that the applicant added new matter to the claims, and that “pages 2, lines 21-28, and pages 3, lines 1-28, and page 4, lines 1-12, from the instant specification as filed, constitute new matter...not included in the prior filed application as filed.” EX1002, 115-116; *see also* EX1014 (comparing the ’674 Application to the ’842 Application). Page 2, lines 21-28, page 3, lines 1-28, and page 4, lines 1-12 of the ’674 Application correspond to column 1, line 65 to column 2, line 67 of the ’286 Patent, and is the “Brief Summary of the Invention” section of the ’286 Patent. *Compare* EX1002, 431-433, *with* EX1001, 1:65-2:67. A POSITA would have understood the “smart telephone” element amended into the claims to be supported only by this new matter in the ’286 specification. *See* Sections IV.D.3-4; EX1003, ¶¶66, 68, 71-92.

The timing of the Examiner’s statements regarding the priority date of the challenged claims makes sense: the Examiner’s statements occurred in the office action that issued after the applicant amended the claims during prosecution to positively claim a “smart telephone.” In the previous response, the applicant had amended the claims due to an intended use rejection for the “smart telephone” element. EX1002, 292 (applicant arguing with respect to then-pending claims that “[a] smart telephone is not positively recited,”) 214 (Examiner acknowledging applicant’s argument that “[a] smart telephone is not positively recited”), 216 (Examiner noting that the smart telephone claim language “is directed to intended

use language” (emphasis omitted)). In the previous rejections, the claim language referred to a “computerized appliance”—e.g., a personal computer (PC), according to the priority applications—and not solely a “smart telephone.” EX1002, 456, 360, 288 (original claims and subsequent claim amendments not positively reciting a “smart telephone”). It was not until the applicant amended the claims in response to the last final rejection to positively recite a “smart telephone,” at which point the Examiner indicated that this subject matter was not supported in the earlier priority applications. EX1002, 113-116, 193 (applicant amending claims prior to rejection). EX1003, ¶67.

The applicant did not contest the Examiner’s finding regarding the priority date—there are no other statements on the record by the applicant following the Examiner’s statement on the priority date of the application. Nor did the Examiner indicate any change in this finding in the Notice of Allowance. Accordingly, the file history of the ’286 Patent, including the statements by the Examiner and applicant, support the ’286 Patent being afforded only its March 3, 2015, filing date as its earliest effective filing date. EX1003, ¶¶68-69.

2. Support for the challenged claims is found only in the “Brief Summary of the Invention” section of the ’286 Patent

The subject matter in claims 1-4 of the ’286 Patent is supported only by the “Brief Summary of the Invention” section of the ’286 Patent, as shown below.

EX1001, 1:63-2:67; EX1003, ¶70. Independent claim 1 recites a “smart telephone” that executes “coded instructions” to “convert the analog variable voltage audio signal received at the microphone port to the transaction data as digital data,” as recited in limitation [1.3.1] below. In addition, claim 1 recites that the “smart telephone” executes “coded instructions” to “establish direct data exchange between the smart telephone and a second Internet-connected server and facilitate transactions by a financial institution, or purchases from an online-merchant, using the transaction data,” as recited in limitation [1.3.2] below. Independent claim 3 recites substantially identical features. *See* limitations [3.3]-[3.4]. Support for limitations [1.3.1]-[1.3.2], and [3.3]-[3.4] can only be found in the “Brief Summary of the Invention” section of the ’286 Patent. *See* EX1001, 2:8-20 (describing an apparatus embodiment that includes “sound conversion circuitry converting the analog modulated signal to digital data,” and “a processor executing coded instructions from a non-transitory medium, and the coded instruction executed by the processor cause the data to be used in a communication on the network.”), 2:43-55 (providing the same disclosure for a method embodiment); EX1003, ¶70. The content of this “Brief Summary of the Invention” section was added for the first time when the ’674 Application was filed, as described in Section IV.D.3 below. EX1003, ¶70.

3. No other portion of the '286 Patent provides support for the entirety of the challenged claims

The '286 Patent contains the same specification as the '842 Application (filed 2014) and '030 Application (filed in 2006), **except for the replaced** “Brief Summary of the Invention” section and minor typographical corrections to a small number of words. *See* EX1003, ¶¶71, 48-51 (identifying changes between the applications) (citing EX1014, 1-4, 12, 18; EX1015, 1-4, 11, 15, 18). When the '674 Application ('286 Patent) was filed, the applicant replaced the “Brief Summary of the Invention” section of the '842 Application (filed in 2014) with a new section. EX1014 (comparison of '674 Application and '842 Application). Similarly, when the '842 Application was filed, the applicant replaced the “Brief Summary of the Invention” section of the '030 Application with a new section. EX1016 (comparison of '842 Application and '030 Application).⁷ EX1003, ¶¶71, 48-51.

Other than the “Brief Summary of the Invention” sections that were replaced in each subsequent application following the '030 Application (2006), the remainder

⁷ The '842 Application (2014) added an inventor not named on the '030 Application or '273 Provisional—Ty Fellers. The '286 Patent similarly lists both Colnot (listed on each application) and Fellers (listed only on the '842 Application) as its named inventors.

of the specification of the '286 Patent, the '842 Application (2014), and the '030 Application (2006) is the same. *See* EX1014 (comparing '286 Patent with '842 Application); EX1015 (comparing '674 Application with '030 Application); EX1003, ¶¶48-51 (explaining differences between the applications). Accordingly, the priority analysis below focuses on the portion of the specification carried over from the '030 Application (2006) and shows why the claims of the '286 Patent do not have written description support in the carried-over material. The priority analysis below also shows that the “Brief Summary of the Invention” sections of the '842 Application and the '030 Application do not provide support for the subject matter of the Challenged Claims.

As noted in the discussion of the prosecution history of the '286 Patent (*see* Section IV.C), the Examiner determined that the '674 Application was a continuation-in-part and was entitled only to the filing date of the '674 Application, i.e., March 3, 2015. EX1002, 115-116. Patent Owner did not contest this finding during prosecution. The “Brief Summary of the Invention Section” for both the '842 Application (2014) and the '030 Application (2006) do not support the claims of the '286 Patent. EX1003, ¶72. At most, the '842 Application describes features related to the use of a user-specific token and independent verification in the log-in and data exchange process. EX1031, Abstract, 1:62-3:23; EX1003, ¶73. The “Brief Summary of the Invention” section of the '030 Application describes features related to data

transmitted as sound to a PC for authentication. EX1032, ¶¶10-13; *see also* EX1032, Claims 1, 10, 11, ¶¶69-70, 78-79, 86; EX1003, ¶74. These features do not provide written description support for limitations [1.3.1]-[1.3.2] and [3.3]-[3.4] of the '286 Patent, which claim the use of “*coded instructions...executed on a processor in the smart telephone [to] convert the analog variable voltage audio signal...to the transaction data as digital data*” and to “*establish [a] direct data exchange between the smart telephone*” and a server. EX1003, ¶75. Likewise, the '273 Provisional does not provide support for limitations [1.3.1]-[1.3.2] and [3.3]-[3.4], as it is directed to the same features as the '030 Application. EX1003, ¶75.

As noted above, the “Brief Summary of the Invention” sections are the only differences between each of the applications. Support for limitations [1.3.1]-[1.3.2] and [3.3]-[3.4] is not found outside of the “Brief Summary of the Invention” section of the '286 Patent. EX1003, ¶76. For instance, no discussion supporting the use of “*coded instructions...executed on a processor in the smart telephone [to] convert the analog variable voltage audio signal...to the transaction data as digital data*” appears anywhere in the '286 Patent other than the “Brief Summary of the Invention” section of the '286 Patent. Indeed, the concepts of “conversion of” or “converting” analog data to digital data appear nowhere else, and “digital” only appears in the context of a “personal digital assistant” (PDA). *See* EX1001, 7:4-7. While the '286 Patent discusses modulation of an encoded bit flow “using a frequency-shift keying

(FSK) modulation technique,” the discussed technique “creat[es] an analog waveform” to generate an audible sound. EX1001, 5:18-31. To the extent Patent Owner argues that the ’286 Patent’s discussion of demodulation provides support for “*coded instructions...executed on a processor in the smart telephone [to] convert the analog variable voltage audio signal...to the transaction data as digital data,*” the discussion of demodulation in the ’286 Patent occurs on a PC (EX1001, 5:47-48, 5:58-61) or a server (EX1001, 5:30-31), not in a smart telephone, and there is no conversion of this sound data to digital data representing transaction data. EX1003, ¶76.

Accordingly, as the material in the “Brief Summary of the Invention” section of the ’286 Patent is new and does not appear in the prior applications, the support for limitations [1.3.1]-[1.3.2] and [3.3]-[3.4] (and thus the challenged claims) is not contained in the ’842 Application (2014), the ’030 Application (2006), or the ’273 Provisional (2005). EX1014 (comparing ’674 Application to ’842 Application); EX1015 (comparing ’674 Application to ’030 Application); EX1003, ¶77.

4. The ’674 Application’s “smart telephone” elements are distinct from the disclosure of the earlier applications

Over the course of prosecution, the claims that eventually issued changed scope numerous times before allowance, when the original claims first recited a “computerized appliance,” and that concept eventually morphed into the claimed

“smart telephone.” The ’674 Application’s claimed “smart telephone” elements do not find support in the disclosure of the ’030 Application to which it claims priority. The ’030 Application does not use the term “computerized appliance” that appeared in the originally-filed claims. While it does use the similar term “computing appliance,” the ’030 Application only describes a PC as an example of a “computing appliance.” EX1012, 327 (“Package 100 is assembled at a client-operated personal computing appliance (PC)”), 333 (discussing “a PC or other computing appliance”), 334 (“computing appliance such as a PC”); EX1032, ¶¶37, 57, 60.⁸ EX1003, ¶78.

The only mention of a “smart telephone” in the specification of the ’030 Application appears in connection with Fig. 4 (below), where the ’030 Application discusses that a “key jack may be plugged into the sound input or headset connector jack associated with a mobile smart telephone or PDA enabling authentication through a telephone network.” EX1012, 331-332, 355; EX1032, ¶53, Fig. 4. EX1003, ¶79.

⁸ Parallel citations to the publication of the ’030 Application (the ’833 Publication, EX1032) are provided for convenience.

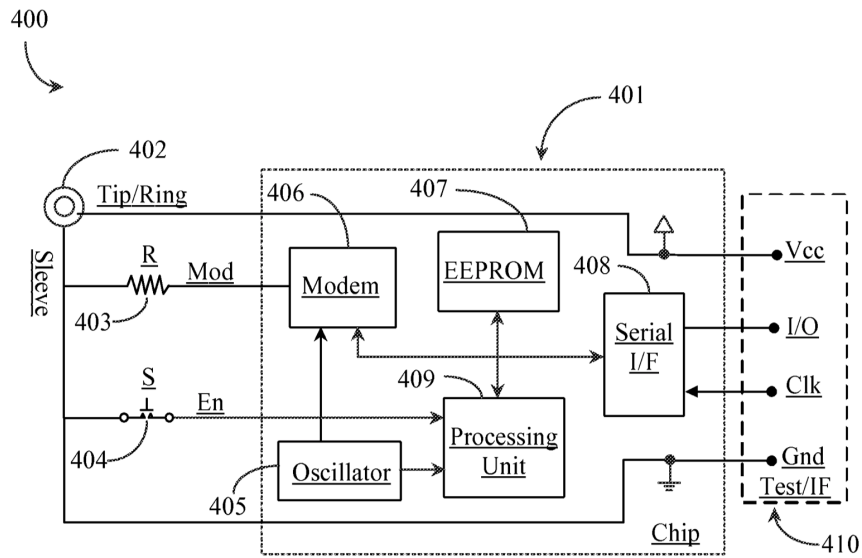


Fig. 4

EX1012, 355; EX1032, Fig. 4

However, Fig. 5 shows the discussed “key jack,” which is not a card reader, but instead a “signal generator.” EX1012, 333, 356; EX1032, ¶57, Fig. 5. EX1003, ¶80.

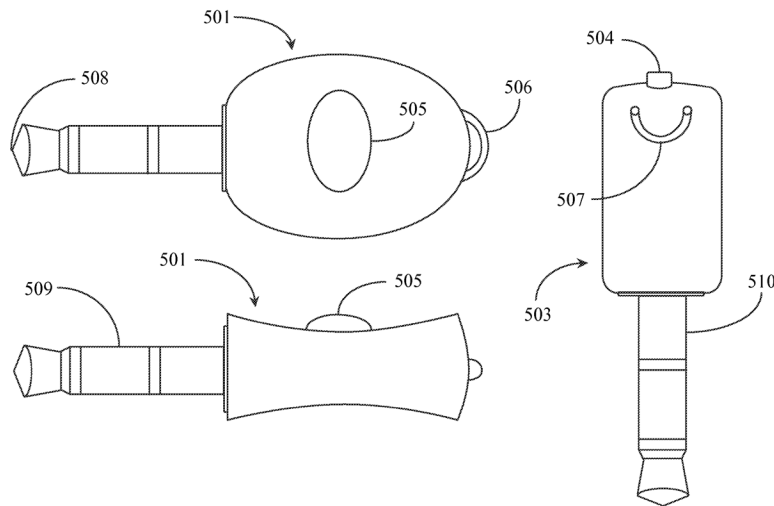


Fig. 5

EX1012, 356; EX1032, Fig. 5

This device generates a “sound pass or signal” that is sent “to the sound card on the PC” when a “user push[es] a button, switch, or other mechanism on the external surface of the device.” EX1012, 332; EX1032, ¶56. While Fig. 6 of the ’030 Application shows “a smart card signal generator 601 coupled to a card reader 602,” it is described as using components “essentially identical” to those shown in Fig. 5, above. EX1012, 334; EX1032, ¶61. The discussion of this Fig. 6 disclosure further contemplates providing an audio signal to a PC. EX1012, 334 (the card reader is “connected to the sound card on the computing appliance such as a PC”); EX1032, ¶¶60-61; EX1003, ¶81.

The ’030 Application refers to the key jack above as a “mobile device,” much like it refers to “smart phones” with respect to the Fig. 7 embodiment. EX1012, 332-

333 (key jack is mobile device), 335 (“a mobile device 701”), 336 (“a modulated audio signal is generated by a sound-generating applet installed on and executable from mobile device 701, which is a smart phone in this example”), 358 (labeling device 701 as a “smart phone”); EX1032, ¶¶56, 67, 68, Fig. 7. EX1003, ¶82.

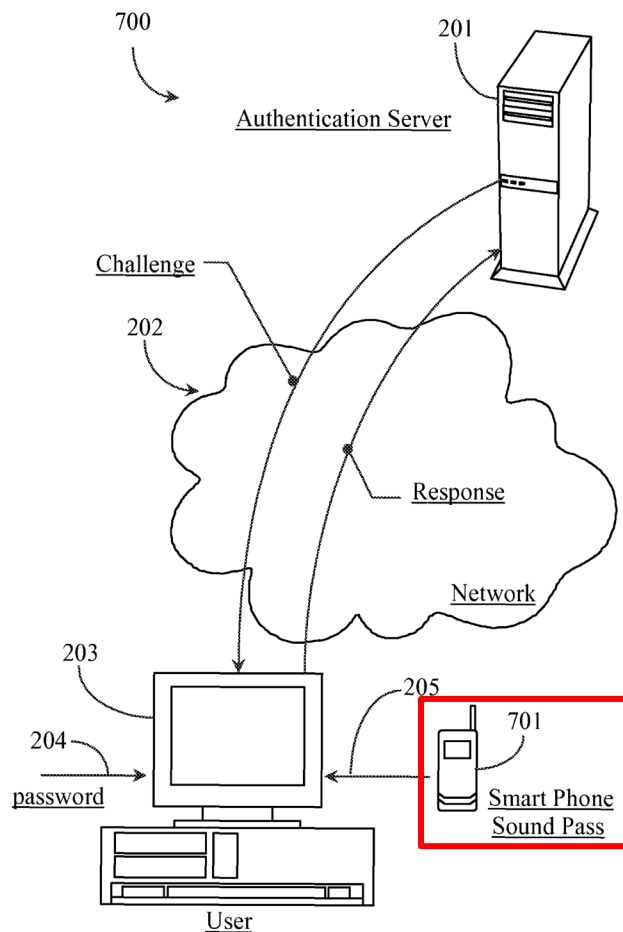


Fig. 7

EX1012, 358; EX1032, Fig. 7 (Annotated)

The '030 Application's specification discusses a smart telephone **generating** “the modulated sound pass,” not “*accept[ing] transaction data from an output interface of a transaction card*” from a card reader via the microphone port. EX1012, 335 (“a mobile device 701 for signal generation”); EX1032, ¶67. Indeed, the mobile device transmits a signal acoustically or using “a hardwire cable that connects the speaker or headset output to the microphone input” **of a PC**. EX1012, 336; EX1032, ¶70. EX1003, ¶83.

While Patent Owner may argue that the “computerized appliance” language of the specification provides support for the “smart telephone” element, this support at most comes from the new specification material added in the “Brief Summary of the Invention” section when the '674 Application was filed. Given the disclosure discussed above, the portions of the specification of the '674 Application from the previous applications—the portions not contained in the “Brief Summary of the Invention” section of the '674 Application—would not in any way suggest to a POSITA that the “computerized appliance” discussed in 2006 would encompass a “smart telephone” in 2015. As Mr. McNair explains, the specification of the '030 Application makes clear that the “smart telephone” embodiments are simply a way of producing audio for a PC to receive and perform transactions with, rather than devices to perform the transactions. EX1003, ¶¶84-87 (citing EX1035; EX1036; EX1037; EX1038). Indeed, the claims of the '030 Application support this

understanding: a “sound file [is] stored on a machine peripheral to the machine used to secure authentication,” EX1012, 349; EX1032, Claim 10, “wherein the peripheral machine is one of a cellular telephone, a personal digital assistant, or a hand held music player,” EX1012, 349; EX1032, Claim 11. EX1003, ¶88. The ’273 Provisional likewise does not have any disclosure of coded instructions, and envisions its “smart phone” as simply storing a SoundPass token in a sound file format to be played on a PC. EX1013, 6-8; EX1003, ¶89.

Thus, a POSITA would have understood that the use of “smart phone” and “mobile phone” in the specification of the earlier applications does not provide written description or enabling support for the use of “smart telephone” in the Challenged Claims. At most, the elements of the ’674 Application’s specification carried over from the earlier applications suggest the use of a mobile phone as an alternative way of transmitting an audio signal to a PC for authentication. *See* EX1012, 349; EX1032, Claims 10, 11. Accordingly, the ’286 Patent is a continuation-in-part not entitled to the filing dates of the ’273 Provisional (2005), ’030 Application (2006), and ’842 Application (2014).⁹ EX1003, ¶90.

⁹ Even if the ’286 Patent were entitled to the date of the ’842 Application—which it is not, as the ’286 Patent only carries over the specification elements found in the ’030 Application—the prior art and grounds presented in this Petition pre-date the

V. CLAIM CONSTRUCTION

Petitioner submits that for purposes of this proceeding, no claim term requires construction beyond its ordinary and customary meaning. EX1003, ¶¶93-95.

VI. CLAIMS 1-4 ARE UNPATENTABLE¹⁰

A. Ground 1: Claim 1 is obvious over Cho, Aaron, and Carpenter

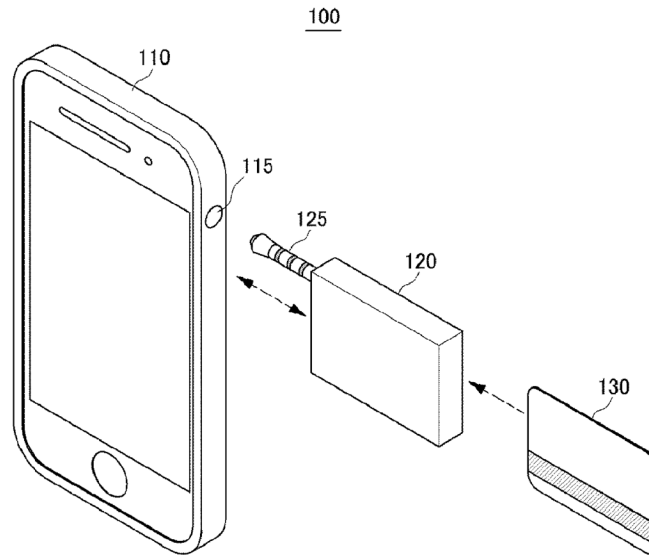
1. Overview of Cho

Cho describes a card payment system 100 that includes a card payment apparatus 120, which connects to client device 110 (a smartphone) via an audio jack 125 in a microphone port 115 of the smartphone, as shown in Fig. 1 below. EX1005, Abstract, 3:3-19 (client device 110 is a mobile phone), Fig. 1.

October 27, 2014, priority date of the '842 Application. EX1003, ¶¶91-92.

¹⁰ Unless otherwise specified, all **bold** emphasis below has been added. *Italics* is used to signify claim language.

FIG. 1



EX1005, Fig. 1.

Cho's card payment apparatus 120 utilizes "a magnetic strip reader that is configured to read information from a magnetic strip of card 130 or an integrated circuit chip reader that is configured to read information from an integrated circuit chip of card 130." EX1005, 4:28-32. Account information is then transmitted "via a microphone contact of an audio jack" to a smartphone. EX1005, Abstract. The smartphone may then "execute a card payment based at least in part on the account information through a card payment server" via a wireless network. EX1005, 3:52-56. The card payment apparatus 120 and relation to client device 110 (a smartphone) and card 130 are shown in Fig. 1 above. EX1005, Abstract, 3:3-19

2. Overview of Aaron

Aaron relates to “mobile card processing using multiple wireless devices, [] acquisition of card information to enhance user experience, and [] secure communications between devices.” EX1006, ¶1. Aaron describes a customer conducting “a point-of-sale electronic payment transaction with a merchant...by personally swiping a card” on a mobile device wirelessly connected to other devices. EX1006, ¶9. Specifically, a customer may use “a mobile computing device” such as “a smart phone, tablet computer, laptop, or other data processing apparatus” that is able to be “attached to a credit card reader” via an input such as an audio jack. EX1006, ¶¶58-59. When a card is swiped on the card reader, transaction data may then be communicated to an external payment service system via the Internet to process and authorize the transaction. EX1006, ¶68. The payment system in turn processes transactions and communicates with credit card payment networks. EX1006, ¶¶69-70. Fig. 7, below, shows the relationship between a customer’s mobile computing device (customer-facing device 102), the internet, and external payment systems:

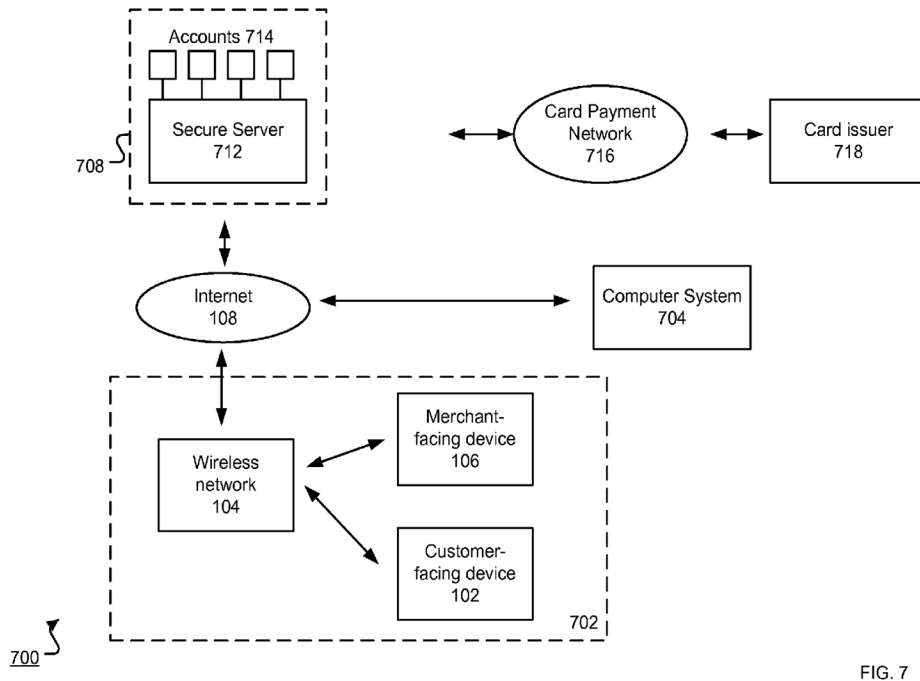


FIG. 7

EX1006, Fig. 7.

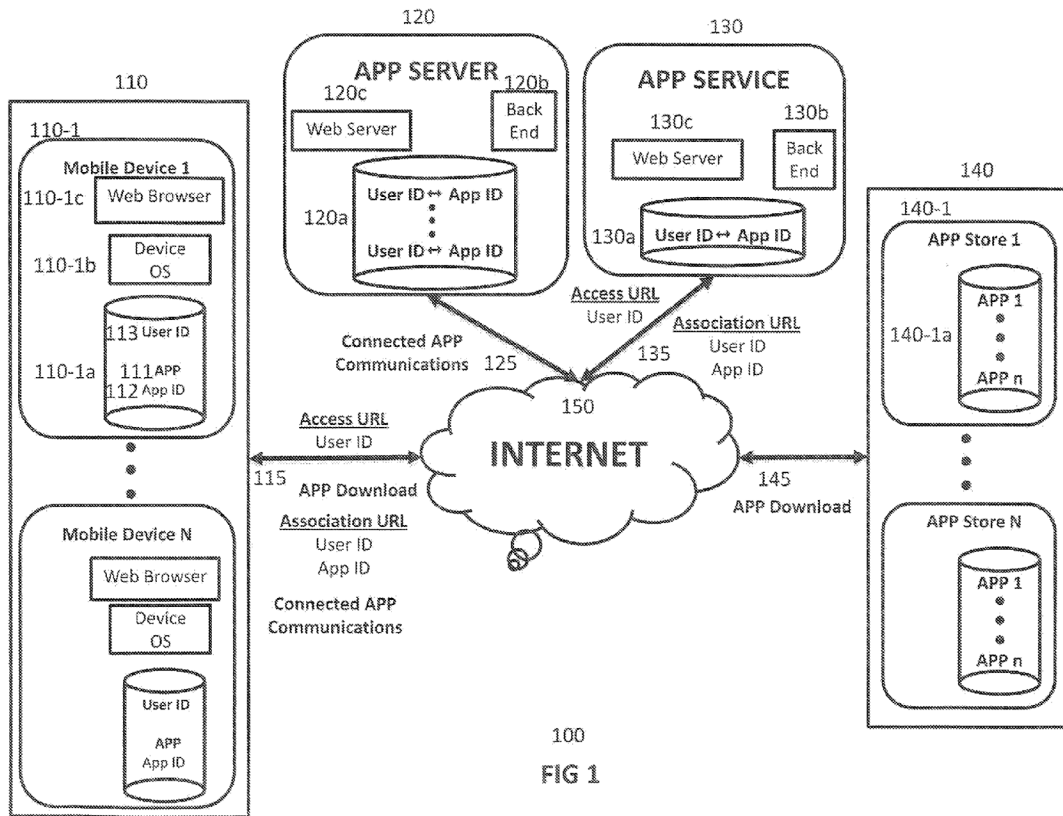
Aaron explains how a “customer facing device 122 communicates with the payment service system 708 to submit a request for authorization of the transaction.” EX1006, ¶68.¹¹ When a customer swipes their card, the card reader 720 passes card information to the customer facing device 122. EX1006, ¶68. This includes processing account information such as “credit card numbers, debit card numbers, bank accounts, user accounts, user identifying information or other sensitive

¹¹ A POSITA would have recognized that Aaron’s discussion of “customer facing device 122” in the cited paragraph references Fig. 7’s “customer-facing device 102.” EX1003, ¶103.

information.” EX1006, ¶69.

3. Overview of Carpenter

Carpenter describes the implementation of mobile application (“app”) stores, and the relationship between mobile devices such as smartphones and app stores from which mobile apps are downloaded. EX1008, ¶¶14, 18-19, 22-23. Carpenter’s Fig. 1, below, shows an architecture where mobile devices 110, such as smartphones, communicate via the internet and download apps via app stores. EX1008, ¶¶14, 18-19, 22-23.



EX1008, Fig. 1; EX1003, ¶104.

Carpenter explains that “certain generic functions are common to many apps, such as the need to be downloaded from an App Store 140.” EX1008, ¶23. Mobile app 111 is stored in database 140-1 *a* of app store 140-1, and is downloaded from app store 140-1, via connection 145 and connection 115, to smartphone 110-1. EX1008, ¶26. In this manner, Carpenter explains the implementation details as to the relationship between mobile devices and app stores. EX1003, ¶¶104-105.

4. Motivation to Combine Cho and Aaron

First, Cho is analogous art to the '286 Patent. The '286 Patent relates to a method and apparatus for facilitating transactions using data read from a card with a card reader. EX1001, 1:65-2:67, claim 1. Cho is within the same field of endeavor, as it pertains to “a card payment system” that executes card payments based on information read from a card via a card payment apparatus. EX1005, 1:5-6, 1:17-28, 3:52-56. Thus, Cho is analogous art to the '286 Patent because it is in the same field of endeavor (i.e., a smartphone executing an application to conduct transactions) and is reasonably pertinent to the particular problem with which the inventor is involved (i.e., facilitating transactions using a card reader with a mobile phone). EX1003, ¶106.

Aaron is analogous art to the '286 Patent. Aaron relates to “mobile card processing” and the “acquisition of card information” as part of transaction facilitation. EX1006, ¶¶1-2. Aaron is analogous art to the '286 Patent because it is in the same field of endeavor (i.e., card payment systems) and is reasonably pertinent to the particular problem with which the inventor is involved (i.e., facilitating transactions using a card reader with a mobile phone). EX1003, ¶107.

Second, as Mr. McNair explains, a POSITA would have been motivated to modify Cho's card payment system with the conventional implementation details of Aaron to execute transactions over a wireless network, because Aaron discloses the

advantage of processing payment requests using an external server over the internet. EX1003, ¶108. Cho explains how account information is read from a transaction card onto client device 110 using card payment apparatus 120, and the use of software such as “card payment executor 1030 [that] may be further configured to execute a card payment based on the account information between a card payment server which is communicatively coupled to client device 110,” but does not expressly describe how such transactions would occur with a payment processing server. EX1005, 11:40-44. Aaron explains what information is sent in transactions: “credit card numbers, debit card numbers, bank accounts, user accounts, user identifying information or other sensitive information.” EX1006, ¶69. Aaron also explains how Aaron’s card payment server would operate to execute the card payment, “submit[ting] a request for authorization of a transaction” to Aaron’s payment service system over the internet using the information collected via a card reader. EX1006, ¶¶68-70. Aaron’s payment service system processes a payment transaction “by sending a record to the computer system of the card payment network,” such as Visa or Mastercard, to “send[] the record to the card issuer,” such as a bank. EX1006, ¶87. Aaron’s payment service system then communicates with the client device whether the payment succeeded or failed. EX1006, ¶¶88-89; EX1003, ¶108.

Accordingly, the Cho-Aaron combination would have been the combination

of prior art elements (Cho's card payment system to collect and process account information from cards, with Aaron's execution of transactions over a network) according to known methods (executing transactions over a network through submission of transaction information to a server over the internet, as taught by Aaron, using information collected with Cho's card payment apparatus 120 and processed with Cho's card payment executor 1030) to yield predictable results of conducting a transaction with a smartphone over a wireless network. EX1003, ¶108. As Mr. McNair explains, using a card reader with a mobile device and conducting transactions wirelessly were well-known by the March 3, 2015, priority date of the '286 Patent. EX1003, ¶¶109-110 (citing EX1017, Abstract, 1:27-35, 1:55-59, Figs. 1, 4 (explaining mobile device payment card readers operate by "swiping the card in the reader" and electronically communicating "[i]nformation contained in the strip, such as card number, card holder name, etc.," to a payment processor); EX1018, Abstract, 2:43-55, 5:5-20, 15:33-47, Fig. 16C (disclosing a card reader to be inserted into "an output jack coupled to at least one of an audio jack or a microphone input port of a mobile device" and using the mobile device as a point-of-sale device)).

Further, a POSITA would have had a reasonable expectation of success in modifying Cho's card payment system to implement Aaron's payment processing over a network because Cho's card payment executor 1030 utilizes the same

information that Aaron’s payment processing collects and sends. Specifically, both Cho and Aaron receive information from a credit card reader. EX1005, 5:58-60 (“card reader 230 may read the account information from a magnetic strip of card 130”); EX1006, ¶59 (describing the use of a card reader “attached to an input, e.g., an audio jack”). Cho uses account information to “execute a card payment...between a card payment server which is communicatively coupled to client device 110.” EX1005, 11:40-44. Similarly, Aaron explains how a “customer facing device 122 communicates with the payment service system 708 to submit a request for authorization of the transaction.” EX1006, ¶68. This includes processing account information such as “credit card numbers, debit card numbers, bank accounts, user accounts, user identifying information or other sensitive information.” EX1006, ¶69. Thus, a POSITA would have had a reasonable expectation of success in combining Cho and Aaron because both describe processing transactions using account information received from cards swiped on a user device, and Aaron merely provides additional detail as to how transactions would be processed. EX1003, ¶111.

5. Motivation to Combine Cho and Aaron with Carpenter

First, Carpenter is analogous art to the ’286 Patent. Carpenter is within the same field of endeavor as the ’286 Patent, as it pertains to mobile devices such as smartphones executing applications to carry out specific functions, including downloading the applications from an app store before the applications are executed.

EX1008, ¶¶14, 18-19, 22-23. Further, Carpenter is reasonably pertinent to a particular problem with which the inventor is involved (i.e., coded instructions stored on a server and executable on a smartphone). Thus, Carpenter is analogous art to the '286 Patent. EX1003, ¶112.

Second, as explained by Mr. McNair, a POSITA would have been motivated to modify the Cho-Aaron combination to incorporate the conventional implementation details described in Carpenter of a smartphone downloading an application from an app store to conduct financial transactions with a smartphone. EX1003, ¶113. Specifically, Cho describes elements implemented via software as a phone application. EX1005, 10:58-61 (“one or more of signal generator 1010, transceiver 1020, and card payment executor 1030 may be included in an instance of **an application hosted by client device 110**”). Aaron confirms that applications are downloaded to a device for use with a wireless payment system, such as the generator 1010, transceiver 1020, and card payment executor 1030 contemplated by Cho. EX1006, ¶71; EX1003, ¶113. Aaron explains that “before a transaction between the user and the merchant can be performed” via a wireless payment system, “one or more applications are downloaded” to a merchant and/or customer device, such as a smartphone. EX1006, ¶71. Carpenter provides implementation details for how such applications, hosted by an app store and stored in a server, would be downloaded to a mobile device such as a smartphone via the Internet. EX1008, ¶¶23,

25; EX1003, ¶113.

A POSITA would have had a reasonable expectation of success in incorporating Carpenter’s implementation details for providing applications to smartphones in the Cho-Aaron combination because Carpenter teaches how applications would be available for use in the Cho-Aaron combination, and a POSITA would have understood how to download an application for use in the smartphone in the Cho-Aaron combination, as taught by Carpenter. Specifically, Carpenter teaches how applications, such as Cho’s application of signal generator 1010, transceiver 1020, and card payment executor 1030, would be hosted on a server and provided for download to a device. EX1005, 10:58-61; EX1008, ¶¶18-19, 22-23, 25. Further, Aaron confirms that applications are downloaded to a device for use with a wireless payment system. EX1006, ¶71. Accordingly, a POSITA would have had a reasonable expectation of success in combining Carpenter with Cho or the Cho-Aaron combination. EX1003, ¶114.

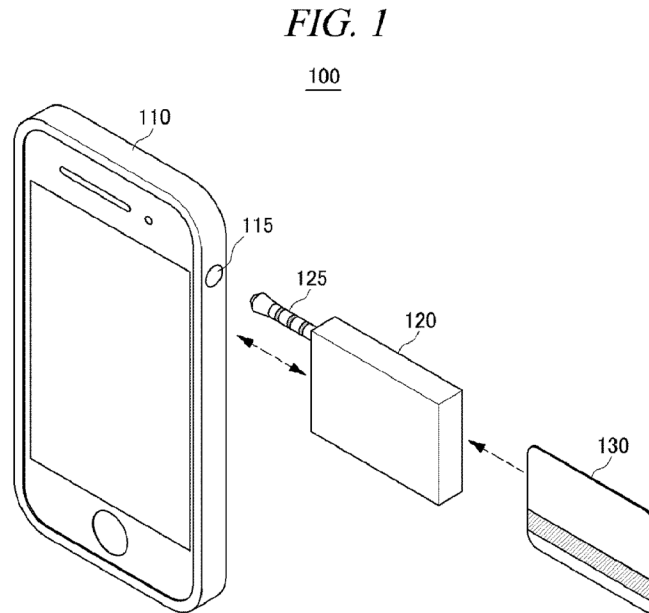
6. Analysis

a. Claim 1

[1.0] An apparatus comprising:

The preamble is not limiting. To the extent that it is limiting, Cho renders obvious *an apparatus*. EX1003, ¶115. Specifically, Cho describes a “system configuration 100 in which one or more embodiments of a card payment system may

be implemented.” EX1005, 3:3-5. Cho’s system configuration 100 includes “a client device 110, and a card payment apparatus 120,” as shown below in Fig. 1. EX1005, 3:5-7.



EX1005, Fig. 1; EX1003, ¶115.

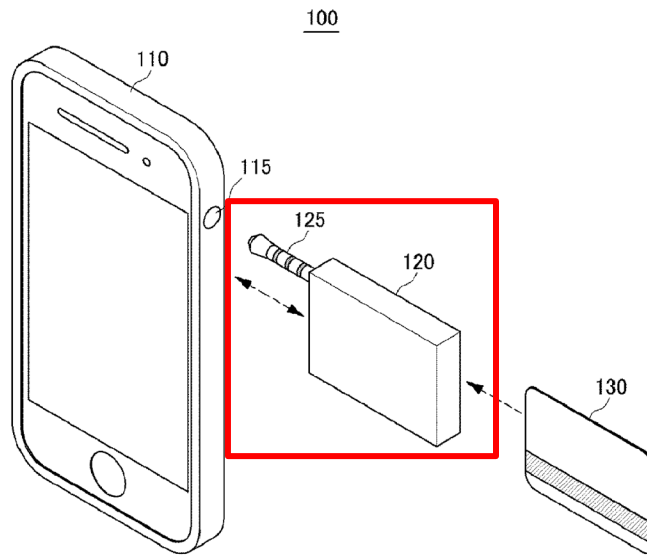
Accordingly, Cho renders obvious *an apparatus* (card payment apparatus 120), as described in further detail below. EX1003, ¶116.

[1.1.1] a card reader having an input interface configured to accept transaction data from an output interface of a transaction card,

Cho renders obvious limitation [1.1.1]. EX1003, ¶¶117-121.

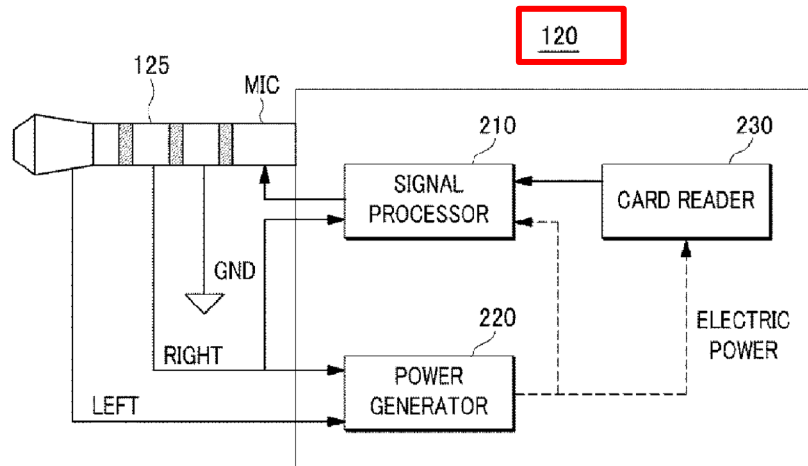
First, Cho discloses “a card payment apparatus 120” (*a card reader*), shown below in Fig. 1 and in further detail in Fig. 2:

FIG. 1



EX1005, Fig. 1 (Annotated); EX1003, ¶118.

FIG. 2



EX1005, Fig. 2 (Annotated); EX1003, ¶118.

Cho's card payment apparatus 120 is implemented as part of a card payment system as an intermediary device between a card 130 and a client device (e.g., mobile phone

110). EX1005, 4:42-44, 3:3-19, 4:23-32, Fig. 1. The card payment apparatus transmits analog signals to the client device that contain “account information **which may be read from a card 130 by card payment apparatus 120.**” EX1005, 3:20-24; EX1003, ¶118.

Second, Cho’s card payment apparatus 120 utilizes “a magnetic strip reader that is configured to read information from a magnetic strip of card 130 or an integrated circuit chip reader that is configured to read information from an integrated circuit chip of card 130.” EX1005, 4:28-32, 5:58-60, 10:10-14; *see also* EX1005, 3:20-27 (“account information may be read from a card 130 by card payment apparatus 120”). Card 130 (*a transaction card*) includes a magnetic strip or integrated circuit chip (each *an output interface*) from which account information is read. EX1005, 4:28-32, 5:58-60, 10:10-14. Both the magnetic strip reader and the integrated circuit chip reader are *input interface[s]* of card reader 120 for the respective *output interface[s]* of the card 130, because card reader 120 uses the magnetic strip reader or integrated circuit chip reader to read the output from the respective interfaces of card 130. EX1005, 4:28-32, 5:58-60, 10:10-14; EX1003, ¶119.

Accordingly, Cho’s card payment apparatus 120 (*a card reader*) reads account information using a magnetic strip reader or integrated circuit chip reader (*having an input interface configured to accept transaction data*) from the magnetic

strip or integrated circuit chip of card 130 (from an output interface of a transaction card). EX1003, ¶120.

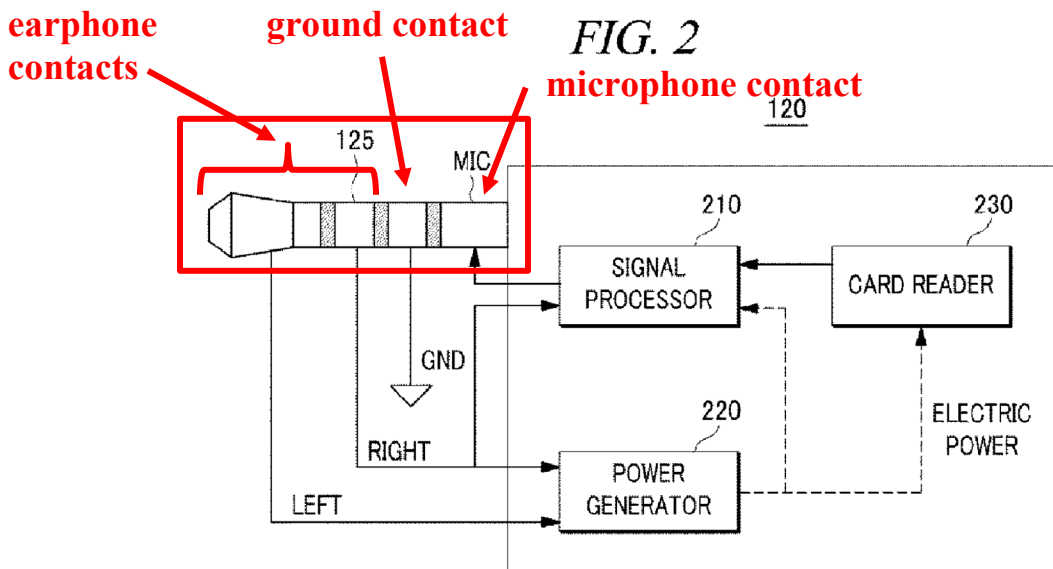
Thus, Cho renders obvious this limitation. EX1003, ¶¶117-121.

[1.1.2] and an output pin, as a part of the card reader, configured to directly connect the card reader to a microphone port of a smart telephone,

Cho renders obvious limitation [1.1.2]. EX1003, ¶¶122-127.

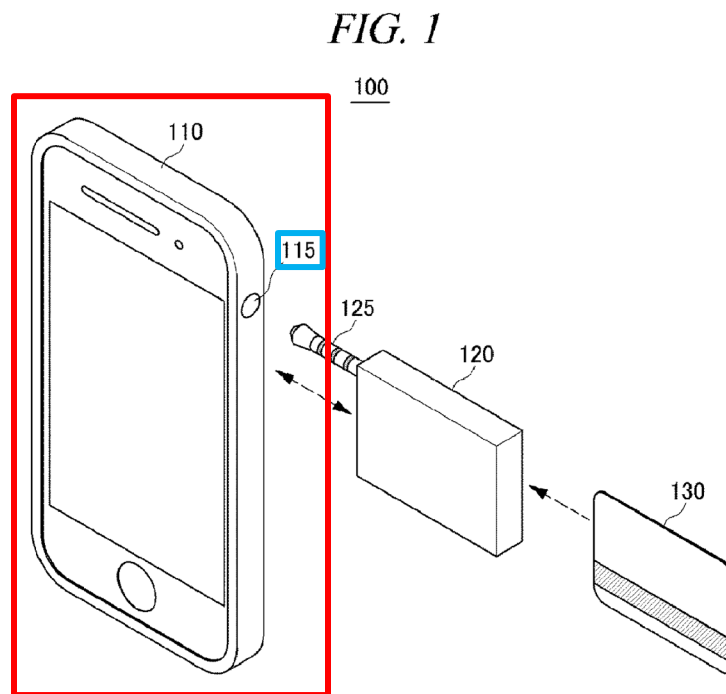
First, Cho’s card payment apparatus 120 (card reader) includes audio jack 125 (an output pin, as a part of the card reader), which comprises “at least one earphone contact, a ground contact and a microphone contact.” EX1005, 4:58-60.

This is detailed further in Cho’s Fig. 2, below:



EX1005, Fig. 2 (Annotated); EX1003, ¶123.

Second, audio jack 125 on Cho’s card payment apparatus “may be inserted into audio jack socket 115 that is installed on a surface of client device 110” where “at least one analog signal may be transmitted from card payment apparatus 120 to client device 110 via **the microphone contact.**” EX1005, 4:60-65. Thus, the audio jack 125 is *configured to directly connect the card reader to a microphone port of a smart telephone*. EX1005, 4:60-65; EX1003. ¶124. This is further detailed in Fig. 1, below, which depicts **client device 110** (*smart telephone*) containing **audio jack socket 115** (*microphone port*):



EX1005, Fig. 1 (Annotated); EX1003, ¶124.

Cho explains that client device 110 is “a device that has an audio jack socket 115, such as **a mobile phone**, a portable device, a notebook, or even a personal computer or a personal communication terminal, such as PCS (Personal Communication System), GMS (Global System for Mobile communications), PDC (Personal Digital Cellular), PDA (Personal Digital Assistant), IMT (International Mobile Telecommunication)-2000.” EX1005, 3:7-15. A POSITA would have understood that Cho’s client device 110, a mobile phone, is a *smart telephone* based on the disclosure that client device 110 implements a card payment system via software “included in an instance of an application hosted by client device 110,” as well as the clear resemblance between the device shown in Fig. 1 and well-known mobile phones, at the time of priority of the ’286 Patent. EX1005, 3:7-15, 10:58-61, Fig. 1; EX1003, ¶125 (citing EX1039 and comparing Cho’s described client device 110 with the iPhone released in 2013).

Accordingly, Cho’s card payment apparatus 120 (*a card reader*) includes an audio jack 125 (*an output pin, as a part of the card reader*) which is inserted into audio jack socket 115 of client device 110 (*configured to directly connect the card reader to a microphone port of a smart telephone*). EX1003, ¶126.

Thus, Cho renders obvious this limitation. EX1003, ¶¶122-127.

[1.1.3] the card reader providing the transaction data accepted from the output interface of the transaction card to the output pin, and hence to the microphone port, as an analog variable voltage audio signal; and

Cho renders obvious limitation [1.1.3]. EX1003, ¶¶128-132.

Cho's card payment apparatus 120 (*card reader*) transmits an analog signal (*an analog variable voltage audio signal*) to client device 110 (*smart telephone*). EX1005, 3:20-22 ("Client device 110 may be configured to receive, from card payment apparatus 120 via audio jack 125, a first analog signal to which a first digital signal is converted."). This analog signal includes account information read from a card (*transaction data accepted from the output interface of the transaction card*). EX1005, 3:22-27 ("The first digital signal may include account information which may be read from a card 130 by card payment apparatus 120. By way of example, but not limitation, the account information may include at least one of an account number, a card expiration date, etc."). This information is transmitted using audio jack 125 (*output pin*). EX1005, 3:27-31 ("Card payment apparatus 120 may be configured to convert the read account information into the first analog signal by using any well-known digital-analog converting scheme and to transmit the converted first analog signal to client device 110 via audio jack 125."); EX1003, ¶129.

Further, as discussed above in [1.1.2], client device 110 receives information from Cho's card payment apparatus via audio jack socket 115 (*microphone port*).

See Section VI.A.6.a[1.1.2]; *see also* EX1005, 4:60-67 (“Audio jack 125 may be inserted into audio jack socket 115 that is installed on a surface of client device 110...[and] at least one analog signal may be transmitted from card payment apparatus 120 to client device 110 via the microphone contact.”); EX1003, ¶130.

Accordingly, Cho’s card payment apparatus 120 (*card reader*) transmits account information read from card 130 (*providing the transaction data accepted from the output interface of the transaction card*) via audio jack 125 to audio jack socket 115 (*to the output pin, and hence to the microphone port*) in the form of an analog signal (*as an analog variable voltage audio signal*). EX1003, ¶131.

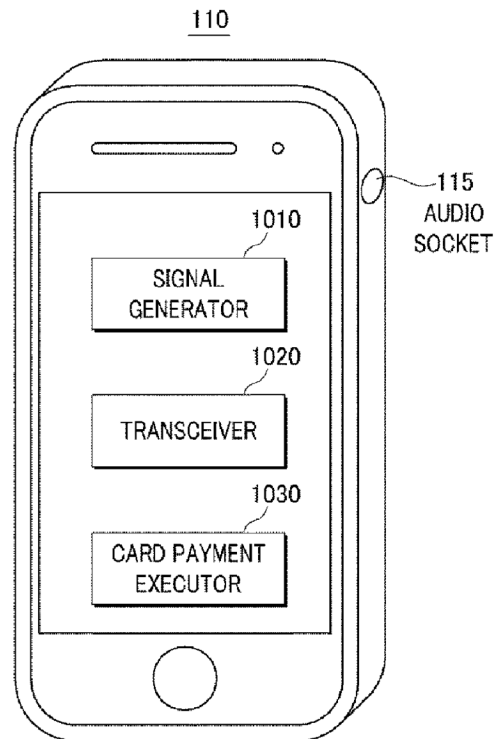
Thus, Cho renders obvious this limitation. EX1003, ¶¶128-132.

[1.2] coded instructions stored in a non-transitory medium of a first Internet-connected server, and accessible by a user of the card reader;

The Cho-Aaron-Carpenter combination renders obvious limitation [1.2]. EX1003, ¶¶133-141.

First, Cho describes a “configuration of client device 110 by which at least portions of a card payment system may be implemented” via software, such as “an instance of an application hosted by client device 110.” EX1005, 10:46-61. This includes the functionality of “a signal generator 1010, a transceiver 1020, and a card payment executor 1030” (collectively, *coded instructions*). EX1005, 10:48-51. Fig. 10, below, shows an arrangement of such a configuration:

FIG. 10

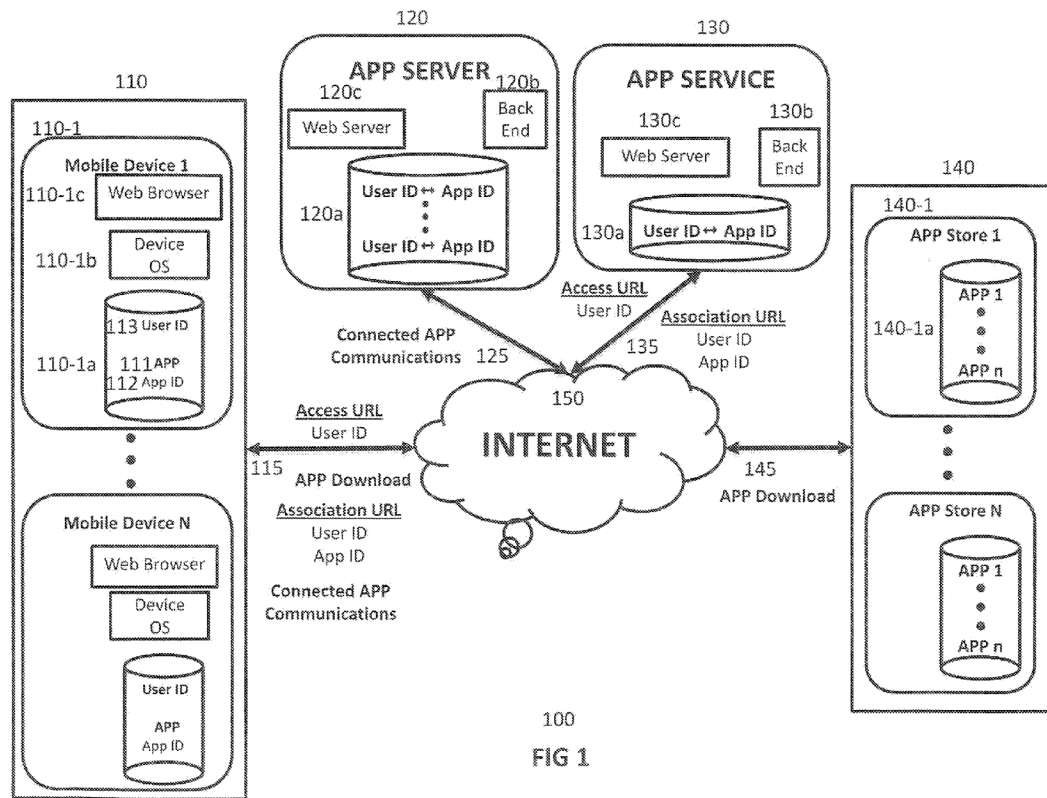


EX1005, Fig. 10; EX1003, ¶134.

Second, a POSITA would have understood that Cho’s signal generator 1010, transceiver 1020, and card payment executor 1030 collectively operate as *coded instructions* because they are implemented via software as a phone application. EX1005, 10:58-61 (“one or more of signal generator 1010, transceiver 1020, and card payment executor 1030 may be included in an instance of **an application hosted by client device 110**”); EX1003, ¶135. Aaron confirms that such software would be an application downloaded to a device for use with a wireless payment system, such as contemplated by Cho. EX1006, ¶71; EX1003, ¶135. Aaron explains

that “before a transaction between the user and the merchant can be performed” via a wireless payment system, “one or more applications are downloaded” to a merchant and/or customer device, such as a smartphone. EX1006, ¶71; EX1003. ¶135.

A POSITA would have understood that in Aaron’s implementation of a downloadable application, the application would have been hosted in a server because Aaron explains that the applications are downloaded from an application store. EX1006, ¶71; EX1003, ¶136. To the extent that Patent Owner argues Aaron does not explicitly disclose that applications are stored in the database of an app store (e.g., *stored in a non-transitory medium of a first Internet-connected server*), this is how apps were stored and made available to mobile devices, as evidenced by Carpenter. Carpenter’s Fig. 1, below, shows an architecture where mobile devices 110, such as smartphones, communicate via the internet and download apps via app stores. EX1008, ¶¶14, 18-19, 22-23.



EX1008, Fig. 1; EX1003, ¶136.

Carpenter explains that “certain generic functions are common to many apps, such as the need to be downloaded from an App Store 140.” EX1008, ¶23. Different app stores are associated with different mobile operating systems, where for a particular app store, a mobile app 111 is stored in database 140-1 a. EX1008, ¶23. Accordingly, Carpenter confirms that it was well-known at the priority date of the ’286 Patent that mobile phones utilized apps that were available from app stores (e.g., *stored in a non-transitory medium of a first Internet-connected server*) and

downloaded onto users' phones for use. EX1005, 10:58-61; EX1006, ¶71; EX1008, ¶23; EX1003, ¶137.

As discussed above in Sections VI.A.4-VI.A.5, a POSITA would have been motivated to combine Cho with Aaron and Carpenter, and would have had a reasonable expectation of success in doing so. EX1003, ¶¶138, 106-114. Cho explains that its signal generator 1010, transceiver 1020, and card payment executor 1030 are hosted on an application (e.g., *coded instructions*) on Cho's client device 110. EX1005, 10:58-61. It would have been obvious to download the application on Cho's client device 110, as confirmed by Aaron. EX1006, ¶71; EX1003, ¶138. Carpenter confirms that such applications (*coded instructions*) are available from app stores (e.g., *stored in a non-transitory medium of a first Internet-connected server*). EX1008, ¶23. Thus, it would have been obvious that Cho's application (*coded instructions*), including signal generator 1010, transceiver 1020, and card payment executor 1030, would be downloaded to Cho's client device 110 from an app store (e.g., the application is *stored in a non-transitory medium of a first Internet-connected server, and accessible by a user of the card reader* via downloading the application), as taught by Carpenter. EX1005, 10:58-61; EX1006, ¶71; EX1008, ¶23; EX1003, ¶138.

Third, Cho's signal generator 1010, transceiver 1020, and card payment executor 1030 would have been *accessible by a user of the card reader* because they

execute on client device 110. EX1005, 10:58-61; EX1003, ¶139. Client device 110 receives account data from the card reader. EX1005, 3:20-24. Signal generator 1010 initiates a request for card information to be read using card payment apparatus 120. EX1005, 11:6-9. Transceiver 1020 receives the analog signal from card payment apparatus 120. EX1005, 11:27-29. Card payment executor 1030 utilizes the data received from the card reader to execute a card payment. EX1005, 11:40-44. Because the signal generator 1010, transceiver 1020, and card payment executor 1030 run on client device 110 to collectively obtain and use information received from the card reader, a POSITA would have understood that the signal generator 1010, transceiver 1020, and card payment executor 1030 are *accessible by a user of the card reader*. EX1003, ¶139.

Accordingly, a POSITA would have recognized that Cho's application including signal generator 1010, transceiver 1020, and card payment executor 1030 (*coded instructions*), which would have been obtained from an app store or other server, per Carpenter (*stored in a non-transitory medium of a first Internet-connected server*), would run on Cho's client device 110 (*accessible by a user of the card reader*). EX1003, ¶140.

Thus, Cho in view of Aaron and Carpenter renders obvious this limitation. EX1003, ¶¶133-141.

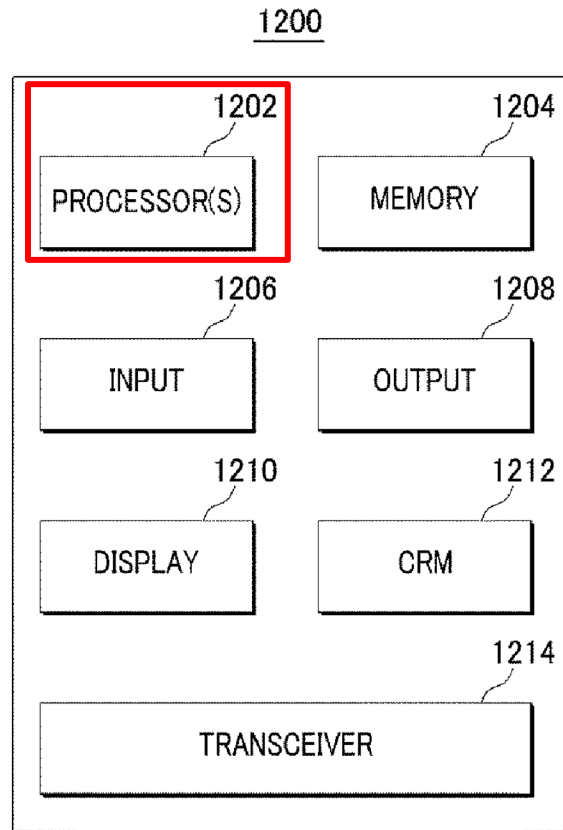
[1.3.1] wherein the coded instructions, when executed on a processor in the smart telephone, convert the analog variable voltage audio signal received at the microphone port to the transaction data as digital data,

Cho renders obvious limitation [1.3.1]. EX1003, ¶¶142-148.

First, as discussed above in [1.2], Cho’s signal generator 1010, transceiver 1020, and card payment executor 1030 are collectively an instance of an application which operates as *coded instructions*. See Section VI.A.6.a[1.2]; EX1003, ¶¶133-141. These components operate on client device 110 (*the smart telephone*). EX1005, 10:46-61; EX1003, ¶143.

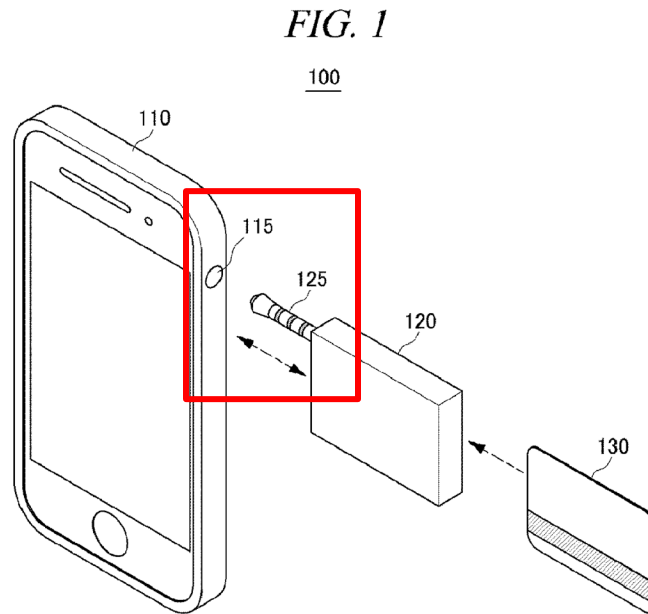
Cho explains that “the processes and sub-processes of a card payment system may be implemented as computer-readable instructions stored on a computer-readable medium” which are “**executed by a processor of a device.**” EX1005, 13:8-17. Fig. 12, below, shows an example of a computing embodiment, such as client device 110, including *a processor in the smart telephone*:

FIG. 12



EX1005, Fig. 12 (Annotated); EX1003, ¶144.

Second, as discussed above in [1.1.3], Cho describes the use of audio jack socket 115 (*microphone port*) to transmit an analog signal “from card payment apparatus 120 to client device 110 via the microphone contact” (*audio signal received at the microphone port*). EX1005, 4:60-67; *see* Section VI.A.6.a[1.1.3]; EX1003, ¶¶128-132. A representation of the relationship between card payment apparatus 120 and client device 110, including audio jack 125 and audio jack socket 115, is shown in Fig. 1, below:



EX1005, Fig. 1 (Annotated); EX1003, ¶145.

Third, Cho’s transceiver 1020 receives the analog signal from card payment apparatus 120 “via a microphone contact of audio jack 125.” EX1005, 11:27-29. Card payment executor 1030 converts this “analog signal into the first digital signal that includes the account information by using any well-known analog-digital converting scheme.” EX1005, 11:35-38; EX1003, ¶146.

Accordingly, Cho’s card payment executor 1030 (part of the *coded instructions*), which is executed on a processor of Cho’s client device 110 (*when executed on a processor in the smart telephone*), converts the analog signal received by audio jack socket 115 to a digital signal (*convert the analog variable voltage*

audio signal received at the microphone port to the transaction data as digital data).

EX1003, ¶147.

Thus, Cho renders obvious this limitation. EX1003, ¶¶142-148.

[1.3.2] establish direct data exchange between the smart telephone and a second Internet-connected server and facilitate transactions by a financial institution, or purchases from an online-merchant, using the transaction data.

Cho or the Cho-Aaron combination renders obvious limitation [1.3.2].
EX1003, ¶¶149-156.

First, Cho’s card payment executor 1030 “execute[s] a card payment based on the account information between a card payment server which is communicatively coupled to client device 110.” EX1005, 11:40-44. Cho explains that “[t]he card payment server may refer to an organization or entity that provides some type of communication service, data storage service, data or information processing service, content service, or any combination thereof to business customers or consumers,” such as “a financial service provider, a banking service provider, or a credit card service provider.” EX1005, 3:56-4:2; EX1003, ¶150.

Accordingly, Cho executes a card payment (e.g., *facilitate[s] transactions...or purchases*) with a server communicatively coupled to the client device (thus *establish[ing] direct data exchange between the smart telephone and a second Internet-connected server*) such as a financial service provider or credit card

service provider (*financial institution, or...online-merchant*) using the account information (*using the transaction data*). EX1003, ¶151.

Second, to the extent the Patent Owner argues that Cho does not teach this limitation, Aaron confirms the relationship between a client device and a transaction server. Aaron explains how a wireless payment system, such as Cho's client device 110, communicates with a payment service system using a network. EX1006, ¶66. Aaron explains that a customer-facing device may receive card information through a card swipe on a connected card reader, and communicate with a payment service system to submit a request for authorization of the transaction. EX1006, ¶68; EX1003, ¶152.

This request for authorization *facilitate[s] transactions by a financial institution, or purchases from an online-merchant, using the transaction data*. Specifically, Aaron teaches that the payment service system includes a server to handle all "secure information such as credit card numbers, debit card numbers, bank accounts, user accounts, user identifying information or other sensitive information." EX1006, ¶69. The server then communicates electronically with card payment networks and banks to authorize transactions. EX1006, ¶¶68-70; EX1003, ¶153.

As described above in Sections VI.A.4, a POSITA would have been motivated to combine Cho and Aaron to execute payments using Cho's card reader over a wireless network, and would have had a reasonable expectation of success in doing

so. EX1003, ¶¶106-111. In the combination, Cho would send account information read from cards to a card payment server to authorize transactions, as described by Aaron. EX1005, 11:40-44 (using account information to “execute a card payment...between a card payment server which is communicatively coupled to client device 110.”); EX1006, ¶¶68-70 (explaining how a “customer facing device 122 communicates with the payment service system 708 to submit a request for authorization of the transaction.”); *see* Section VI.A.4; EX1003, ¶154.

Accordingly, Aaron teaches communication with a payment service system to submit a request for authorization of the transaction (e.g., *facilitat[ing] transactions...or purchases*), using account information captured via a card swipe, per Cho (thus *establish[ing] direct data exchange between the smart telephone and a second Internet-connected server*), to communicate with card payment networks or banks to authorize transactions (*facilitat[ing] transactions by a financial institution, or purchases from an online-merchant, using the transaction data*). EX1003, ¶155.

Thus, Cho alone or in view of Aaron renders obvious this limitation. EX1003, ¶¶149-156.

B. Ground 2: Claim 2 is obvious over Cho, Aaron, Carpenter, and de Geer

1. Overview of de Geer

De Geer describes a method of “conducting an electronic card payment between a merchant...and a cardholder.” EX1007, Abstract. De Geer’s method includes “reading payment card information associated with the payment card using the card reader” and transmitting the card information “to a bank server conducting the card payment.” EX1007, Abstract. Transactions are conducted “using a mobile communications device such as a mobile phone.” EX1007, ¶¶22, 26. De Geer’s method allows “secure and EMV approved credit card payments” to be performed “using a payment card with a magnetic strip and an ordinary unsecure mobile phone with an unsecure card reader device[.]” EX1007, ¶8. A payment card is read by swiping a payment card, to obtain card information. EX1007, ¶29. This “read payment card information generally comprises a primary account number (PAN), the name of the cardholder and but may also comprise discretionary data. The discretionary data may differ depending on the type of payment card and may be any of a personal identification number (PIN) verification value (PVV), expiry date and a card security code (CSC, also known as CVC, CVV, CVV2, CVD, etc.).” EX1007, ¶30.

2. Motivation to Combine Cho, Aaron, and Carpenter with de Geer

First, de Geer is analogous art to the '286 Patent. De Geer relates to “conducting an electronic card payment between a merchant...and a cardholder.” EX1007, Abstract. These transactions are conducted “using a mobile communications device such as a mobile phone.” EX1007, ¶¶22, 26. De Geer is analogous art to the '286 Patent because it is in the same field of endeavor (i.e., a smartphone executing an application to conduct transactions) and is reasonably pertinent to the particular problem with which the inventor is involved (i.e., facilitating transactions using a card reader with a mobile phone). EX1003, ¶158.

Second, a POSITA would have been motivated to modify the Cho-Aaron combination in view of de Geer to include CVV codes with the account information read by Cho and processed by the Cho-Aaron combination. EX1003, ¶159. The combination would have been no more than the use of a known technique (the inclusion of CVV codes as part of account information, as taught by de Geer (EX1007, ¶30)) to improve similar devices (Cho’s card payment system, which reads account information from cards (EX1005, 5:58-60)) in the same way (by utilizing the CVV codes as part of the account information read by Cho’s card payment system). EX1003, ¶159.

A POSITA would have had a reasonable expectation of success in using de Geer’s teaching of including CVV codes with account information—doing so merely incorporates data that was already well-known to be included in a card’s magnetic strip, and thus the combination would simply include CVV codes in the account information that Cho’s card reader 230 receives. EX1003, ¶160. Cho explains that “card reader 230 may read the account information from a magnetic strip of card 130[.]” EX1005, 5:58-60. De Geer elaborates on the information that is read from a magnetic strip, explaining that “[t]he magnetic stripe on the payment card usually contain up to three tracks with payment card information written in different encodings.” EX1007, ¶30. This includes “a primary account number” and “the name of the cardholder” as well as “discretionary data.” EX1007, ¶30; *see also* EX1005, 5:55-60 (noting that card information includes “at least one of an account number, a card expiration date, etc”). Thus, de Geer simply teaches including additional data in Cho’s account information. Accordingly, a POSITA would have had a reasonable expectation of success in combining de Geer with Cho or the Cho-Aaron combination. EX1003, ¶160.

3. Analysis

a. Claim 2

[2.0] The apparatus of claim 1

See analysis at Section VI.A.6.a; EX1003, ¶¶161, 115-156.

[2.1] wherein the coded instructions, when executed on a processor in the smart telephone, retrieve a card verification code (CVV),

The Cho-Aaron-Carpenter combination, in view of de Geer, renders obvious limitation [2.1]. EX1003, ¶¶162-166.¹²

De Geer teaches “a method of conducting an electronic card payment,” where “payment card information associated with the payment card” is read using a card reader. EX1007, Abstract. As discussed above and confirmed by de Geer, payment card information is ready by a card reader using the card’s magnetic strip. EX1007, ¶30. De Geer elaborates on what this information entails, explaining that “read payment card information generally comprises a primary account number (PAN), the name of the cardholder and but [sic] may also comprise discretionary data. The discretionary data may differ depending on the type of payment card and may be any of a personal identification number (PIN) verification value (PVV), expiry date and a card security code (CSC, also known as CVC, CVV, CVV2, CVD, etc.).” EX1007, ¶30. EX1003, ¶164.

¹² Petitioner notes that limitation [1.3.1] recites “*wherein the coded instructions, when executed on a processor in the smart telephone....*” Accordingly, Petitioner interprets the processor in limitation [2.1] as corresponding to the processor in limitation [1.3.1].

A POSITA would have been motivated to *retrieve a card verification code*, as detailed in de Geer (e.g., CVV), as part of the card information collected from the apparatus disclosed by Cho for claim 1. EX1003, ¶165. De Geer explains that “[t]he magnetic stripe on the payment card usually contain up to three tracks with payment card information written in different encodings.” EX1007, ¶30. It was well-known that CVV information “can be encoded on either track 1 or track 2 of a magnetic striped card and [is] used to detect forged cards. EX1030, 57; EX1003, ¶165. Accordingly, the inclusion of CVV information, per de Geer, as part of the account information read using Cho’s apparatus would allow the apparatus to “execute a card payment based on the account information” where CVV information was required, such as for authentication purposes. EX1005, 1:40-44; EX1003, ¶165. And as discussed above in Section VI.B.2, a POSITA would have been motivated to combine de Geer with Cho and the Cho-Aaron combination. *See* Section VI.B.2; EX1003, ¶¶165, 158-160.

Thus, the Cho-Aaron-Carpenter combination, in view of de Geer, renders obvious this limitation. EX1003, ¶¶162-166

[2.2] and use the CVV in purchases or transactions.

The Cho-Aaron-Carpenter combination, in view of de Geer, renders obvious limitation [2.2]. EX1003, ¶¶167-169.

It was well-known in the art that CCV information, such as the information de Geer teaches collecting, would have been used for purchases or transactions. EX1003, ¶168. De Geer explains that magnetic stripe information on a payment card includes CVV information. EX1007, ¶30. Payment cards are swiped during transactions to read the magnetic stripe information on a merchant's device. EX1007, ¶29. CVV information was known as "a cryptograph method to calculate a value that relates to the personal account number (PAN), the card expiration date, and the service code," (EX1030, 57), information contemplated by both de Geer and Cho. EX1003, ¶168. The CVV information is used to indicate whether a card is authentic for transactions. EX1030, 57; EX1003, ¶168. Accordingly, it would have been obvious to a POSITA to read CVV data, according to de Geer (EX1007, ¶¶29-30), as part of the account information read by Cho's card payment system to verify the authenticity of the card being swiped for a transaction, thus *us[ing] the CVV in purchases or transactions*. EX1003, ¶168.

Thus, the Cho-Aaron-Carpenter combination, in view of de Geer, renders obvious this limitation. EX1003, ¶¶167-169

C. Ground 3: Claim 3 is obvious over Cho and Aaron

1. Analysis

a. Claim 3

Claim 3 is a method claim rendered obvious for the same reasons apparatus

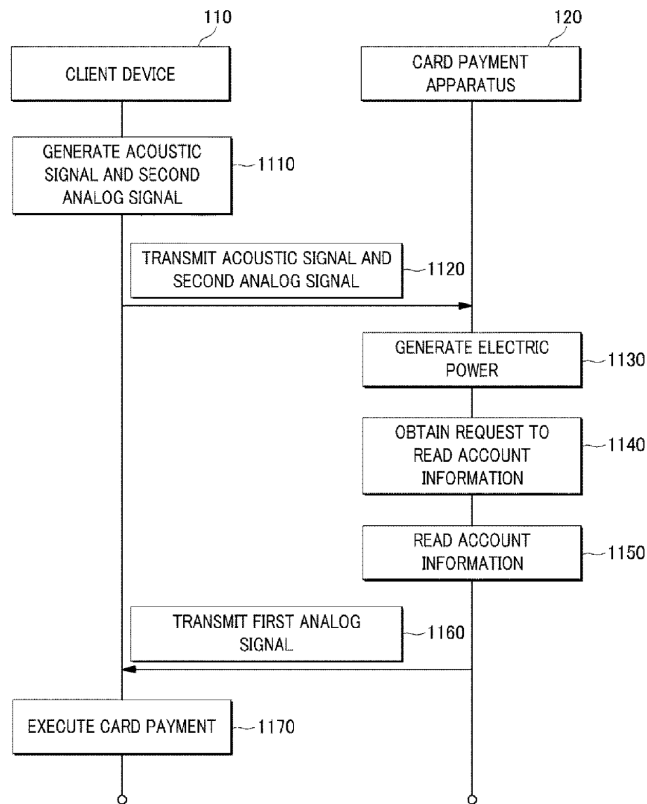
claim 1.¹³ To the extent that differences exist between claims 1 and 3, the analysis below provides additional detail explaining how Cho alone or in view of Aaron further renders obvious the method. EX1003, ¶¶171-172.

[3.0] A method comprising:

The preamble is not limiting. To the extent that it is limiting, Cho alone or in view of Aaron renders obvious *a method* as described below. EX1003, ¶173. For instance, Cho discloses the process of operations when implementing a card payment system, as shown in Fig. 11, below. EX1005, 2:42-44; 11:48-59.

¹³ Claim 3 does not contain elements corresponding to limitation [1.2] from claim 1. EX1003, ¶172. Because Carpenter is used only for the analysis of limitation [1.2], this ground does not incorporate the Carpenter reference. Cross-citations to the claim 1 analysis below only reference sections that do not cite Carpenter.

FIG. 11



EX1005, Fig. 11; EX1003, ¶173.

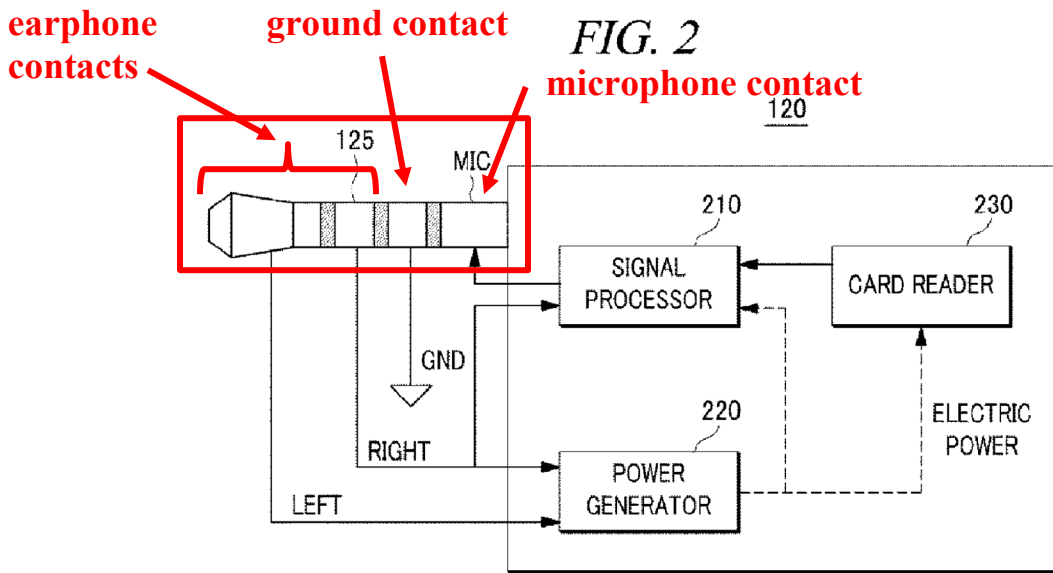
Cho and the Cho-Aaron combination explain the processes used by Cho's card payment apparatus to perform transactions. *See* Sections VI.C.1.a[3.1.1]-[3.4]. Accordingly, Cho and the Cho-Aaron combination renders obvious *a method* as described in further detail below. EX1003, ¶174.

[3.1.1] accepting transaction data from a transaction card at an input interface of a card reader having an output pin as a part of the card reader,

Cho renders obvious limitation [3.1.1]. EX1003, ¶¶175-179.

First, as discussed with respect to limitation [1.1.1], Cho discloses a card payment apparatus 120 (*a card reader*). EX1005, 3:5-7; *see* Section VI.A.6.a[1.1.1]; EX1003, ¶¶117-121. Cho’s card payment apparatus utilizes “a magnetic strip reader that is configured to read information from a magnetic strip of card 130 or an integrated circuit chip reader that is configured to read information from an integrated circuit chip of card 130.” EX1005, 4:28-32, 5:58-60, 10:10-14; *see also* EX1005, 3:20-27 (“account information which may be read from a card 130 by card payment apparatus 120”). Both the magnetic strip reader and the integrated circuit chip reader are *input interface[s]* of card reader 120 that use the magnetic strip reader or integrated circuit chip reader to read the account information (*accept[] transaction data*) from the respective interfaces of card 130 (*from a transaction card*). EX1005, 4:28-32, 5:58-60, 10:10-14; EX1003, ¶176.

Second, Cho’s card payment apparatus 120 includes audio jack 125 (*an output pin as a part of the card reader*). EX1005, 4:58-60. This is shown in further detail in Fig. 2, below:



EX1005, Fig. 2 (Annotated); EX1003, ¶177.

Accordingly, Cho's card reader apparatus 120 reads account information from card 130 (*accepting transaction data from a transaction card*) via the magnetic strip reader and the integrated circuit chip reader (*at an input interface of a card reader*), where the card reader includes audio jack 125 (*having an output pin as a part of the card reader*). EX1003, ¶178.

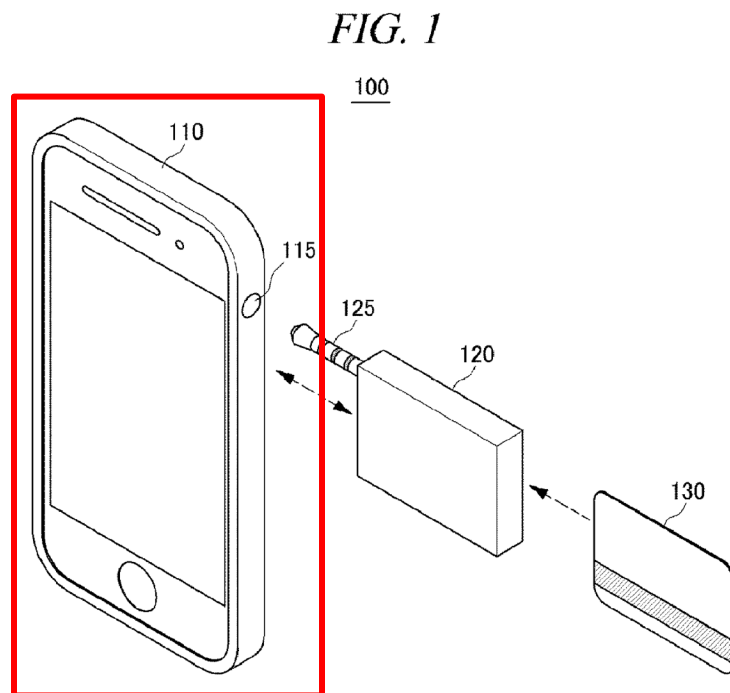
Thus, Cho renders obvious this limitation. EX1003, ¶¶175-179.

[3.1.2] the output pin directly connecting the card reader in a microphone port of a smart telephone;

Cho renders obvious limitation [3.1.2]. EX1003, ¶¶180-183.

As discussed with respect to limitation [1.1.2], Cho's card reader apparatus 120 includes audio jack 125, which "may be inserted into audio jack socket 115 that

is installed on a surface of client device 110” (e.g., *directly connecting the card reader in a microphone port of a smart telephone*). EX1005, 4:60-61; *see* Section VI.A.6.a[1.1.2]; EX1003, ¶¶122-127. This is further detailed in Fig. 1, below, which depicts client device 110 (*smart telephone*) containing audio jack socket 115 (*microphone port*):



EX1005, Fig. 1 (Annotated); EX1003, ¶181.

Accordingly, card reader apparatus 120 includes audio jack 125 (*the output pin*), which is inserted into client device 110 via audio jack socket 115 (*directly connecting the card reader in a microphone port of a smart telephone*). EX1003, ¶182.

Thus, Cho renders obvious this limitation. EX1003, ¶¶180-183.

[3.2] receiving the transaction data in the smart telephone as an analog variable voltage audio signal from the microphone port of the smart telephone;

Cho renders obvious limitation [3.2]. EX1003, ¶¶184-187.

As discussed with respect to limitation [1.1.3], Cho explains that client device 110 receives account information in the form of an analog signal. EX1005, 3:20-27 (“Client device 110 may be configured to receive, from card payment apparatus 120 via audio jack 125, a first analog signal to which a first digital signal is converted.”); EX1003, ¶¶128-132; *see* Section VI.A.6.a[1.1.3]. Client device 110 receives information from Cho’s card payment apparatus via audio jack socket 115. *See* Section VI.A.6.a[1.1.2]; *see also* EX1005, 4:60-67 (“Audio jack 125 may be inserted into audio jack socket 115 that is installed on a surface of client device 110...[and] at least one analog signal may be transmitted from card payment apparatus 120 to client device 110 via the microphone contact.”); EX1003, ¶185.

Accordingly, Cho teaches the receipt of account information by client device 110 (*receiving the transaction data in the smart telephone*) in the form of an analog signal (*as an analog variable voltage audio signal*) via audio jack 125 inserted into audio jack socket 115 (*from the microphone port of the smart telephone*). EX1003, ¶186.

Thus, Cho renders obvious this limitation. EX1003, ¶¶184-187.

[3.3] converting the analog variable voltage audio signal received at the microphone port to the transaction data as digital data;

Cho renders obvious limitation [3.3]. EX1003, ¶¶188-191.

As discussed with respect to claim 1, Cho explains the use of components such as card payment executor 1030 to implement a card payment system. EX1005, 10:46-51, Fig. 10; EX1003, ¶189. As part of the functionality of card payment executor 1030, Cho describes the conversion of “analog signal into the first digital signal that includes the account information by using any well-known analog-digital converting scheme.” EX1005, 11:35-38. The analog signal that is converted is received by transceiver 1020 from card payment apparatus 120 “via a microphone contact of audio jack 125.” EX1005, 11:27-29; EX1003, ¶189.

Accordingly, Cho teaches converting an analog signal received via the connection of audio jack 125 and audio jack socket 115 (*converting the analog variable voltage audio signal received at the microphone port*) to a digital signal (*to the transaction data as digital data*). EX1003, ¶190.

Thus, Cho renders obvious this limitation. EX1003, ¶¶188-191.

[3.4] establishing direct data exchange with an Internet-connected server providing services to a financial institution or an on-line merchant by executing coded instructions on a processor in the smart telephone; and facilitating transactions with the financial institution or purchases from the on-line merchant, using the transaction data.

Cho or the Cho-Aaron combination renders obvious limitation [3.4]. EX1003, ¶¶192-199.

First, Cho uses card payment executor 1030 to “execute a card payment based on the account information between a card payment server which is communicatively coupled to client device 110.” EX1005, 11:40-44. Cho explains that “[t]he card payment server may refer to an organization or entity that provides some type of communication service, data storage service, data or information processing service, content service, or any combination thereof to business customers or consumers,” such as “a financial service provider, a banking service provider, or a credit card service provider.” EX1005, 3:56-4:2; EX1003, ¶193.

Accordingly, Cho teaches the execution of a card payment (e.g., *facilitating transactions...or purchases*) with a server communicatively coupled to the client device (thus *establishing direct data exchange with an Internet-connected server or an on-line merchant by executing coded instructions on a processor in the smart telephone*) such as a financial service provider or credit card service provider

(*financial institution, or...on-line merchant*) using the account information (*using the transaction data*). EX1003, ¶194.

Second, to the extent the Patent Owner argues that Cho does not teach this limitation, Aaron confirms the execution of payments or transactions between a client device and a transaction server. EX1003, ¶195. As described above in Section VI.A.4, a POSITA would have been motivated to combine Cho and Aaron and would have had a reasonable expectation of success in doing so. *See* Section VI.A.4; EX1003, ¶¶106-111.

Aaron explains how a wireless payment system, such as Cho's client device 110, can communicate with a payment service system using a network. EX1006, ¶66; EX1003, ¶196. Aaron explains that a customer facing device may receive card information through a card swipe on a connected card reader, and communicate with a payment service system to submit a request for authorization of the transaction. EX1006, ¶68; EX1003, ¶196.

This request for authorization *facilitat[es] transactions by a financial institution, or purchases from an on-line merchant, using the transaction data*. EX1003, ¶197. Specifically, Aaron teaches that the payment service system includes a server to handle all “secure information such as credit card numbers, debit card numbers, bank accounts, user accounts, user identifying information or other sensitive information.” EX1006, ¶69. The server then communicates electronically

with card payment networks and banks to authorize transactions. EX1006, ¶¶68-70; EX1003, ¶197.

Accordingly, Aaron teaches communication with a payment service system to submit a request for authorization of the (e.g., *facilitating transactions...or purchases*), using account information captured via a card swipe per Cho (thus *establishing direct data exchange with an Internet-connected server or an on-line merchant by executing coded instructions on a processor in the smart telephone*), to communicate with card payment networks or banks to authorize transactions (*facilitating transactions by a financial institution, or purchases from an online-merchant, using the transaction data*). EX1003, ¶198.

Thus, Cho or the Cho-Aaron combination renders obvious this limitation. EX1003, ¶¶192-199.

D. Ground 4: Claim 4 is obvious over Cho, Aaron, and de Geer

1. Analysis

a. Claim 4

Claim 4 is a method claim rendered obvious for the same reasons as apparatus claim 2.¹⁴ EX1003, ¶¶200-201.

¹⁴ Cross-citations to the claim 2 analysis below only reference sections that do not cite Carpenter.

[4.0] The method of claim 3

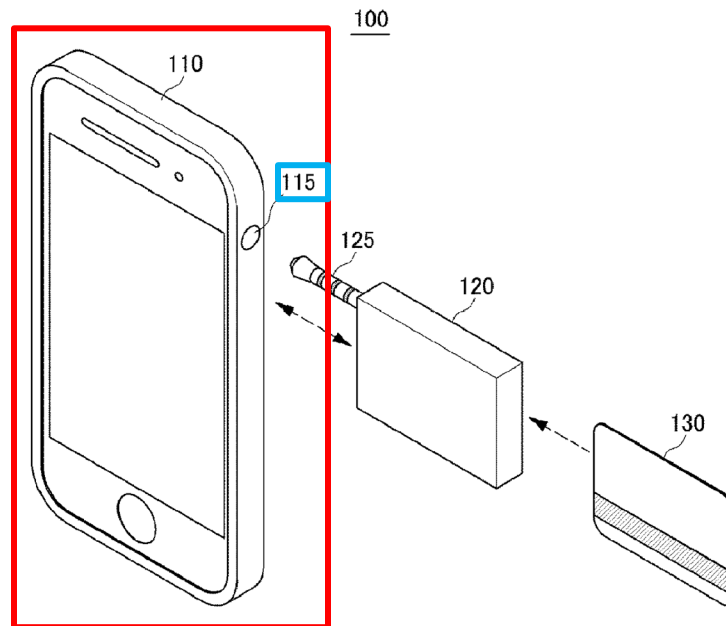
See analysis at Section VI.C.1.a; EX1003, ¶¶202, 173-199.

[4.1] wherein the coded instructions, when executed on a processor in the smart telephone, retrieve a card verification code (CVV) from the transaction data received on the microphone port,

The Cho-de Geer renders obvious *wherein the coded instructions, when executed on a processor in the smart telephone, retrieve a card verification code (CVV)*. EX1003, ¶¶203-206. See Section VI.B.3.a[2.1].

Further, Cho teaches that card information (*transaction data*) is *received on the microphone port* of Cho's smartphone 110. EX1005, 3:20-27 ("Client device 110 may be configured to receive, from card payment apparatus 120 via audio jack 125, a first analog signal to which a first digital signal is converted."). Fig. 1, below, depicts **client device 110** (*smart telephone*) containing **audio jack socket 115** (*microphone port*):

FIG. 1



EX1005, Fig. 1 (Annotated); EX1003, ¶207.

As discussed in limitation [3.2], Cho teaches the receipt of account information by client device 110 (*receiving the transaction data in the smart telephone*) in the form of an analog signal (*as an analog variable voltage audio signal*) via audio jack 125 inserted into audio jack socket 115 (*from the microphone port of the smart telephone*). EX1003, ¶209; *see* Section VI.C.1.a[3.2].

Thus, the Cho-de Geer combination renders obvious this limitation. EX1003, ¶¶203-209.

[4.2] and use the CVV in the purchases or transactions.

The Cho-de Geer combination renders obvious limitation [4.2]. EX1003, ¶¶210-212. *See* Section VI.B.3.a[2.2].

VII. DISCRETIONARY INSTITUTION

A. Discretionary Denial Under § 325(d) Would be Inappropriate

The Board should not exercise its discretion under 35 U.S.C. §325(d) to deny this Petition. None of the prior art in Grounds 1-4 above was of record or cited during examination of the '286 Patent. Thus, the first part of the *Advanced Bionics* framework is not met. *Advanced Bionics*, IPR2019-01469, Paper 6 at 8 (Feb. 13, 2020) (precedential).

B. Discretionary Denial Under § 314(a) Would be Inappropriate

First, the Board should not exercise its discretion to deny institution under the *General Plastic* framework. The '286 Patent has not been challenged in any IPR petition. None of discretionary institution factors in *General Plastic* apply to this Petition. *See General Plastic Indus. Co., Ltd. v. Canon Kabushiki Kaisha*, IPR2016-01357, Paper 19 at 16 (PTAB Sept. 6, 2016) (Section II.B.4.i. precedential).

To the extent the Board weighs factors beyond those set forth in *General Plastic*, the nature of Patent Owner's assertion campaign is relevant. As identified in Section I.B above, OHVA asserted the '286 Patent in 22 cases, including 8 cases last year. Addressing the validity of the '286 Patent could reduce the need for further

litigation costs by different entities that have been or may be targeted by OHVA in its assertion campaign.

Second, the Director’s *Fintiv* Guidance and the *Fintiv* factors weigh in favor of institution. *See Fintiv* Guidance (EX1033); *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”).

1. The *Fintiv* factors favor institution

In *Fintiv*, the Board set forth six factors guiding discretion under §314(a) by considering efficiency, fairness, and the merits in view of an earlier trial date. The *Fintiv* factors favor institution.

a. *Fintiv* factor 1 is neutral (possibility of stay)

Fintiv factor 1 is at least neutral. According to public information, Petitioner is not aware of any stay motions having been filed. Petitioner is not in communication with any district court litigant and is not aware of its plans regarding a stay. EX1009. Given that a stay motion has not yet been filed, the Board should not infer the outcome of that motion. *See Dish Network L.L.C. v. Broadband iTV, Inc.*, IPR2020-01359, Paper 15 at 11 (PTAB Feb. 15, 2021) (“improper to speculate” what district court “might do regarding a motion to stay when a stay had not yet been requested). Without “specific evidence” of how the court would rule on any stay motion, this factor is neutral. *Sand Revolution II, LLC v. Cont’l Intermodal Grp.—Trucking LLC*, IPR2019-01393, Paper 24 at 7 (PTAB June 16, 2020) (informative).

b. *Fintiv* factor 2 is neutral (proximity of trial date to final written decision).

Fintiv factor 2 weighs in favor of institution. The Board would issue a final written decision in this proceeding by approximately November 2024. The median time to trial for the Western District of Texas (WDTX) is 28.2 months. EX1034, 37 (listing the median times to trial in the 12-month period ending March 31, 2023). No case currently has scheduled a trial date (or released a scheduling order of any kind). Even if a trial would be scheduled, based on median times-to-trial, the earliest pending case in Section I.B would go to trial by approximately August 2024, near the time that the Board would issue a final written decision in this proceeding. Thus, *Fintiv* factor 2 is neutral.

c. *Fintiv* factor 3 favors institution (investment in parallel proceedings).

Fintiv factor 3 favors institution. The parallel litigations are all at an early stage. There has been minimal investment to date. As noted above for factor 2, no scheduling order has been issued for any parallel litigation, according to publicly available information. While the parties and the district court will have made some investment in the parallel litigations, there will be minimal investment in the validity issues before the Board issues an institution decision. Thus, *Fintiv* factor 3 favors institution.

d. *Fintiv* Factor 4 favors institution (overlap in issues).

According to public information, Patent Owner has asserted claim 1 in the parallel litigations. However, any degree of overlap between this proceeding and the parallel litigations is unknown because Petitioner is not a party to any of the parallel litigations and thus has no knowledge of the infringement or invalidity contentions in those proceedings. Petitioner has not communicated with any of the district court defendants about their litigation strategies (EX1009), and thus has not coordinated with any district court litigant about their invalidity defenses. Petitioner is challenging all claims of the '286 Patent, including three claims not asserted in the parallel litigations. If Patent Owner argues in favor of discretionary denial based on any overlap between this proceeding and the parallel litigations, Patent Owner should make invalidity contentions in the parallel litigations of record to allow Petitioner and the Board to address the degree of overlap.

e. *Fintiv* factor 5 weighs in favor of institution (overlap of parties)

Fintiv factor 5 weighs heavily in favor of institution. Petitioner is not a defendant in any of the parallel litigations, and is not a real party-in-interest, or in privity with any of the district court defendants. *See Fintiv*, Paper 11 at 13-14 (“If a petitioner is unrelated to a defendant in an earlier court proceeding, the Board has weighed this fact against exercising discretion to deny institution under *NHK*.”).

f. *Fintiv* factor 6 favors institution (other circumstances, including merits).

Fintiv factor 6 weighs strongly in favor of institution. The merits of the Petition are extremely strong. *Fintiv*, Paper 11 at 14-15 (“[I]f the merits of a ground raised in the petition seem particularly strong on the preliminary record, this fact has favored institution.”). Even if the Board determines that *Fintiv* factors 1-5 favor a discretionary denial—which they do not—the Director’s *Fintiv* Guidance strongly supports institution of this challenge. See *CommScope Technologies LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 at 4-5 (PTAB Feb. 27, 2023) (precedential). Under the *Fintiv* Guidance, the Board “will not deny institution of an IPR or PGR under *Fintiv* [] when a petition presents compelling evidence of unpatentability.” EX1033, 9.

The Board should not deny institution under the *Fintiv* Guidance because this Petition “plainly lead[s] to a conclusion that one or more claims are unpatentable” because it is “highly likely...[to] prevail with respect to at least one challenged claim. *CommScope*, Paper 23 at 4 (citing *OpenSky Indus., LLC v. CLSI Tech. LLC*, IPR2021-01064, Paper 102, 49-50 (PPTAB Oct. 4, 2022) (precedential) (internal quotations omitted)); see EX1033, 4 (“Compelling, meritorious challenges are those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.”). As

shown above, the Petition demonstrates that the '286 Patent is entitled only to its March 3, 2015, filing date as its priority date. *See* Section IV.D. The Petition also demonstrates that the features identified by the Examiner in the Notice of Allowance—i.e., limitations [1.1.1]-[1.1.2]—as well as each of the other features of the '286 Patent are obvious in view of Cho, Aaron, and Carpenter. *See* EX1002, 36; Sections VI.A.6.a[1.1.1]-[1.1.2].

Further, Patent Owner is a litigious entity and serial filer of infringement suits. Since 2018 Patent Owner has brought twenty-two (22) infringement actions in multiple U.S. District Courts. The Board should not deny this meritorious challenge to the '286 Patent, only to permit Patent Owner to continue to assert invalid claims of the '286 Patent against the current defendants and any additional defendants Patent Owner may target in its assertion campaign. Reaching a determination as to the unpatentability of the challenged claims would be in the interest of efficiency and patent quality.

VIII. CONCLUSION

Petitioner asks that the Patent Office order an IPR trial for claims 1-4 and cancel these claims as unpatentable.

Respectfully submitted,

Dated: May 18, 2023
HAYNES AND BOONE, LLP
2323 Victory Avenue, Suite 700
Dallas, TX 75219
Customer No. 27683

/Jonathan R. Bowser/
Jonathan R. Bowser
Counsel for Petitioner
Reg. No. 54,574

IX. CERTIFICATE OF WORD COUNT

Under 37 C.F.R. § 42.24, the undersigned attorney for the Petitioner, Askeladden, L.L.C., declares that the argument section of this Petition (Sections II-VIII) has 13,969 words, according to the word count tool in Microsoft Word™.

/Jonathan R. Bowser/

Jonathan R. Bowser
Counsel for Petitioner
Reg. No. 54,574

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Askeladden, L.L.C.	§	Petition for <i>Inter Partes</i> Review
Petitioner	§	
	§	U.S. Patent No. 9,679,286
	§	
	§	

CERTIFICATE OF SERVICE

The undersigned certifies, under 37 C.F.R. §§ 42.105 and 42.6, that service was made on the Patent Owner as detailed below.

Date of service May 18, 2023

Manner of service Priority Mail Express

Documents served Petition for *Inter Partes* Review, including Exhibit List; Exhibits 1001 through 1039 and Petitioner's Power of Attorney

Persons served Central Coast Patent Agency, LLC
P.O. Box 796
Aromas, CA 95004

A courtesy copy of the Petition including Exhibit List; Exhibits 1001 through 1039 and Petitioner's Power of Attorney has been served on Patent Owner's litigation counsel by FedEx:

Isaac Rabicoff
Rabicoff Law LLC
5680 King Centre Dr, Suite 645
Alexandria, VA 22315

/Jonathan R. Bowser/
Jonathan R. Bowser
Counsel for Petitioner
Reg. No. 54,574