

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.
Petitioner

v.

G. HOLDINGS LTD.
Patent Owner

U.S. Patent No. 7,628,333

**PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 7,628,333**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	MANDATORY NOTICES UNDER 37 C.F.R. § 42.8.....	1
	A. Real Party-in-Interest	1
	B. Related Matters.....	1
	C. Counsel and Service Information.....	1
III.	PAYMENT OF FEES	2
IV.	GROUND FOR STANDING.....	2
V.	PRECISE RELIEF REQUESTED AND GROUNDS RAISED.....	2
VI.	LEVEL OF ORDINARY SKILL IN THE ART	3
VII.	OVERVIEW OF THE '333 PATENT	4
VIII.	CLAIM CONSTRUCTION	7
	A. “invariable activation command” (Independent Claims 1 and 11).....	8
	B. “a data conveyance switching element” (Independent Claim 1) & “switching element” (Independent Claim 11).....	8
	C. “external data exchange device” (Independent Claims 1 and 11).....	10
IX.	DETAILED EXPLANATION OF UNPATENTABILITY	11
	A. Ground 1 – Palmer in view of Rowe renders Claims 1–2, 4–5, and 11 obvious.....	11
	1. Claim 1	11
	2. Claim 2	34
	3. Claim 4.....	35
	4. Claim 5	35
	5. Claim 11	36
	B. Ground 2 – Palmer in view of Rowe and Teicher renders Claim 6 obvious	39
	1. Claim 6.....	39
	C. Ground 3 – Palmer in view of Rowe and Rolf renders Claim 13 obvious	41

1.	Claim 13.....	41
D.	Ground 4 – Rowe renders Claims 1–2, 4–5, and 11 obvious	43
1.	Claim 1	43
2.	Claim 2.....	64
3.	Claim 4.....	64
4.	Claim 5.....	64
5.	Claim 11.....	65
E.	Ground 5 – Rowe in view of Teicher renders Claim 6 obvious	67
1.	Claim 6.....	67
F.	Ground 6 –Rowe and Rolf renders Claim 13 obvious	68
1.	Claim 13.....	68
X.	DISCRETIONARY DENIAL IS NOT APPROPRIATE	71
A.	The Prior Art Relied on Herein Is Not the Same or Substantially Similar to Any Art the Examiner Considered.....	71
B.	The Related Litigation Provides No Basis For Discretionary Denial	71
XI.	CONCLUSION.....	75

EXHIBITS

No.	Description
Ex. 1001	U.S. Patent No. 7,628,333
Ex. 1002	Declaration of Dr. Turnbull
Ex. 1003	CV of Dr. Turnbull
Ex. 1004	Prosecution History of U.S. Patent No. 7,628,333 (U.S. Patent Application No. 10/552,912)
Ex. 1005	US. Patent Application Publication No. 2003/0226041 (“Palmer”)
Ex. 1006	US. Patent Application Publication No. 2004/0050930 (“Rowe”)
Ex. 1007	U.S. Patent No. 6,257,486 (“Teicher”)
Ex. 1008	U.S. Patent No. 5,777,903
Ex. 1009	U.S. Patent No. 7,376,583 (“Rolf”)
Ex. 1010	RESERVED
Ex. 1011	RESERVED
Ex. 1012	RESERVED
Ex. 1013	RESERVED
Ex. 1014	Plaintiff G. Holdings Ltd.’s Infringement Contentions, <i>G. Holdings Ltd. v. Samsung Electronics Co., Ltd. et al.</i> , No. 2:20-cv-00342-JRG (E.D. Tex.)
Ex. 1015	RESERVED
Ex. 1016	RESERVED
Ex. 1017	Random House Webster’s Unabridged Dictionary (2 nd Ed.)(2001)
Ex. 1018	Plaintiff G. Holdings Ltd.’s Opening Claim Construction Brief, <i>G. Holdings Ltd. v. Samsung Electronics Co., Ltd. et al.</i> , No. 2:20-cv-00342-JRG (E.D. Tex.)

I. INTRODUCTION

Samsung Electronics Co., Ltd. (“Petitioner”) requests *inter partes* review of claims 1–2, 4–6, 11, and 13 (“the challenged claims”) of U.S. Patent No. 7,628,333 (“the ’333 Patent,” Ex. 1001). According to PTO records, the ’333 Patent is assigned to G. Holdings Ltd. (“PO”). For the reasons set forth below, the challenged claims should be found unpatentable and canceled.

II. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8

A. Real Party-in-Interest

Petitioner identifies the following as the real parties-in-interest: Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc.

B. Related Matters

The ’333 Patent is at issue in the *G. Holdings Ltd. v. Samsung Electronics Co. Ltd., et al.*, Case No. 2:20-cv-00342 (E.D. Tex.). Patent Owner has asserted the ’333 Patent in that litigation. The ’333 Patent is related to U.S. Patent No. 9,022,294 (“the ’294 Patent”). Petitioner is concurrently filing an IPR petition challenging certain claims of the ’294 Patent.

C. Counsel and Service Information

Lead Counsel: Naveen Modi (Reg. No. 46,224). Backup Counsel: Chetan Bansal (Limited Recognition No. L0667), David Valente (Reg. No. 76,287). Service Information: Paul Hastings LLP, 2050 M Street, N.W., Washington, DC 20036. Tel:

(202) 551-1700. Fax: (202) 551-1705. E-mail: PH-Samsung-GHoldings-IPR@paulhastings.com. Petitioner consents to electronic service.

III. PAYMENT OF FEES

The PTO is authorized to charge any fees due during this proceeding to Deposit Account No. 50-2613.

IV. GROUNDS FOR STANDING

Petitioner certifies that the '333 Patent is available for IPR, and that Petitioner is not barred or estopped from requesting IPR on the grounds identified below.

V. PRECISE RELIEF REQUESTED AND GROUNDS RAISED

Claims 1–2, 4–6, 11, and 13 of the '333 Patent should be cancelled as unpatentable based on the following grounds:

Ground 1: Claims 1–2, 4–5, and 11 are each rendered obvious under pre-AIA 35 U.S.C. § 103 by U.S. Patent Application Publication No. 2003/0226041 (“Palmer”) in view of U.S. Patent Application Publication No. 2004/0050930 (“Rowe”).

Ground 2: Claim 6 is rendered obvious under pre-AIA 35 U.S.C. § 103 by Palmer in view of Rowe and U.S. Patent No. 6,257,486 (“Teicher”).

Ground 3: Claim 13 is rendered obvious under pre-AIA 35 U.S.C. § 103 by Palmer in view of Rowe and U.S. Patent No. 7,376,583 (“Rolf”).

Ground 4: Claims 1–2, 4–5, and 11 are each rendered obvious under pre-AIA 35 U.S.C. § 103 by Rowe.

Ground 5: Claim 6 is rendered obvious under pre-AIA 35 U.S.C. § 103 by Rowe in view of Teicher.

Ground 6: Claim 13 is rendered obvious under pre-AIA 35 U.S.C. § 103 by Rowe in view of Rolf.

The '333 Patent issued from U.S. Patent Application No. 10/552,912 (Ex. 1004), which claims priority to PCT Application No. PCT/IB03/01523, filed on April 14, 2003. Palmer (Ex. 1005) was filed on March 27, 2003 and qualifies as prior art under pre-AIA 35 U.S.C. § 102(e). Rowe (Ex. 1006) was filed on September 17, 2002 and qualifies as prior art under pre-AIA 35 U.S.C. § 102(e). Teicher (Ex. 1007) issued July 10, 2001 and qualifies as prior art under pre-AIA 35 U.S.C. § 102(a). Rolf (Ex. 1009) was filed on August 10, 2000 and qualifies as prior art under pre-AIA 35 U.S.C. § 102(e).

VI. LEVEL OF ORDINARY SKILL IN THE ART

A person of ordinary skill in the art at the time of the alleged invention of the '333 Patent (“POSITA”) would have had a degree a bachelor’s degree in Computer Engineering, Computer Science, Information Systems, or in a similar discipline, and

knowledge of payment systems implemented in software. (Ex. 1002, ¶25.)¹ More education can substitute for practical experience and vice versa. (*Id.*)

VII. OVERVIEW OF THE '333 PATENT

The '333 Patent relates to “a portable electronic device capable of alternate data conveyance operations responsive to an invariable activation command.” (Ex. 1001, 1:9–11; Ex. 1002, ¶32.) One such “portable electronic device” 10 is set forth with respect to Figure 1. The portable electronic device 10 has a “control device 12, an electronic circuit 14, a display screen 16, a transceiver 18 and power means 20.” (Ex. 1001, 4:19-23.)

¹ Petitioner submits the testimony of Dr. Turnbull (Ex. 1002, ¶¶1-138), an expert in the field of the '333 Patent. (*Id.*, ¶¶4-21; Ex. 1003.)

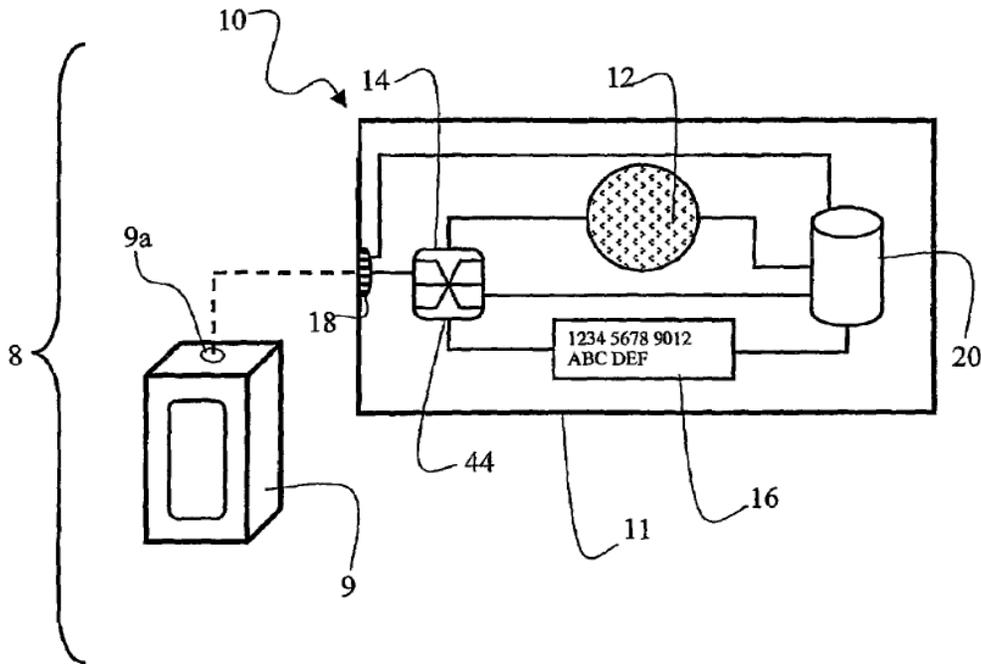


Fig. 1

(*Id.*, FIG. 1.)

The “control device 12” may be, for example, a “single manually activated button” or “a biometric parameter detector” (e.g., a fingerprint scanner), the pressing of which results in the issuance of an activation command. (*Id.*, 5:5–12.) The activation command in turn results in one of two data conveyance operations (display of certain information on the display screen 16 or exchange of data with an external device 9) **depending on** whether an “activation cue was received by the portable electronic device 10.” (*Id.*, 7:4-14.) This operation is discussed in further detail below.

The portable electronic device 10 has a “switching element 44b,” which may be implemented as software, hardware, or a combination of both. (*Id.*, 6:9-17, FIG. 2.) The switching element defaults to an “inactive state.” (*Id.*, 6:25.) It only enters an activated state when the portable electronic device 10 receives an “activation cue” from an external source. (*Id.*, 6:18–24, 6:59–61.)

If the switching element is in an activated state at the time the control device is triggered (because an activation cue has previously been received), then “a data exchange will be initiated between portable electronic device 10 and the external data exchange device 9.” (*Id.*, 6:61–65.) In contrast, if the switching element is in its default inactive state when the control device is triggered, then “data will be forwarded from electronic circuit 14 to user interface device 16, for communicating information to the portable electronic device holder.” (*Id.*, 6:54–58.)

An example application for “portable electronic device 10” is its use as a “quick payment means,” such as “a payment card with pre-stored electronic money thereon.” (*Id.*, 7:55-8:41.) When the device 10 holder approaches an external data exchange device (e.g., debit machine 10) and gets within a certain proximity of that machine, the device 10 receives an “activation cue.” (*Id.*, 7:64-8:5.) If the user then triggers the “control device 12,” “a data exchange in the form of an electronic money transaction would occur between the payment card 10 and the debit machine 9.” (*Id.*) “If, on the other hand, control device 12 is triggered” when the activation cue

has not been received from an external device, “then data from electronic circuit 14 will be sent to display screen 16 to display the total amount of electronic money remaining in” the device 10. (*Id.*, 8:24-41.)

VIII. CLAIM CONSTRUCTION

For IPR proceedings, the Board applies the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 83 Fed. Reg. 51,340–59 (Oct. 11, 2018). Under *Phillips*, claim terms are typically given their ordinary and customary meanings, as would have been understood by a POSITA, at the time of the invention. *Phillips*, 415 F.3d at 1313; *see also id.*, 1312–16. The Board, however, only construes the claims when necessary to resolve the underlying controversy. *Toyota Motor Corp. v. Cellport Systems, Inc.*, IPR2015-00633, Paper No. 11 at 16 (Aug. 14, 2015) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)). Petitioner offers constructions for certain claim terms consistent with the requirements of 37 C.F.R. § 42.104(b)(3).²

² Petitioner reserves all rights to raise claim construction and other arguments in district court as relevant and necessary to those proceedings. For example, a comparison of the claims to any accused products may raise controversies that need to be resolved through claim construction that is not necessary here given the similarities between the references and the ’333 Patent.

A. “invariable activation command” (Independent Claims 1 and 11)

Both independent claims 1 and 11 recite an “invariable activation command.” (Ex. 1001, 9:65, 12:8.) The claims recite that the issuance of this command initiates one of two alternate data conveyance operations. (*Id.*, 10:17-26, 12:11-17.) The specification also describes the same function associated with the “invariable activation command.” (*Id.*, 6:42-51.) Therefore, the “invariable activation command” should be construed as “a command initiating one of two alternate data conveyance operations.” (Ex. 1002, ¶46.) *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citation omitted). The above construction is also consistent with Patent Owner’s infringement contentions that a “command to initiate a transaction” is an “invariable activation command.” (Ex. 1014, 32.)

B. “a data conveyance switching element” (Independent Claim 1) & “switching element” (Independent Claim 11)

Independent claim 1 recites “a data conveyance switching element operatively linked to said electronic circuit, said switching element being in an activated state upon an activation cue having been received by said data transceiver, and being in an inactive state when no activation cue was received by said data transceiver,” and claim 11 recites “a switching element operatively linked to said electronic circuit and being in a default inactive state, . . . if an activation cue is received at one of said communication ports, changing the state of said switching element from its default

inactive state to an activated state.” (Ex. 1001, 10:9-14, 11:28-12:7.) For instance, both claims recite that the “switching element” performs the function of switching between two states based on whether an activation cue is received. (Ex. 1001, 10:9-14, 12:5-7.) But no “sufficiently definite structure” is recited for performing this function; indeed, “switching element” or “data conveyance switching element” are merely “nonce” terms. (Ex. 1002, ¶47.) *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1350 (Fed. Cir. 2015) (holding that “element” is a “nonce” word). Thus, the claim terms are governed by 35 U.S.C. § 112, ¶ 6 because they recite a function without “sufficiently definite structure” for performing the function. *MTD Prod. Inc. v. Iancu*, 933 F.3d 1336, 1341 (Fed. Cir. 2019) (citing *Williamson*, 792 F.3d at 1350). In computer-implemented inventions, such as the one here, the corresponding structure in the specification is an algorithm for carrying out the claimed function. *Aristocrat Techs. Australia Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008).

However, no such algorithm is disclosed in the specification; instead, only the function is disclosed. (Ex. 1002, ¶48; *see, e.g.*, Ex. 1001, 6:18-26.) In place of an algorithm, the specification merely discloses that the “switching element” can be, for example, a “decisional logic circuit” or a “series of instructions programmed onto the microchip.” (Ex. 1001, 6:4-17.) Patent Owner has argued in district court that the claim terms are not governed by § 112, ¶ 6 but to the extent they are, the

corresponding structure is “hardware connected to and/or software running on an electronic circuit.” (Ex. 1018 at 12.) To the extent the Board finds that the specification discloses sufficient structure for the claimed “switching element” and “data conveyance switching element,” and that structure is a “decisional logical circuit or a series of instructions programmed onto a microchip or a processor/general purpose computer/microcontroller,” the prior art discloses the structure and the function. (*See infra* Section IX.³) Patent Owner’s identified structure is subsumed within decisional logical circuit or a series of instructions programmed onto a microchip or a processor/general purpose computer/microcontroller” and therefore, disclosed by the prior art. (*See infra* Section IX.)

C. “external data exchange device” (Independent Claims 1 and 11)

Both independent claims 1 and 11 recite an “external data exchange device.” Petitioner believes that the claim term is governed by § 112, ¶ 6; the corresponding

³ Alternatively, in district court, Petitioner has proposed “switching element” can be construed as an “element that changes between two alternate data conveyance states” and “data conveyance switching element” can be construed as an “element that changes between two alternate data conveyance states.” Again, the prior art discloses the claim term under this interpretation. (*See infra* Section IX.)

function is exchanging data (Ex. 1001, 10:3-8, 10:19-22, 12:11-13) and the corresponding structure in the specification is “an electronic circuit and a data transceiver able to cooperate with a transceiver, including a portable electronic device, a computer, and an interface machine such as an automatic teller machine.” (Ex. 1002, ¶49; Ex. 1001, 5:47-54.⁴) Patent Owner disagrees that the claim term is governed by § 112, ¶ 6 but contends that if it is, the structure is an “external data exchange device” and function is “communicates with the portable electronic device and provide data upload and/or download.” (Ex. 1018 at 17.) Regardless of the construction, the prior art discloses the claimed feature. (*See infra* Section IX.)

IX. DETAILED EXPLANATION OF UNPATENTABILITY

A. Ground 1 – Palmer in view of Rowe renders Claims 1–2, 4–5, and 11 obvious

1. Claim 1

Preamble: “A portable electronic device, comprising:”

To the extent the preamble is limiting, Palmer discloses this feature. (Ex. 1002, ¶51.) Palmer discloses a portable electronic device 400 in Figure 4:

⁴ Petitioner alternatively proposed that “data exchange device” can be interpreted as “an apparatus that sends and receives data.” (Ex. 1002, ¶49 (citing Random House Webster’s Unabridged Dictionary (2nd Ed.)(2001) at 675).) Again, the prior art discloses the claim term under this interpretation. (*See infra* Section IX.)

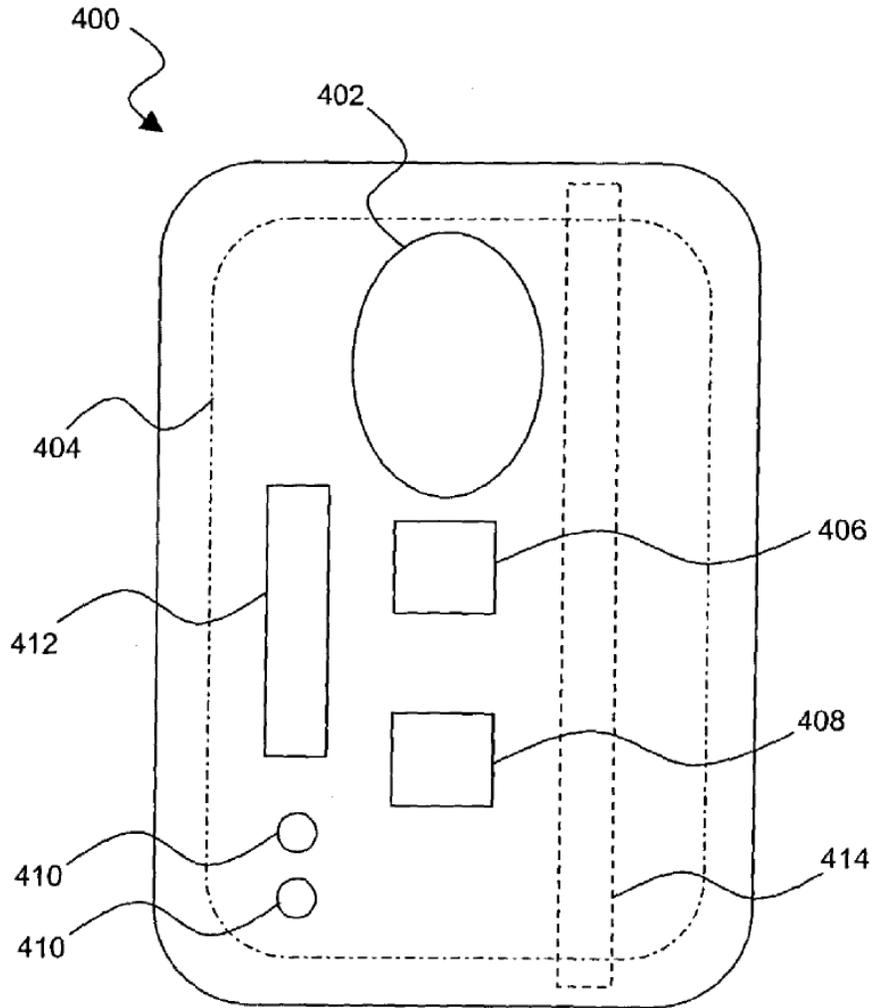


Fig. 4

(Ex. 1005, FIG. 4, ¶[0030] (“[A] device 400 illustrates an implementation of the disclosure using a form factor similar to that of a credit card.”).) Palmer teaches that “device 400 includes a plurality of components, such as a fingerprint sensor 402, a RF antenna 404, a first controller 406, a second controller 408, function selector

buttons 410, an electro-luminescent display 412, and a magnetic strip 414.” (*Id.*, ¶[0030].)

a. “an electronic circuit capable of storing data therein, capable of processing data, and capable of data input and output;”

Palmer discloses this limitation. (Ex. 1002, ¶¶52-54.) For example, device 400 includes a “first controller 406” that is “an application specific integrated circuit (‘ASIC’) chip.” (Ex. 1005, ¶[0030].) Palmer further discloses a “second controller 408” in device 400 that is “a smart card chip.” (*Id.*) Palmer explains that the functionality of the two controllers may alternatively be provided by a single controller. (*Id.*) ASIC 406 and smart card chip 408 together (or combined into a single controller) constitute an “electronic circuit.” (Ex. 1002, ¶52.)

The above-identified “electronic circuit” in Palmer is capable of processing and storing data, including data input and output. (Ex. 1002, ¶53.) For example, ASIC 406 contains “a microprocessor core with dedicated program and temporary memory” that enables ASIC 406 to execute instructions stored within it. (Ex. 1005, ¶[0032].) The instructions allow ASIC 406 to “perform a comparison between the current fingerprint analog and a template fingerprint analog” and send an “authorization signal” to smart card chip 408 “after an authentication process has been completed.” “ASIC 406 may be used to drive . . . display 412, read the function control buttons 410, and drive the programmable magnetic strip 414.” (*Id.*)

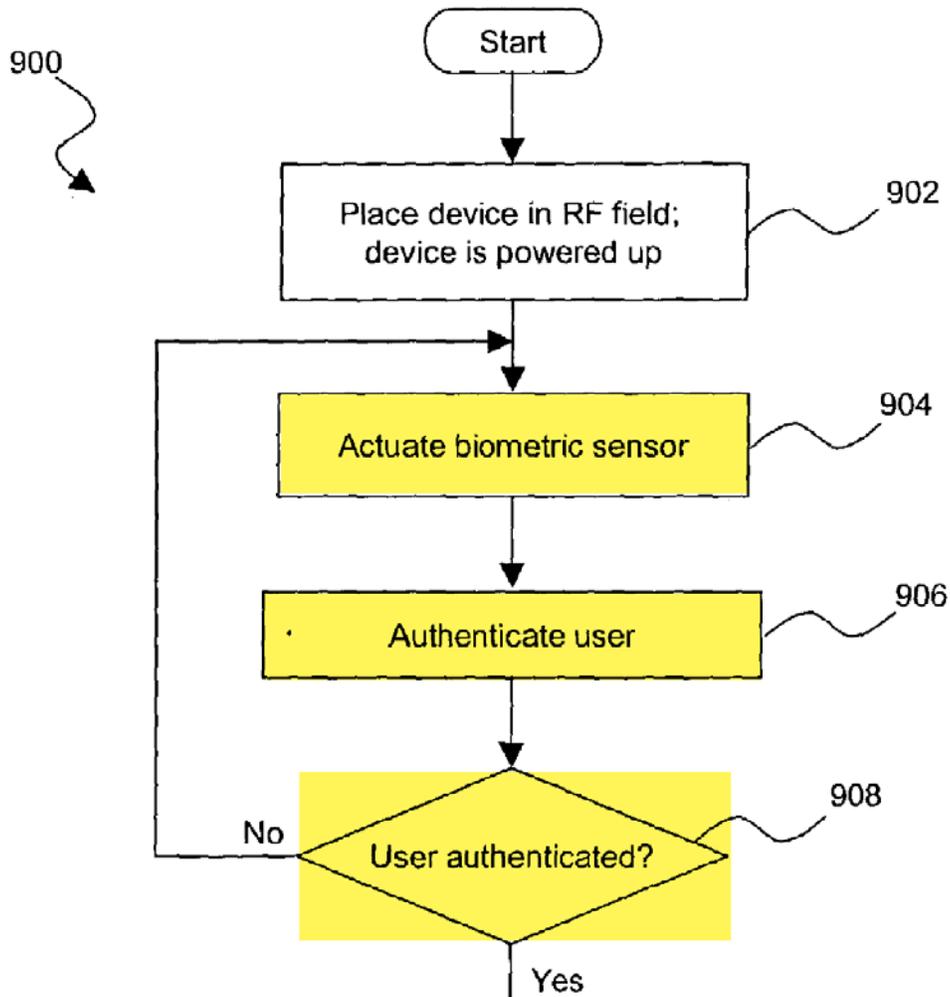
ASIC 406 also includes “Random Access Memory (‘RAM’)” for temporary storage and “non-volatile memory (e.g., Flash memory or EEPROM)” for long-term storage. (*Id.*, ¶[0031].) Furthermore, smart card chip 408 may support various application programs. (*Id.*, ¶[0033].) Examples of those application programs include “electronic purse” functionality, financial transactions, and the storage and retrieval of information. (*Id.*) Palmer further discloses that smart card chip 408 “may support two-way communication data transfers and may perform various encryption function to support secure communications.” (*Id.*)

b. “a control device operatively linked to said electronic circuit, with an invariable activation command being issued when said control device is selectively triggered;”

Palmer discloses this limitation. (Ex. 1002, ¶[55-59].) For example, Palmer discloses that device 400 has a fingerprint sensor 402 (“control device”). (Ex. 1005, ¶[0034].) Palmer teaches that fingerprint sensor 402 is operatively linked to ASIC 406. (*Id.*, ¶[0032] (“Circuitry contained within the ASIC 406 provides an interface between the ASIC 406 and the fingerprint sensor 402.”); *supra* Section IX.A.1(a) (ASIC 406 is part of the “electronic circuit”).)

Selective triggering of fingerprint sensor 402 causes the issuance of an “invariable activation command.” (Ex. 1002, ¶[56].) Palmer discloses that ASIC 406 captures and uses the points detected by the fingerprint sensor 402 “to determine whether the detected fingerprint analog matches a fingerprint template analog that is

stored in memory.” (Ex. 1005, ¶[0034].) This matching of the input fingerprint against a reference fingerprint constitutes a “selective triggering” of fingerprint 402 in the context of the claims. (See, Ex. 1001, claim 5 (“said control device is triggered when the fingerprint scan matches a fingerprint image pre-saved in said electronic circuit”).) An “authorization signal” is sent to the smart chip card 408 when this authentication process succeeds. (Ex. 1005, ¶[0032].) Palmer discloses this process in steps 904, 906, and 908 of Figure 9:



(*Id.*, FIG. 9 (annotated excerpt); Ex. 1002, ¶56.) Palmer teaches that in step 904 “a user places one of his fingers onto the fingerprint sensor 402,” which “captures an analog of the fingerprint and passes the analog to the ASIC 406.” (*Id.*, ¶[0050].) In step 906, “an authentication process is performed by comparing the captured fingerprint analog to one or more template fingerprint analogs stored in memory.” (Ex. 1005, ¶[0051].) In step 908 “a determination is made as to whether the user is authenticated (e.g., whether the captured fingerprint analog matches a stored template fingerprint analog).” (*Id.*) If the user is authenticated, ASIC 406 sends an authorization signal to smart card chip 408, which is shown by the “Yes” route underneath step 908. (*Id.*) The “Yes” signal is a command to initiate a transaction with the external device. (*Id.*, FIG. 9 (steps 910, 912).⁵) Palmer’s disclosure of fingerprint sensor 402 sending an authorization signal in response to the matching of the user’s fingerprint to a stored template constitutes issuance of an invariable activation command upon selective triggering of a control device (i.e., fingerprint sensor 402). (Ex. 1002, ¶57; *supra* Section VIII.A.) The authorization signal results in a data conveyance operation (steps 910 and 912) and the same authorization results in another data conveyance operation (*see infra* Section IX.A.1(h) (discussing

⁵ Per Patent Owner’s infringement contentions, “command to initiate a transaction” is an “invariable activation command.” (Ex. 1014, 32.)

the Palmer-Rowe combination in which the authorization signal triggers information display on the smart card's display).)

It should be noted that the claims do not require that the *control device* issue the activation command. (Ex. 1002, ¶58.) Instead, the claims merely require that the triggering of the control device results in an activation command; which entity issues the command is not specified. (*Id.*) For instance, claim 5, which depends from claims 1 and 4, recites that the control device is a “fingerprint scanner.” Claim 5 further specifies that the fingerprint scanner is not considered to be triggered until a fingerprint comparison by the “electronic circuit” with a pre-saved image is successful. This means that the fingerprint scanner would provide the user's fingerprint to the “electronic circuit,” which would compare the fingerprint to the pre-saved image, and it is the “electronic circuit” that would issue the activation command because claim 1 specifies that the issuance of the invariable activation command occurs upon “said control device being selectively triggered.” (*Id.*) Thus, a POSITA would have understood that the claims are worded broadly such that the “control device” need not issue the invariable activation command. (*Id.*)

To the extent Patent Owner maintains that the control device must issue the invariable activation command, Palmer still discloses such a feature. (Ex. 1002, ¶59.) The contours of the term “control device” is not defined by the claim (or even the specification) and involves nothing more than a box-drawing exercise. (*Id.*)

Thus, Palmer’s fingerprint sensor 402 *in combination* with the instructions on the ASIC 406 that perform the fingerprint matching in step 908 could be considered the “control device.” (*Id.*) This combination, as disclosed by Palmer, issues a command (the “YES” signal) to initiate a transaction upon verifying the user’s fingerprint. (*Id.*)

c. “a user interface device operatively linked to said electronic circuit;”

Palmer discloses this limitation. (Ex. 1002, ¶60.) For example, Palmer discloses that device 400 includes “an electro-luminescent display 412.” (Ex. 1005, ¶[0030].) Palmer teaches that ASIC 406 “may be used to drive” electro-luminescent display 412.” (*Id.*, ¶[0032].) Palmer further explains that electro-luminescent display 412 “provides the capability to display information to a user of the device 400.” (*Id.*, ¶[0044].) Such information may include a credit card number, a balance of an “electronic purse,” or similar information. (*Id.*)

d. “a data transceiver operatively linked to said electronic circuit, said data transceiver being for exchanging data between said electronic circuit and an external data exchange device, and for receiving a selectively emitted activation cue from a source external to said portable electronic device;”

Palmer discloses this limitation. (Ex. 1002, ¶¶61-65.) For example, device 400 includes an RF antenna 404 (“data transceiver”) that “support[s] two-way communication with an associated reader/writer device.” (Ex. 1005, ¶[0030], ¶[0043].) The RF antenna 404 is operatively linked with smart chip 408 because smart chip 408 “support[s] two-way communication data transfers.” (*Id.*, ¶[0033];

see also id., ¶[0025] (“Furthermore, the controller 106 may support two-way communications with an associated reader/writer device (FIG. 2) via the RF antenna 104.”); *supra* Section IX.A.1(a) (smart chip 408 is part of the “electronic circuit”).) A POSITA would have understood that such linkage between smart chip 408, ASIC 406, and RF antenna 404 is necessary for the smart card 400 to perform its functions and be able to communicate with external devices. (Ex. 1002, ¶61.)

The “reader/writer device” disclosed by Palmer constitutes an “external data exchange device” with which device 400 exchanges data via RF antenna 404. (Ex. 1002, ¶62.⁶) Figure 2 of Palmer shows the relationship between device 400 and the reader/writer device:

⁶ The reader/writer device 202 is a “data exchange device.” (Ex. 1002, ¶63; *supra* Section VIII.C.) The reader/writer device 202 has a two-way communication link with the smart card 100 (Ex. 1005, ¶[0027]) and therefore, is an apparatus that both sends and receives data. (Ex. 1002, ¶63.) The antenna of the reader/writer device 202 constitutes a “data transceiver” that communicates with the corresponding transceiver in the smart card. (Ex. 1005, ¶¶[0027]-[0029].) Furthermore, a POSITA would have understood that the reader/writer device 202 includes an “electronic circuit” (e.g., a processor) that processes the data received from and transmitted to

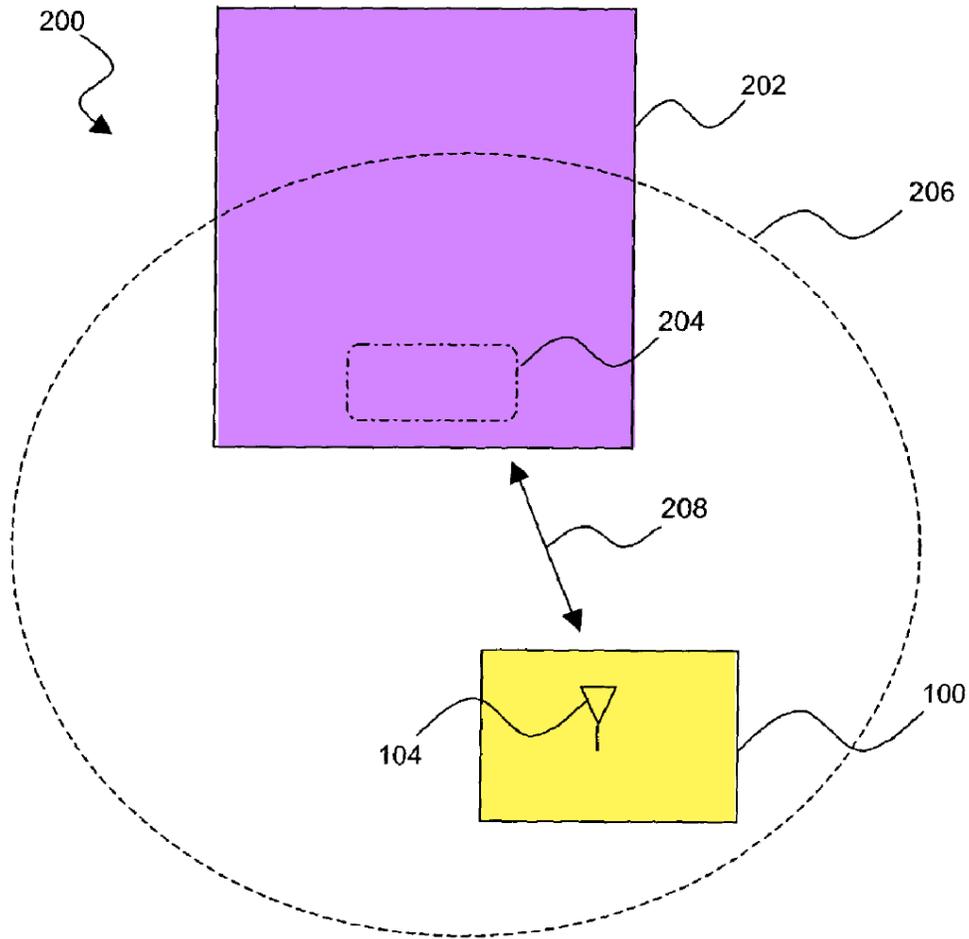


Fig. 2

(Ex. 1005, FIG. 2 (annotated), ¶[0027].) Figure 2 includes “device 100,” rather than device 400, but a POSITA would understand that device 400 corresponds to device 100 in Figure 2, with RF antenna 404 corresponding to “antenna 104.” (Ex. 1002, ¶[62.]) Palmer teaches that “exemplary environment 200” in Figure 2 “enables

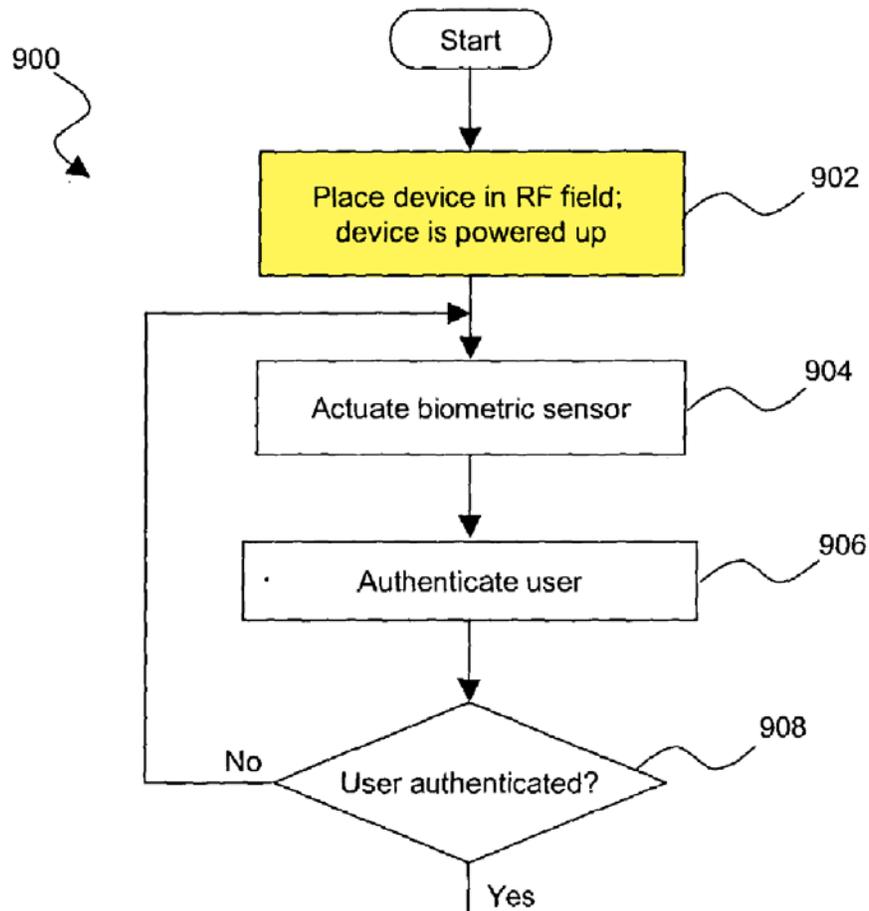
the smart card given that the reader/writer device 202 processes transactions and executes a handshake process with the smart card 100. (Ex. 1002, ¶[63.]

contactless interaction” between reader/writer device 202 and device 400 via “a two-way communication link 208.” (Ex. 1005, ¶[0027].) In the context of Figure 9, this contactless interaction involves a “communications handshake process” between device 400 and the external reader/writer. (*Id.*, ¶[0051].) While the handshake process (which constitutes “exchanging data”) is between the device 400 and external reader/writer, a POSITA would have understood that the data exchange is between the “electronic circuit” (i.e., ASIC 406 and smart chip card 408) and the external reader/writer device. (Ex. 1002, ¶62.) This is further apparent from Palmer’s disclosure that smart chip 408 “support[s] two-way communication data transfers” and all smart card interactions (e.g., “credit card transactions”). (Ex. 1005, ¶[0033]; *see also id.*, ¶[0025] (“Furthermore, the controller 106 may support two-way communications with an associated reader/writer device (FIG. 2) via the RF antenna 104.”).)

Palmer further discloses that the reader/writer device 202 in Figure 2 “emanate[s] a RF power field 206 with the purpose of supplying power to compatible devices,” such as device 400. (Ex. 1005, ¶[0027].) Indeed, Palmer teaches that device 400’s “RF antenna 404, which may comprise one or more antennae, may capture RF energy from a RF field emanated by a RF power source.” (*Id.*, ¶[0043].) Palmer discloses converting that captured RF energy to electrical energy to power device 400. (*Id.*, ¶¶[0043], [0050] (“When placed into the RF field

[emanated by a reader/writer device], the device 400 captures power, energizing its electronics.”.) Palmer’s disclosure of the RF field emanated by the reader/writer device corresponds to the claimed “selectively emitted activation cue from a source external to [the] portable electronic device” because, as discussed below, the reception of this RF field activates the algorithm of Figure 9. (Ex. 1002, ¶64.)

Figure 9 of Palmer discloses RF antenna 404 receiving the claimed activation cue (i.e., RF power) in step 902:



(Ex. 1002, ¶65; Ex. 1005, FIG. 9 (annotated excerpt).) This energizes the electronics of device 400 and results in execution of the algorithm of Figure 9. (Ex. 1005, ¶¶[0050], [0051], FIG. 9.)

- e. **“a data conveyance switching element operatively linked to said electronic circuit, said switching element being in an activated state upon an activation cue having been received by said data transceiver, and being in an inactive state when no activation cue was received by said data transceiver; and”**

Palmer discloses this limitation. (Ex. 1002, ¶¶66-69.) The '333 Patent states that “switching element 44*b* can be a physical structure, a virtual program, or both.” (Ex. 1001, 6:16–17.) It further states that the switching element can be “a series of instructions programmed onto the microchip.” (*Id.*, 6:10–12.)

In Palmer, instructions stored on ASIC 406 and smart card chip 408 provide the claimed “data conveyance switching element.” (Ex. 1002, ¶67.) As explained above in Section IX.A.1.a, *supra*, Palmer discloses that ASIC 406 “contains a microprocessor core with dedicated program and temporary memory, enabling the ASIC 406 to use an array of processing elements for executing instructions stored within the ASIC 406.” (Ex. 1005, ¶[0032].) In particular, Palmer discloses that ASIC 406 may include instructions for “perform[ing] a comparison between the current fingerprint analog and a template fingerprint analog,” and instructions “for an authorization signal to be sent to the smart card chip 408 after an authentication process has been completed,” (*id.*) and instructions for performing a transaction with

the external reader/writer in response to the authorization signal (*id.*, FIG. 9.) The instructions are set forth in Figure 9 (see red box below).

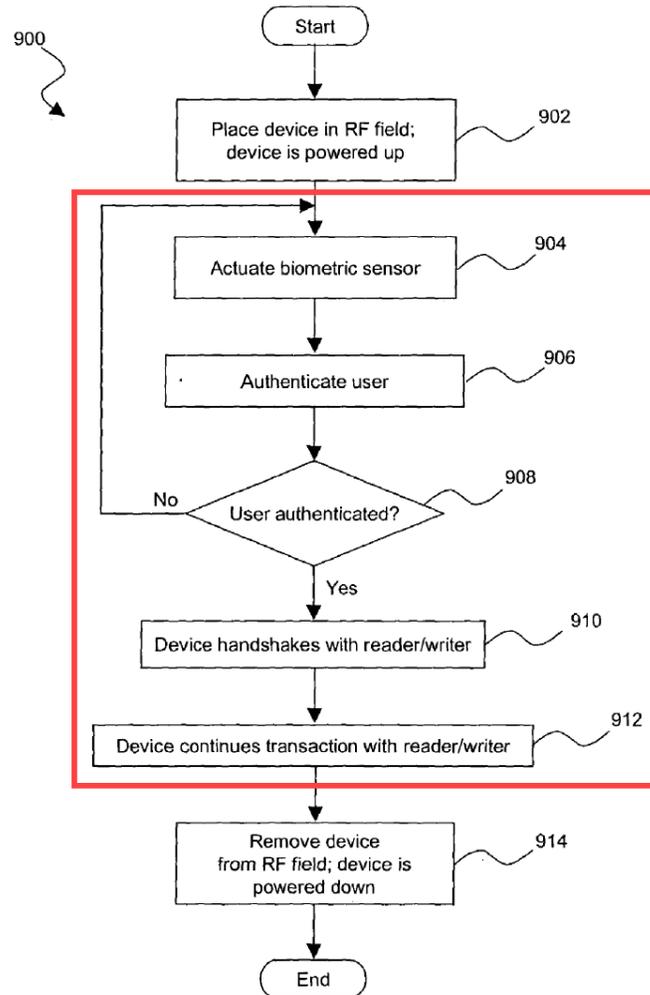


Fig. 9

(Ex. 1002, ¶67; Ex. 1005, FIG. 9 (annotated).) The steps of Figure 9 demarcated by the red box above correspond to the claimed “data conveyance switching element.”

(Ex. 1002, ¶67.)

For example, those steps (*i.e.*, series of instructions) execute when device 400 receives an RF signal (“activation cue”) from the external reader/writer device. (Ex. 1005, ¶[0050] (“In step 902, . . . the device 400 is placed into an RF field emanated by a reader/writer device. When placed into the RF field, the device 400 captures power, energizing its electronics.”).) RF antenna 404 (*i.e.*, “data transceiver”) of device 400 is what receives the RF energy (*i.e.*, “activation cue) from the external reader/writer device. (*Id.*, ¶[0043].) By implication, these steps do not execute until step 902 occurs, *i.e.*, until the RF signal (“activation cue”) is received. (Ex. 1002, ¶[68].) Thus, the steps demarcated by the red box in Figure 9 constitute a “switching element” because the steps execute (*i.e.*, the corresponding code is in an “activated state”) once the RF signal is received. (*Id.*) And the steps do not execute (*i.e.*, the corresponding code is in an “inactivated state”) when the RF signal is not received by the device 400. (*Id.*)

The steps of Figure 9 demarcated by the red box above correspond to the claimed “data conveyance switching element” and satisfy the construction of this claim term. (*Supra* Section VIII.B.) For instance, the steps of Figure 9 constitute instructions on ASIC 406 and therefore, disclose “decisional logical circuit or a series of instructions programmed onto a microchip or a processor/general purpose computer/microcontroller.” (*Id.*) Furthermore, as discussed above, the steps switch between a default inactive state (*e.g.*, a state in which data is not conveyed to the

reader/writer device) and an active state (e.g., a state in which data is conveyed to the reader/writer device) based on whether an activation cue is received. (*Id.*)

f. “power means for providing power to said portable electronic device;”

Palmer discloses this limitation. (Ex. 1002, ¶70.) For example, Palmer discloses that “[i]n some embodiments of the device 400, a rechargeable battery may power the electronic components when no RF energy field is present.” (Ex. 1005, ¶[0043] (“Such a battery may be charged via an RF energy field or alternative charging means”).)

g. “wherein upon said control device being selectively triggered to issue an[] invariable activation command: if said switching element is in said activated state, a data exchange will be initiated through the instrumentality of said data transceiver for exchanging data between said electronic circuit and an external data exchange device;”

Palmer discloses this limitation. (Ex. 1002, ¶¶71-75.) For example, Section IX.A.1.b, *supra*, explains how fingerprint sensor 402 (*i.e.*, “control device”) of device 400 in Palmer can be selectively triggered to issue the claimed “invariable activation command.” Further, Section IX.A.1.e, *supra*, explains that device 400, specifically the instructions in ASIC 406 and smart card chip 408, is in an “activated state” upon the device 400 being powered up by its RF antenna 404 receiving RF energy from an external reader/writer device.

Palmer discloses that selective triggering of fingerprint sensor 402 to issue an authorization signal (*i.e.*, “invariable activation command”) initiates a data exchange between device 400 and an external reader/writer device only if device 400 is in an “activated state.” (Ex. 1002, ¶72.⁷) Figure 9 of Palmer illustrates this process:

⁷ As explained above in Section IX.A.1(d), the data transmitted to the external device is from the “electronic circuit” in Palmer.

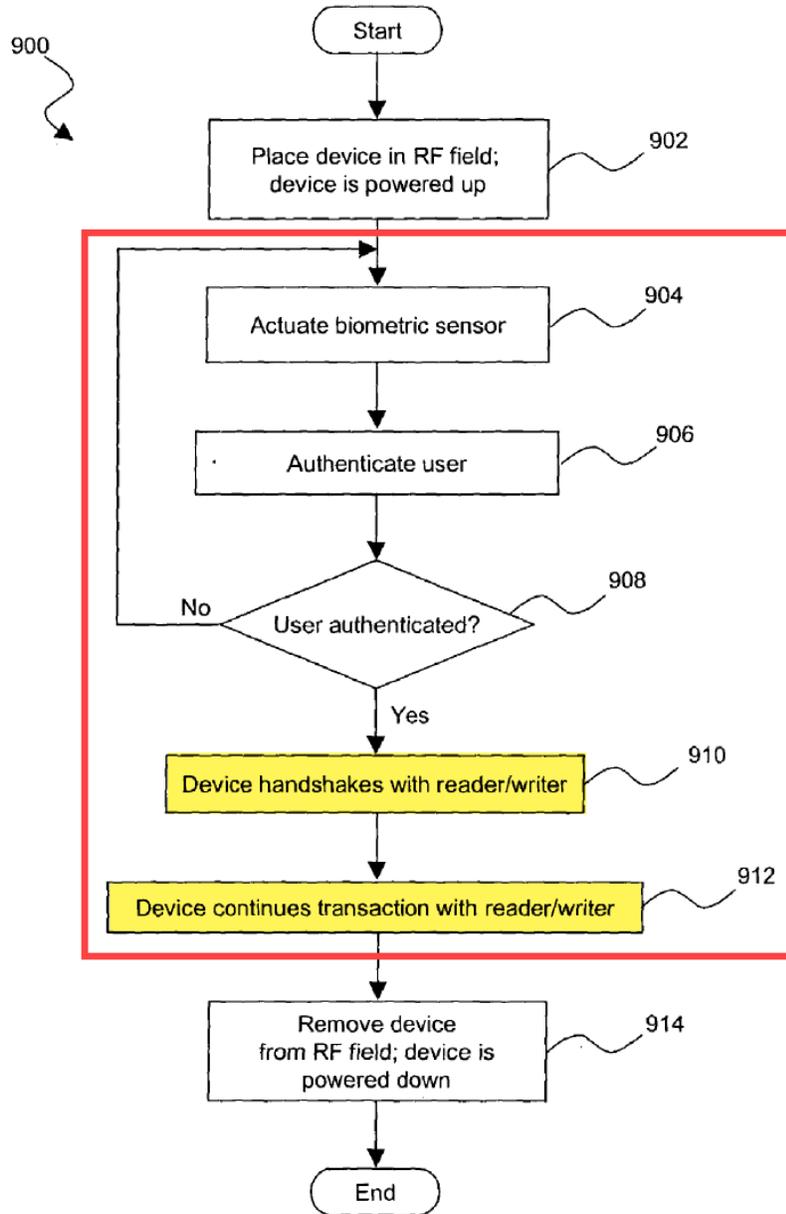


Fig. 9

(*Id.*, ¶72; Ex. 1005, FIG. 9 (annotated).) The steps in the red box above can only execute after device 400 is “powered up” in step 902 by being placed in an RF field. (Ex. 1002, ¶72; Ex. 1005, ¶[0050] (“In step 902, as has been described previously, the device 400 is placed into an RF field emanated by a reader/writer device. When

placed into the RF field, the device 400 captures power, energizing its electronics.”.)

Palmer discloses that actuation of fingerprint sensor 402 results in issuance of the claimed “invariable activation command.” (Ex. 1002, ¶73.) For instance, Palmer discloses that in step 904 of Figure 9 “a user places on of his fingers onto the fingerprint sensor 402,” which “captures an analog of the fingerprint and passes the analog to the ASIC 406.” (Ex. 1005, ¶[0050].) ASIC 406 then in step 906 performs an “authentication process . . . by comparing the captured fingerprint analog to one or more template fingerprint analogs stored in memory.” (*Id.*, ¶¶[0032], [0051].) If ASIC 406 in step 908 determines that “the captured fingerprint analog matches a stored template fingerprint analog,” it issues an “authorization signal,” which corresponds to the “Yes” result of step 908. (*Id.*, FIG. 9, ¶¶[0032], [0050].) That authorization signal constitutes the claimed “invariable activation command.” (Ex. 1002, ¶73; *supra* Section IX.A.1(b).)

If device 400 remains in the RF field emanated by the external reader/writer device (and RF antenna 404 continues to receive power therefrom) at the time of issuance of the “invariable activation command,” Palmer discloses initiation of the claimed “data exchange.” (Ex. 1002, ¶74.) With respect to Figure 9, Palmer explains that “[i]f the user is validated by the authentication process, the method continues to step 910 where the device 400 conducts a communications handshake

process with the reader/writer device via a contactless two-way communication link.” (Ex. 1005, ¶[0051].) Palmer then discloses that in step 912 device 400 “continues the desired transaction with the reader/writer device.” (*Id.*) This transaction (*i.e.*, “data exchange”) is initiated through RF antenna 404 (*i.e.*, “data transceiver”). (Ex. 1002, ¶74; Ex. 1005, ¶[0043] (“[T]he RF antenna 404 . . . may also support two-way communication with an associated reader/writer device[.]”).) It involves an exchange of data between smart card chip 408 (part of the “electronic circuit”) and a reader/writer device (*i.e.*, external data exchange device). (Ex. 1002, ¶74; Ex. 1005, ¶[0033] (“[T]he smart card chip 408 may support two-way communication data transfers and . . . may support standard smart card interactions such as identification validation, credit card transactions, and others.”).)

The above mapping reflects the ’333 Patent’s teaching that a “data exchange” may be in the form of a data download from a first device to a second device, a data upload from a first device to a second device, or a combination of the two. (Ex. 1001, 6:65–7:2.)

- h. “wherein upon said control device being selectively triggered to issue an[] invariable activation command: . . . if said switching element is in said inactive state, data will be conveyed from said electronic circuit to said user interface device for communicating information to the portable electronic device holder.”**

Palmer in combination with Rowe discloses or suggests this limitation. (Ex. 1002, ¶¶76-79.) Palmer discloses conveying data from ASIC 406 (*i.e.*, “electronic

circuit”) to electro-luminescent display 412 (*i.e.*, “user interface device”) in device 400. (Ex. 1002, ¶76; Ex. 1005, ¶[0032] (“In addition, the ASIC 406 may be used to drive the electro-luminescent display 412”).) Conveying data to the electro-luminescent display 412 will communicate information to the portable electronic device holder. (Ex. 1002, ¶76; Ex. 1005, ¶[0044] (“The electro-luminescent display 412 provides the capability to display information to the user of device 400.”).) Palmer explains that such information “may include a credit card number . . . , a residual balance of an ‘electronic purse,’ air travel and seat assignment information, and similar information.” (Ex. 1005, ¶[0044].)

A POSITA in the art would have understood that display of such sensitive information should only occur upon verifying the user’s identity to prevent misuse of the information. (Ex. 1002, ¶77.) Thus, a POSITA would have considered techniques for ensuring such security measures in Palmer’s smart card 400. (*Id.*) Like Palmer, Rowe also discloses a smart card with potential uses as a “credit card” and “debit card.” (Ex. 1006, ¶[0009].) Rowe discloses reading the user’s fingerprint (entered by the user by placing the user’s thumb over a fingerprint sensor), verifying the same against a locally stored fingerprint, and thereafter displaying “personal attribute of the card bearer” on the smart card’s LCD display. (Ex. 1006, ¶[0030].) In view of Rowe’s teachings, a POSITA would have been motivated to configure Palmer’s smart card 400 so that a “personal attribute” of the user (e.g., credit card

number) is displayed on the display upon issuance of an “authorization signal” by ASIC 406 that a user’s input fingerprint has been verified. (*See* Ex. 1005, ¶[0032] (authorization signal is issued after successfully completing the authentication process).) Doing so would have ensured the security of the contents of Palmer’s smart card 400 and would have been obvious to a POSITA. (Ex. 1002, ¶77.) *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-18 (2007) (In general, obviousness entails an inquiry that is “expansive and flexible” and takes into account “the inferences and creative steps that a person of ordinary skill in the art would employ” when presented with the teachings of the prior art.); *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1371 (Fed. Cir. 2018) (internal quotations and citations omitted) (a reason to combine the teachings of related references may be found “explicitly or implicitly in market forces; design incentives; the interrelated teachings of multiple patents; any need or problem known in the field of endeavor at the time of invention and addressed by the patent; and the background knowledge, creativity, and common sense of the person of ordinary skill.”) Configuring Palmer in such a way would have been within ordinary skill and a POSITA would have reasonably expected success especially given Palmer already describes matching fingerprints before performing transactions. (Ex. 1002, ¶77.)

Palmer in view of Rowe thus discloses “wherein upon said control device being selectively triggered to issue an[] invariable activation command: . . . , data will

be conveyed from said electronic circuit to said user interface device for communicating information to the portable electronic device holder. (Ex. 1002, ¶78.) As explained above, the combination would have involved the verification of the user's fingerprint and display of the information stored in the memory on the smart card's display if an "authorization signal" results from a successful fingerprint match. (*Id.*)

The claim further requires that the above step of displaying data in response to the control device triggering occur "if said switching element is in said inactive state." In other words, the claim requires the portable electronic device to have the capability of displaying data on the device's display when the switching element is in an inactive state (i.e., when an activation cue has not been received). (Ex. 1002, ¶79.⁸) Palmer's device 400 necessarily has the capability of displaying stored data on the display outside the presence of the RF field (i.e., when no activation cue is

⁸ To be sure, the claim is not requiring that the data display occur *exclusively* when the switching element is in an inactive state. Such a requirement would be inconsistent with the specification and the claims. For instance, the specification includes an embodiment when the display occurs while the switching element is in the activated state. (Ex. 1001, 9:12-25.) And claim 13 recites displaying data with the switching element in the activated state. (*Id.*, claim 13.)

received) because device 400 can operate on battery power. (*Id.*; Ex. 1005, ¶[0043] (“In some embodiments of the device 400, a rechargeable battery may power the electronic components when no RF energy field is present.”).) In fact, a POSITA would have found it obvious to configure Palmer to allow for data display when the device 400 is not receiving the RF signal from the external device to enable the user to check, for example, a balance on the smart card at any time (e.g., outside of the presence of a RF reader/writer device). (Ex. 1002, ¶79; *see* Ex. 1008, 1:50-55 (“However, when using a smart card not in conjunction with the external system, the user of the smart card may have a need to verify or check information on the card to . . . access a current balance of an account, or other personal information stored on the card.”).) *KSR*, 550 U.S. at 415-18.

2. Claim 2

- a. “A portable electronic device as defined in claim 1, wherein said user interface device is a display screen.”**

Palmer in combination with Rowe discloses or suggests this limitation for at least the same reasons as presented above for limitation 1[c]. (*See* Section IX.A.1.c, *supra*; Ex. 1002, ¶80.)

3. Claim 4

- a. “A portable electronic device as defined in claim 1, wherein said control device is a biometric parameter detector.”**

Palmer in combination with Rowe discloses or suggests this limitation for at least the same reasons as presented above for limitation 1[b]. (*See* Section IX.A.1.b, *supra*; Ex. 1002, ¶81.; *see also* Ex. 1005, ¶[0024] (“The biometric sensor 102 is used for sensing a physical attribute of a user of the device 100 and generating an analog of this physical attribute. The analog may then be made available to the controller 106.”).)

4. Claim 5

- a. “A portable electronic device as defined in claim 4, wherein said biometric parameter detector is a fingerprint scanner capable of obtaining a fingerprint scan, and whereby said control device is triggered when the fingerprint scan matches a fingerprint image pre-saved in said electronic circuit.”**

Palmer in combination with Rowe discloses or suggests this limitation. (Ex. 1002, ¶82.) As explained in Section IX.A.1.b, *supra*, Palmer discloses a fingerprint sensor 402 capable of obtaining a fingerprint scan. (*Id.*) Palmer further discloses that “[c]ircuitry contained within the ASIC 406 provides an interface between the ASIC 406 and the fingerprint sensor 402.” (Ex. 1005, ¶[0032].) Palmer teaches that ASIC 406 contains “Random Access Memory (‘RAM’) which may be used for temporarily storing a current fingerprint analog detected by the fingerprint sensor 402” and “non-volatile memory . . . to store and retrieve one or more fingerprint

template analogs that are used for comparison against the current fingerprint analog.” (*Id.*, ¶[0031].) ASIC 406 further contains instructions that allow it to “perform a comparison between the current fingerprint analog and a template fingerprint analog.” (*Id.*, ¶[0032].) This constitutes an “authentication process” in which “a determination is made as to whether the user is authenticated (e.g., whether the captured fingerprint analog matches a stored template fingerprint analog).” (*Id.*, ¶[0051].) Once this authentication process is complete, Palmer discloses that ASIC 406 sends an “authorization signal” to smart card chip 408. (*Id.*) Accordingly, Palmer discloses that the claimed “control device” is selectively triggered when a current fingerprint scan matches a pre-saved fingerprint image. (Ex. 1002, ¶82.)

5. Claim 11

Preamble: “A method for data exchange with a portable electronic device of the type comprising: an electronic circuit capable of storing data therein, capable of processing data, and capable of data input and output, a control device operatively linked to said circuit, a user interface device operatively linked to said circuit, communication ports operatively linked to said circuit, a switching element operatively linked to said electronic circuit and being in a default inactive state, and power means for providing power to said portable electronic device, said method comprising the steps of:”

To the extent the preamble is limiting, Palmer discloses these features. (Ex. 1002, ¶¶83-84.) For example, Palmer discloses each of the “electronic circuit,” “control device,” “user interface device,” “switching element,” and “power means”

features for at least the reasons presented above for limitations 1[Preamble]-[h]. (See Section IX.A.1, *supra*; Ex. 1002, ¶83.) Palmer further discloses that the “switching element” is in a default inactive state. (Ex. 1002, ¶83.) Palmer explains that device 400 is only “powered up” when placed into an RF field emanated by a reader/writer device. (Ex. 1005, FIG. 9, ¶[0050].) In the absence of such an RF field, device 400 and the “switching element” therein remain without power and, therefore, in a “default inactive state.” (Ex. 1002, ¶83.)

Palmer further discloses “communication ports operatively linked to” an electronic circuit. (Ex. 1002, ¶84.) For example, Palmer describes “RF antenna 404, which may comprise *one or more antennae*,” that “support two-way communication with an associated reader/writer device.” (Ex. 1005, ¶[0043].) Palmer further discloses that device 400 includes a “magnetic strip 414,” which provides communication “compatibility with existing reader devices.” (*Id.*, ¶¶[0030], [0045].) A POSITA would have understood that both RF antenna 404 and magnetic strip 414 were to be operatively linked to ASIC 406 and/or smart card chip 408 (part of the “electronic circuit”) in device 400. (Ex. 1002, ¶84; Ex. 1005, ¶[0042] (“[O]ne embodiment of a portion of the device 400 illustrates the biometric sensor 402, display 412, and RF antenna 404 formed on the substrate 624.”).)

- a. **“awaiting for an activation cue to be received at a predetermined one of said communication ports;”**

Palmer discloses this limitation. (Ex. 1002, ¶¶85.) As explained in Section IX.A.1.d, *supra*, Palmer discloses that device 400 is “powered up” when RF antenna 404 “capture[s] RF energy from a RF field emanated by a RF power source.” (Ex. 1005, FIG. 9, ¶¶[0043], [0050].) This occurs when device 400 is placed into the RF field. (*Id.*) Accordingly, RF antenna 404 (*i.e.*, a “communication port”) awaits energy from an RF field (*i.e.*, “activation cue”). (Ex. 1002, ¶¶85.)

- b. **“if an activation cue is received at one of said communication ports, changing the state of said switching element from its default inactive state to an activated state; and”**

Palmer discloses this limitation for at least the same reasons as presented above for limitation 1[e]. (*See* Section IX.A.1.e, *supra*; Ex. 1002, ¶86.)

- c. **“selectively triggering said control device to issue an invariable activation command, whereby said method will further comprise one of the two following steps:”**

Palmer discloses this limitation for at least the same reasons as presented above for limitation 1[b]. (*See* Section IX.A.1.b, *supra*; Ex. 1002, ¶87.)

- d. **“if said switching element is in its activated state, initiating a data exchange with an external data exchange device through at least one of said communication ports; and”**

Palmer discloses this limitation for at least the same reasons as presented above for limitation 1[g]. (*See* Section IX.A.1.g, *supra*; Ex. 1002, ¶88.) Palmer discloses that RF antenna 404 is the “communication port” through which the data

exchange occurs. (Ex. 1002, ¶88; Ex. 1005, ¶[0043] (“RF antenna 404 . . . may also support two-way communication with an associated reader/writer device[.]”).)

- e. **“if said switching element is in its inactive state, conveying data from said electronic circuit to said user interface device for communicating information to the portable electronic device holder.”**

Palmer in combination with Rowe discloses or suggests this limitation for at least the same reasons as presented above for limitation 1[h]. (*See* Section IX.A.1.h, *supra*; Ex. 1002, ¶89.)

B. Ground 2 – Palmer in view of Rowe and Teicher renders Claim 6 obvious

1. Claim 6

- a. **“A portable electronic device as defined in claim 1, wherein said control device is a manually activated button, and whereby said control device is triggered when the button is pressed.”**

Palmer in view of Rowe discloses or suggests this limitation or alternatively discloses or suggests this limitation in combination with Teicher. (Ex. 1002, ¶¶90-91.) Palmer’s fingerprint sensor is a “manually activated button” because a user must manually put its finger on the sensor. (*Id.*, ¶90.)

Alternatively, a POSITA would have found it obvious to substitute another well-known method of user authentication implemented in smart cards, such as verifying a pin entered via a keypad, for Palmer’s authentication process involving

fingerprint verification. (*Id.*, ¶91.) Palmer’s device 400 includes “buttons 410” that can be used to “enter a personal identification number.” (Ex. 1005, ¶[0044].) Moreover, as Teicher discloses, it was known that such a personal identification number entered via a *keypad* could be used to authorize smart card transactions. (*See, e.g.*, Ex. 1007, 11:8-11; 19:4 (PIN pad comprised “movable mechanical buttons”), 14:49-60, 15:1-9.) Thus, like Palmer, Tiecher discloses a method for authenticating a user of a smart card before executing a transaction. (Ex. 1002, ¶91.) Utilizing Palmer’s buttons 410 and a PIN-verification method in place of the disclosed fingerprint verification method would have been a mere substitution of one authentication method for a known alternative. (*Id.*) Such a substitution would have been within ordinary skill and obvious as it would have yielded the expected result of issuing the authorization signal in Palmer upon verifying the PIN entered by the user. (*Id.*) *KSR*, 550 U.S. at 416-21. The combined Palmer-Rowe-Rolf technique discloses or suggests the limitation of claim 13 because there is a display of information after the transaction occurs (which based on Figure 9 occurs after the switching element is in the activated state and the user has provided the fingerprint).

C. Ground 3 – Palmer in view of Rowe and Rolf renders Claim 13 obvious

1. Claim 13

- a. “A method as defined in claim 11, wherein the additional following step occurs after selectively triggering said control device if said switching element is in said activated state: conveying data from said electronic circuit to said user interface device for communicating information to the portable electronic device holder.”**

Palmer in combination with Rowe and Rolf discloses these features for at least similar reasons as presented above for claim 1[h]. (Ex. 1002, ¶¶92-96; *see supra* Section IX.A.1.h.)

Specifically, as discussed above, enabling the smart card 400 to display data stored in the card’s memory at any time (i.e., in the absence or presence of the external RF field) in response to a successful fingerprint match would have been helpful to consumers and well-within the technical grasp of engineers at the pertinent time period. (Ex. 1002, ¶93; *supra* Section IX.A.1.h.) Palmer shows information conveyed to the user interface in step 1212 in Figure 12, where “an acknowledgement is displayed on the display 110 that the fingerprint pattern has been successfully registered in the device.” (Ex. 1005, ¶[0064].) Therefore, the use of an “acknowledgement” could be applied to other situations to display to the device holder. (Ex. 1002, ¶93.)

Like Palmer and Rowe, Rolf discloses a hand held personal electronic device “for performing financial transactions and, particularly sales transactions via a wireless communications link.” (Ex. 1009, 1:16-26.) Rolf discloses that a user makes a purchase at a point of sale terminal by entering information through the keypad of the user’s mobile device; after the user enters the information and the transaction is executed a “confirmation signal” is transmitted to the user’s mobile device, which will “display an indication that the transaction has been complete” that “may include information relating to the sale just made.” (*Id.*, 6:3-10; *see also* 5:26-6:14 (describing the full transaction process).)

It would have been beneficial, and a matter of common sense, to configure the Palmer-Rowe smart card to receive and display a transaction confirmation, including information related to a transaction, as disclosed by Rolf. (*Id.*, 6:3-10; Ex. 1002, ¶95.) In other words, after a transaction is completed in steps 910 and 912 of figure 9 of Palmer, a transaction confirmation would have been displayed on display 412 in the Palmer-Rowe smart card technique modified based on Rowe. (Ex. 1002, ¶95.) Doing so would have had foreseeable benefits including enabling a user to confirm on their device that a transaction was successful, or to confirm the transaction details were correct. (*Id.*) Thus, a POSITA would have been motivated to combine Palmer and Rowe with Rolf and would have found the combination obvious. (*Id.*; *KSR*, 550 U.S. at 416-21.)

Modifying Palmer and Rowe in view of Rolf would have been a routine task for a POSITA, well within their skill. (Ex. 1002, ¶96.) Utilizing Rolf’s method of receiving and displaying a transaction confirmation in the Palmer-Rowe smart card would have yielded the expected result of Palmer’s electronic circuit (e.g., the ASIC 406 and smart card chip 408) displaying the received transaction confirmation on its display 412 (“conveying data from said electronic circuit to said user interface device for communicating information to the portable electronic device holder”). (*Id.*; *see supra* Section IX.A.1(a).) A POSITA would also have a reasonable expectation of success in the combination at least because the Palmer-Rowe smart card described for claim 1 already discloses performing transactions over wireless communications (*supra* Section IX.A.1.g) and displaying information to a user (*supra* Section IX.A.1.h). (Ex. 1002, ¶96.)

D. Ground 4 – Rowe renders Claims 1–2, 4–5, and 11 obvious

1. Claim 1

Preamble⁹

To the extent the preamble is limiting, Rowe discloses this feature. (Ex. 1002, ¶97.) Rowe discloses a “smart card 10” in Figure 1:

⁹ The claim language is reflected in Grounds 1-3 and not reproduced again.

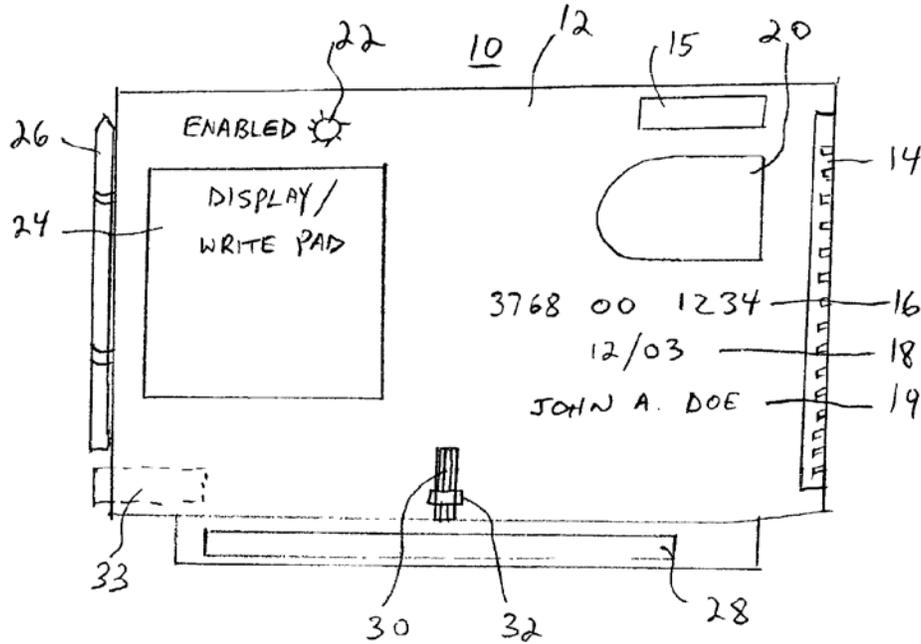


FIG. 1

(Ex. 1006, FIG. 1, ¶[0023] (“FIG. 1 diagrammatically illustrates a smart car[d] 10 having a generally rectangularly-shaped body 12 with internally housed electronics[.]”).) The smart card disclosed by Rowe is a “portable electronic device.” (Ex. 1002, ¶97; *see also infra* Section IX.D.1.a-h.)

a. Limitation 1[a]

Rowe discloses this limitation. (Ex. 1002, ¶¶98-99.) Rowe discloses that smart card 10 has “internally housed electronics, for example, a[s] shown in FIG. 2”:

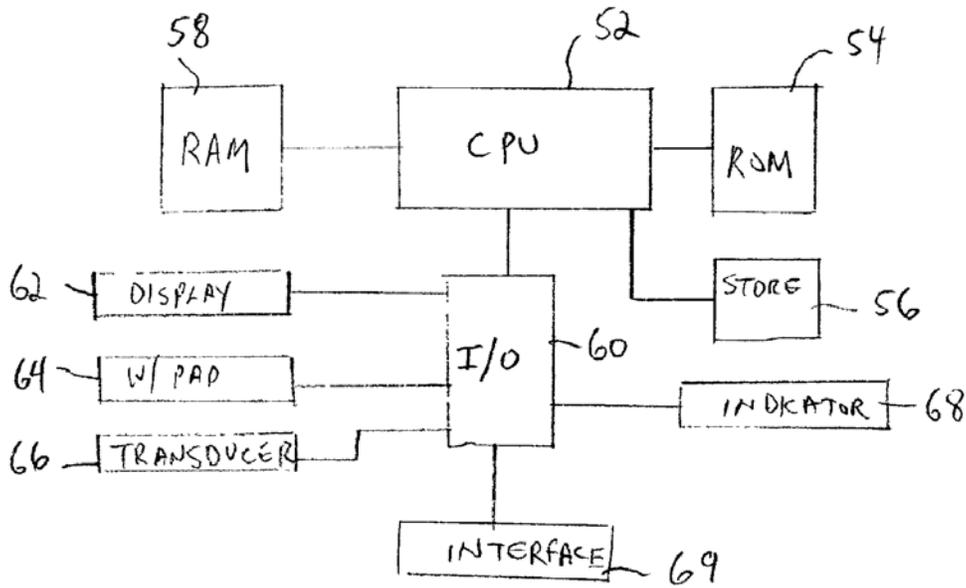


FIG. 2

(Ex. 1006, FIG. 2, ¶[0012] (“FIG. 2 is a schematic diagram of electronic components of the smart card of the present invention.”), ¶[0023].) As shown in Figure 2, smart card 10 “may include a general purpose CPU 52 that interfaces with a non-alterable ROM memory 54, a read/write memory in the form of a RAM 58, a memory storage 56, as well as an input/output (I/O) interface 60 that provides the CPU access” to other components, such as “a general communication interface 69.” (*Id.*, FIG. 2, ¶[0029].) These components from Figure 2 together constitute the claimed “electronic circuit.” (Ex. 1002, ¶98.)

ROM memory 54, memory storage 56, and RAM 58 are all “capable of storing data.” (Ex. 1002, ¶99; Ex. 1006, ¶[0032] (“The software facilities within the smart

card enable the recording within the memory 56 in the card of various transactional information, e.g., where the card was used and related information.”), ¶[0037] (“[T]he process proceeds to store particulars about the specific transaction, for example, the type of purchase, the price of the purchase and the date thereof, which data is stored within the storage memory 56 on the smart card.”.) A POSITA would have understood that CPU 52 is “capable of processing data,” including data from the aforementioned storage components. (Ex. 1002, ¶99; Ex. 1006, ¶[0029].) Finally, it would have been apparent to a POSITA that CPU 52 would be “capable of data input and output” through input/output (I/O) interface 60 “that provides the CPU access to a display circuit 62, a writing pad 64, a transducer 66, and indicator 68 and a general communication interface 69.” (Ex. 1002, ¶99; Ex. 1006, ¶[0029].)

b. Limitation 1[b]

Rowe discloses this limitation. (Ex. 1002, ¶¶100-103.) For example, Rowe discloses that smart card 10 has “a transducer 66” linked to the CPU through input/output (I/O) interface 60. (Ex. 1006, ¶[0029].) Rowe shows the same transducer as “biometric transducer/sensor 20” in Figure 1:

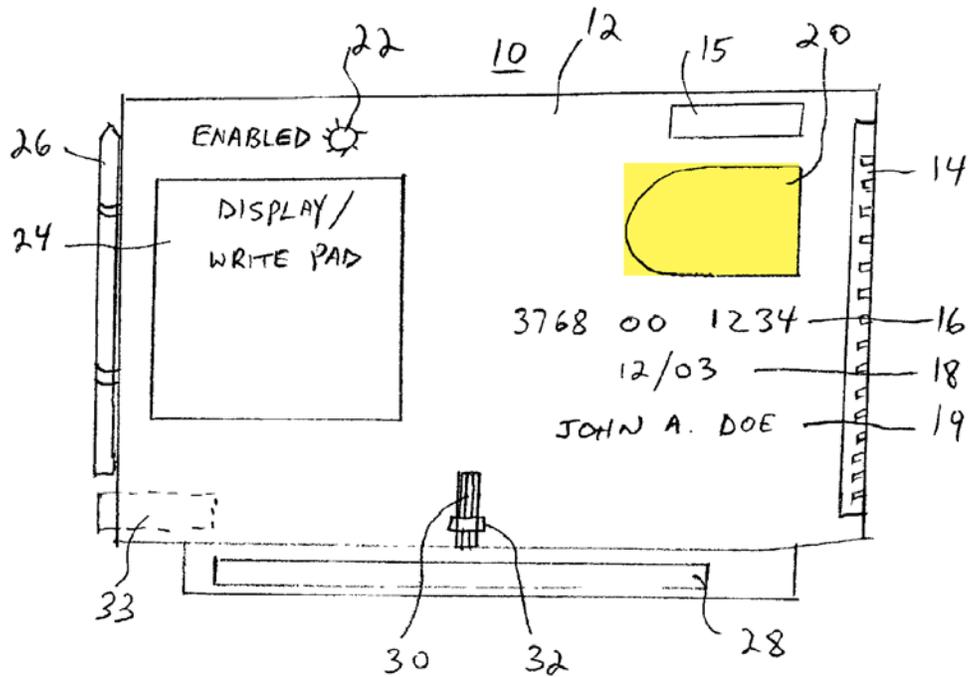


FIG. 1

(*Id.*, FIG. 1 (annotated), ¶[0023] (“FIG. 1 diagrammatically illustrates a smart car[d] 10 . . . with internally housed electronics, for example, a[s] shown in FIG. 2, and having externally accessible biometric transducers[.]”), ¶[0026].) Rowe teaches that “biometric transducer/sensor 20 is provided in order to allow the smart card 10 to read biometric information.” (*Id.*, ¶[0026].) Rowe explains that this transducer 20 “may be a fingerprint reader.” (*Id.*)

Rowe discloses selective triggering of transducer 20. (Ex. 1002, ¶101.) For example, Rowe discloses that “the smart card is enabled through *its bearer’s interaction with the transducer/sensor 20, as by placing a thumb thereon* to allow the internal electronics of the card to process the biometrics and ascertain that the

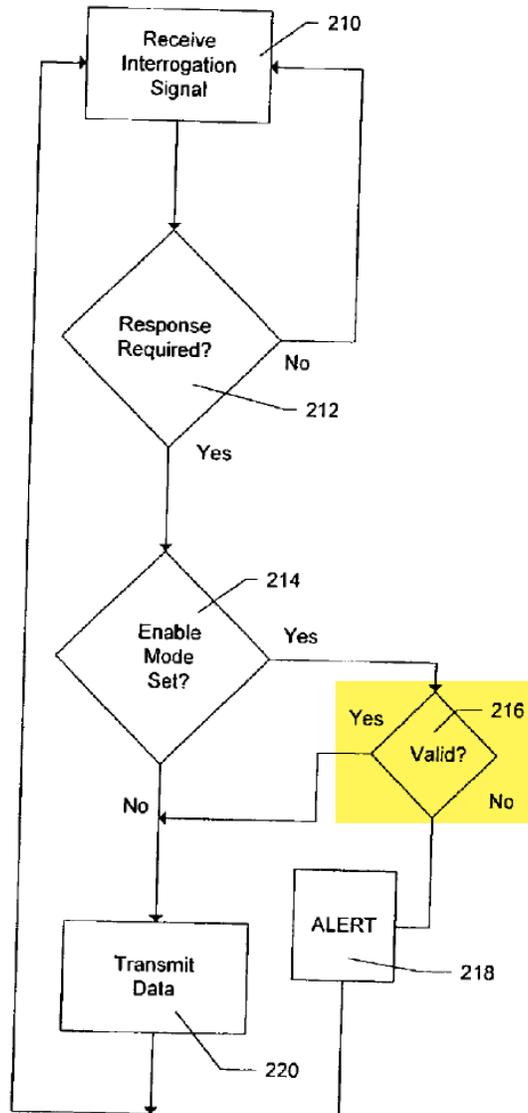
authorized bearer has enabled the card.” (Ex. 1006, ¶[0027] (emphasis added), ¶[0030].) The matching of the input fingerprint against a reference fingerprint constitutes a “selective triggering” of transducer 20. (*See*, Ex. 1001, claim 5.)

Rowe further discloses that the selective triggering of transducer 20 causes the issuance of an “invariable activation command.” (Ex. 1002, ¶102.) As mentioned above, placing a finger on the transducer 20 causes the card to process the biometric data to determine whether an authorized bearer has attempted to enable the card. (Ex. 1006, ¶[0027].) Rowe discloses comparing the fingerprint data against one or more reference fingerprints. (*Id.*, ¶¶[0030], [0050].) If the fingerprint data matches one of those reference fingerprints, Rowe teaches that smart card 10 is then enabled. (*Id.*, ¶¶[0027], [0030].) A POSITA would have understood that this enablement of smart card 10 following transducer 20 being triggered involves the issuance of an “invariable activation command.” (Ex. 1002, ¶102; *supra* Section VIII.A.) For instance, the matching of the fingerprint results in “turn[ing] on an indicator or an enable light 22 for a short time period” or “produc[ing] a suitable indication on the LCD display 24, e.g., the words: CARD VERIFIED.” (*Id.*, ¶[0027].) Rowe also teaches that “a personal attribute of the card bearer can be displayed on the LCD display 24,” such as “the signature of the bearer, or her likeness, or a description of her appearance.” (*Id.*, ¶[0030].) These actions (e.g., turning on an indicator or displaying an image on the LCD display 24) following

verification of the fingerprint necessarily involves a command issuance that indicates that the fingerprint match was successful. (Ex. 1002, ¶102.) Without such command issuance, the software code responsible for taking further action (e.g., turning on an indicator) would not know when to begin executing. (*Id.*) Figure 11 of Rowe further confirms this.

Step 216 of Figure 11 depicts one example of what happens following the enablement of smart card 10:

Fig. 11



(Ex. 1006, FIG. 11 (annotated); Ex. 1002, ¶103.) Rowe teaches that “the program [shown in Figure 11] proceeds to decisional box 216 and queries whether in fact the

bearer has enabled the card.” (Ex. 1006, FIG. 11, ¶[0056].¹⁰) If the bearer has enabled the card (i.e., the fingerprint input by the user is verified against a pre-saved image), a “Yes” signal is issued such that “a response is provided to the subsystem 190 in the form of the identification of the particular card.” (*Id.*) Thus, the “Yes” signal is an “invariable activation command” because it triggers a transaction with subsystem 190. (Ex. 1002, ¶103.¹¹) The “YES” signal results in a data conveyance operation (step 220) and the same authorization results in another data conveyance operation (*see infra* Section IX.D.1(h)).

c. Limitation 1[c]

Rowe discloses this component. (Ex. 1002, ¶¶104-105.) For example, Rowe discloses that on smart card 10 “[a]n LCD display and write pad 24 is available for the display of messages or for the inputting of information that can be written on the write pad.” (Ex. 1006, ¶[0025].) LCD display and write pad 24 appears in Figure 1:

¹⁰ Checking whether the bearer (i.e., user) has enabled the card involves checking for a fingerprint match. (Ex. 1006, ¶¶[0027], [0034], [0050].)

¹¹ Per Patent Owner’s infringement contentions, a “command to initiate a transaction” is an “invariable activation command.” (Ex. 1014, 32.)

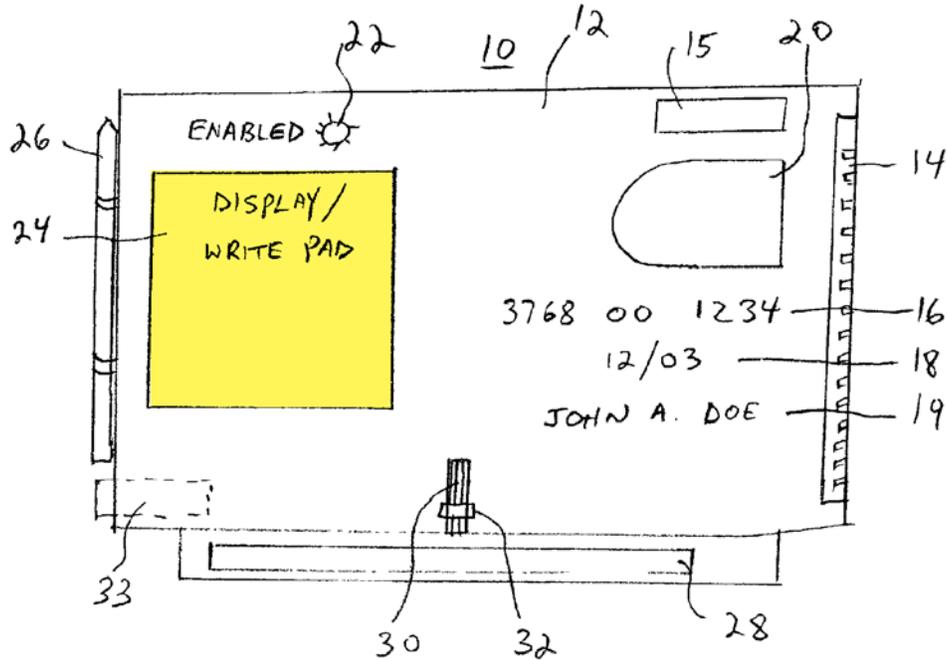


FIG. 1

(*Id.*, FIG. 1 (annotated).)

Rowe explains that “input/output (I/O) interface 60 provides the CPU access to a display circuit 62” and “a writing pad 64,” as shown in Figure 2:

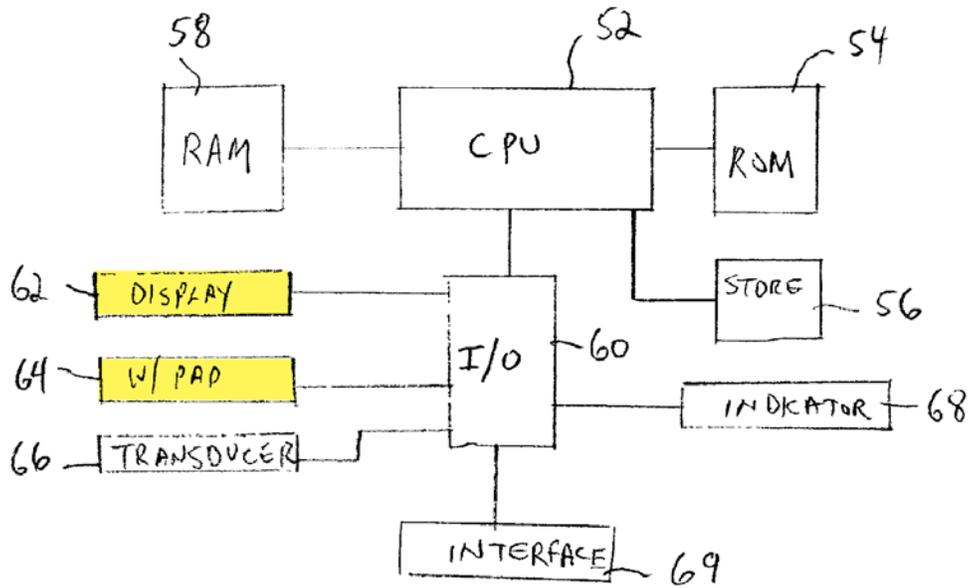


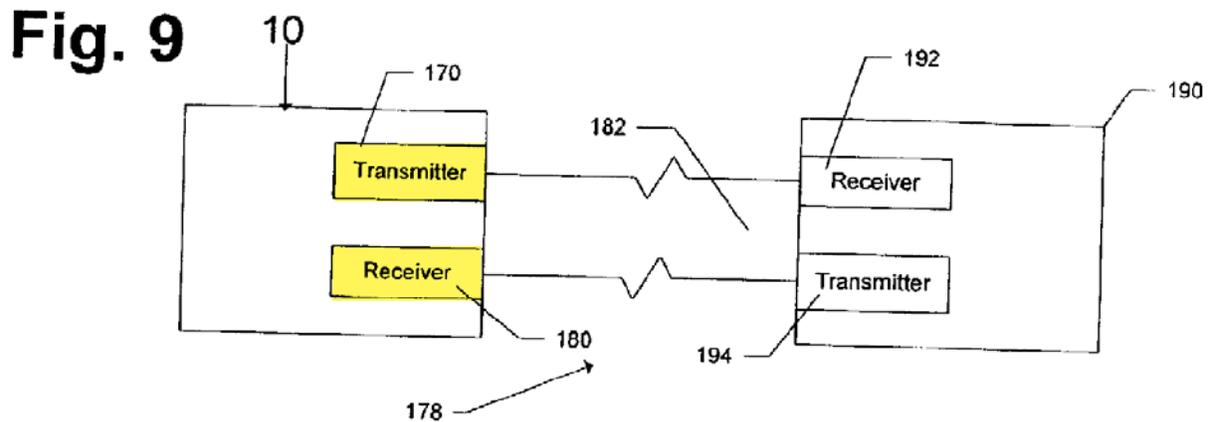
FIG. 2

(*Id.*, FIG. 2 (annotated), ¶[0029].) Thus, Rowe discloses display circuit 62 and writing pad 64 operatively linked to the “electronic circuit” in smart card 10. (Ex. 1002, ¶105.) Those two components together are the same as LCD display and write pad 24 in Figure 1. (*Id.*; Ex. 1006, ¶[0023] (“FIG. 1 diagrammatically illustrates a smart car[d] 10 . . . with internally housed electronics, for example, a[s] shown in FIG. 2[.]”).)

d. Limitation 1[d]

Rowe discloses this feature. (Ex. 1002, ¶¶106-108.) For example, Rowe discloses that smart card 10 can include “infrared interface 15 for wireless communications.” (Ex. 1006, ¶[0025].) Rowe further discloses in Figure 9 that

smart card 10 can have “transmitter 170” and “receiver 180” for wireless communication with “a master or central station or subsystem 190”:



(*Id.*, FIG. 9 (annotated), ¶[0051].) Transmitter 170 and receiver 180 together constitute a “data transceiver.” (Ex. 1002, ¶106.) Rowe teaches that those components communicate wirelessly with a corresponding “receiver 192” and “transmitter 194” in station 190 (*i.e.*, “external data exchange device”).¹² (*Id.*; Ex. 1006, ¶[0051].)

¹² Station 190 is a “data exchange device.” (Ex. 1002, ¶106; *supra* Section VIII.C.) Station 190 has a two-way communication link with the smart card 10 (Ex. 1006, ¶[0051]) and therefore, is an apparatus that both sends and receives data. (Ex. 1002, ¶106.) Receiver 192 and transmitter 194 in station 190 together are a “data transceiver” that communicates with the corresponding transceiver (transmitter 170 and receiver 180) in the smart card 10. (Ex. 1006, ¶[0051], FIG. 9.) Furthermore, a

Rowe describes the communications between smart card 10 and station 190 as first involving the receipt by receiver 180 of smart card 10 of “a continually transmitted interrogating signal that is emitted from transmitter 194 of the station 190.” (Ex. 1006, ¶[0052].) This continually transmitted interrogating signal constitutes an “activation cue.” (Ex. 1002, ¶107.) Rowe then describes that in response to the “activation cue,” transmitter 170 of the smart card 10 returns a signal that identifies either “the particular card” or “the particular card bearer.” (Ex. 1006, ¶[0052].) Rowe therefore discloses a “data transceiver” of smart card 10 receiving an “activation cue” from and “exchanging data” with station 190 (*i.e.*, an “external data exchange device”). (Ex. 1002, ¶107.) A POSITA would have understood that the card information transmitted via transmitter 170 comes from the “electronic

POSITA would have understood that station 190 includes an “electronic circuit” (e.g., a processor) that processes the data received from and transmitted to the smart card given that station 190 is “a software and hardware construct” that takes action in response to receiving a signal from the smart card such as registering the card bearer’s time of arrival “resulting in automatic logging in and out of employees and generating all of the necessary data for paycheck generation.” (*Id.*, ¶¶[0051]-[0052]; Ex. 1002, ¶106.)

circuit” as the transmitter 170 is merely the means for conveying the data to the external device. (*Id.*; *supra* Section IX.D.1(b).)

Finally, consistent with this limitation, Rowe discloses the “data transceiver” of smart card 10 being operatively linked to the device’s electronic circuit. (Ex. 1002, ¶108.) In particular, Figure 2 of Rowe depicts “general communication interface 69” of smart card 10 linked to CPU 52 via “an input/output (I/O) interface 60”:

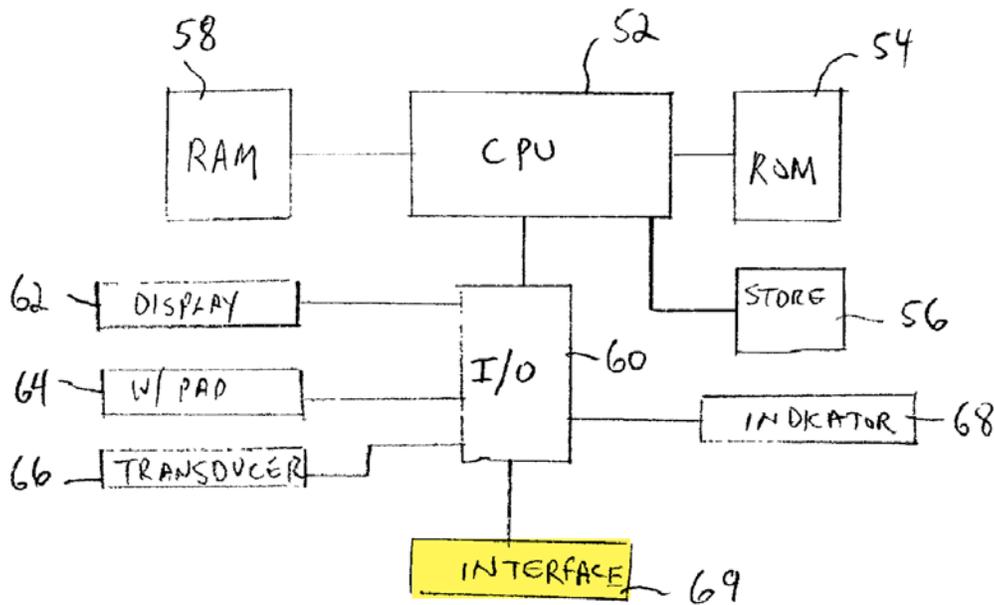


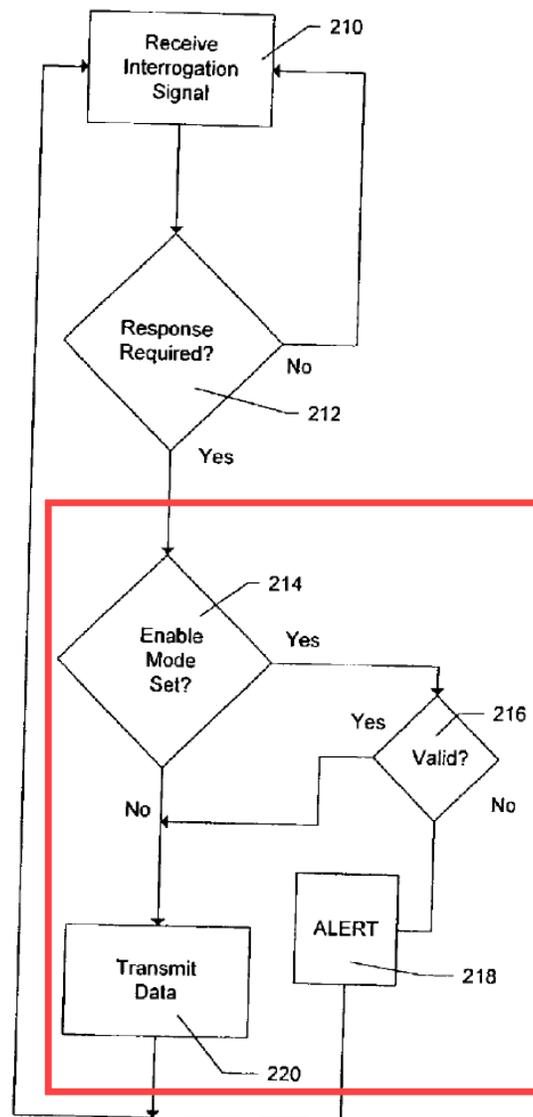
FIG. 2

(Ex. 1006, FIG. 2 (annotated), ¶[0029].)

e. Limitation 1[e]

Rowe discloses this limitation. (Ex. 1002, ¶¶109-111.) As explained in Section IX.A.1.e, *supra*, the '333 Patent allows the “data conveyance switching element” to be “a physical structure, a virtual program, or both.” (Ex. 1001, 6:16–17.) Rowe discloses a switching element in the “program” depicted in Figure 11:

Fig. 11



(Ex. 1006, FIG. 11 (annotated), ¶[0056].) Rowe teaches that “at step 210, software resident on the smart card 10 awaits receipt of an interrogation signal from the subsystem 190.” (*Id.*, ¶[0056].) Rowe further teaches that “[a]t decisional step 212, the determination is made whether such a signal has been received and if YES, the program proceeds.” (*Id.*) Accordingly, all the steps in Figure 11 following step 212, as marked with the red box above, constitute the claimed “switching element.” (Ex. 1002, ¶109.)

Rowe teaches that none of the steps following step 212 occur until receiver 180 (*i.e.*, part of “data transceiver”) of smart card 10 receives the interrogation signal (*i.e.*, “activation cue”). (Ex. 1002, ¶110; Ex. 1006, FIG. 11, ¶[0056].) Therefore, prior to the receipt of the interrogation signal, the steps following step 212 are in an “inactive state.” (Ex. 1002, ¶110.) However, once smart card 10 receives that interrogation signal, Rowe discloses that the program in Figure 11 proceeds to “decisional step 214” and then on to the remaining steps in Figure 11, in which a “response” may be provided to station 190. (Ex. 1006, FIG. 11, ¶[0056].) This constitutes the “activated state” for the “switching element” in Figure 11. (Ex. 1002, ¶110.)

The steps of Figure 11 demarcated by the red box above correspond to the claimed “data conveyance switching element” and satisfy the construction of this claim term. (*Supra* Section VIII.B.) For instance, the steps of Figure 11 constitute

“decisional step[s]” in software resident on the smart card 10 and therefore, disclose “decisional logical circuit or a series of instructions programmed onto a microchip or a processor/general purpose computer/microcontroller.” (*Id.*) Furthermore, as discussed above, the steps switch between a default inactive state (e.g., a state in which data is not conveyed to station 190) and an active state (e.g., a state in which data is conveyed to station 190) based on whether an activation cue is received. (*Id.*)

f. Limitation 1[f]

Rowe discloses this feature. (Ex. 1002, ¶112.) For example, Rowe discloses that “[t]he circuitry of the smart card 10 may be powered by a variety of means, including battery, solar energy, kinetic energy, light operated panel and the like.” (Ex. 1006, ¶[0033].)

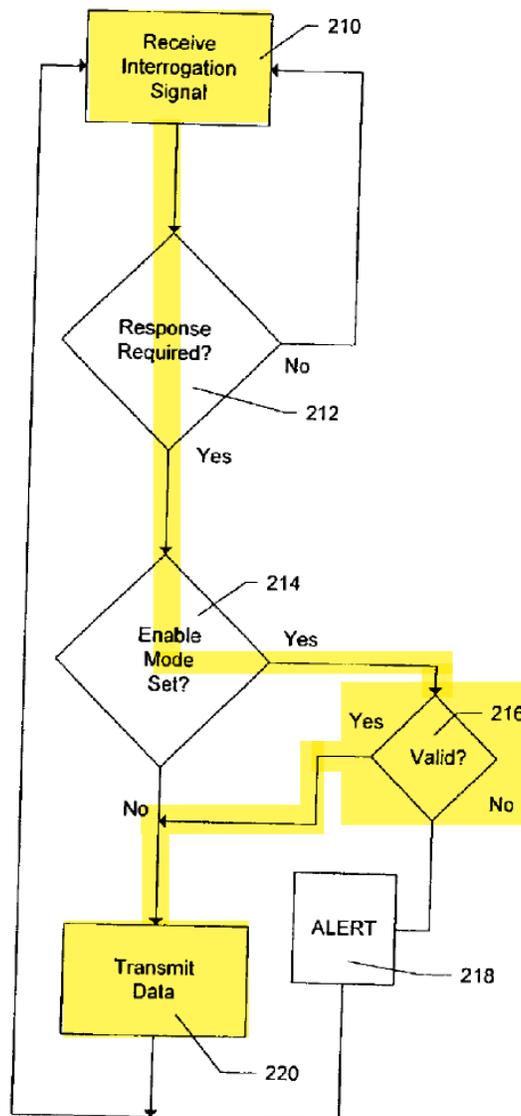
g. Limitation 1[g]

Rowe discloses this feature. (Ex. 1002, ¶¶113-117.) For example, Section IX.D.1.b, *supra*, explains how biometric transducer/sensor 20 (*i.e.*, “control device”) of smart card 10 can be selectively triggered to “enable” smart card 10 (*i.e.*, “issue an invariable activation command”). Further, Section IX.D.1.e, *supra*, explains that steps 214–220 of the software program in Figure 11 (*i.e.*, the “switching element”) are in an “activated state” upon receiving an “interrogation signal” from station 190.

Rowe discloses that selective triggering of biometric transducer/sensor 20 of smart card 10 can only initiate a data exchange between smart card 10 and station

190 (*i.e.*, “external data exchange device”) if the relevant software program is in an “activated state.” (Ex. 1002, ¶114.) Figure 11 of Rowe illustrates this process:

Fig. 11



(*Id.*, ¶114; Ex. 1006, FIG. 11 (annotated).) Rowe discloses that smart card 10’s receipt of an interrogation signal from station 190 at step 210 causes a “YES” determination at step 212. (Ex. 1006, FIG. 11, ¶[0056] (“At decisional step 212, the

determination is made whether such a signal has been received and if YES, the program proceeds[.]”). This places steps 214–220 of Figure 11 (*i.e.*, the “switching element”) in an “activated state.” (Ex. 1002, ¶114.)

Rowe teaches that the program in Figure 11 proceeds to step 214, which determines whether a mode has been set in which enablement of smart card 10 is required before a response can be sent to station 190. (Ex. 1006, ¶[0056].) If this mode has been set, “the program proceeds to decisional box 216 and queries whether in fact the bearer has enabled the card.” (*Id.*) Rowe discloses that smart card 10 can be enabled “through its bearer’s interaction with the transducer/sensor 20, as by placing a thumb thereon to allow the internal electronics of the card to process the biometrics and ascertain that the authorized bearer has enabled the card.” (*Id.*, ¶[0027].)

Rowe teaches that if the card has not yet been enabled, the program proceeds to step 218 and “issues an alert in the form of a visual or audible indication on the card itself.” (Ex. 1006, ¶[0056].) Alternatively, if the bearer has enabled the card, Rowe teaches that the program “proceeds to step 220, where a response is provided to the subsystem 190 in the form of the identification of the particular card.” (*Id.*) This response constitutes the “data exchange” between the electronic circuit of smart card 10 and station/subsystem 190 (*i.e.*, the “external data exchange device”). (Ex. 1002, ¶116; *supra* Section IX.d.1.d.) The data exchange proceeds through

transmitter 170, which is part of smart card 10’s “data transceiver.” (*Id.*, ¶116; Ex. 1006, ¶¶[0051], [0056].)

The above mapping reflects the ’333 Patent’s teaching that a “data exchange” may be in the form of a data download from a first device to a second device, a data upload from a first device to a second device, or a combination of the two. (Ex. 1001, 6:65–7:2; Ex. 1002, ¶117.)

h. Limitation 1[h]

Rowe discloses this limitation. (Ex. 1002, ¶¶118-120.) In particular, Rowe discloses that smart card 10 can take certain actions upon being enabled (*i.e.*, issuing an “invariable activation command”) if an “interrogation signal” has not been received from station 190. (*See* Ex. 1006, ¶¶[0027], [0030], [0056].) For example, Rowe teaches that “once the card is enabled—for a minute, or at most a few minutes to complete a given transaction—a personal attribute of the card bearer can be displayed on the LCD display 24.” (*Id.*, ¶[0030].) Such attributes “may include the signature of the bearer, or her likeness, or a description of her appearance, e.g., height, hair color, complexion, etc.” (*Id.*) As explained in Section IX.D.1.c, *supra*, LCD display 24 constitutes a “user interface device” operatively linked to the electronic circuit of smart card 10. Rowe therefore discloses conveying data to the user interface device of smart card 10 if the switching element is in an inactive state (*i.e.*, has not received an interrogation signal) when the control device (*i.e.*,

fingerprint reader) is selectively triggered to issue an invariable activation command (*i.e.*, enable smart card 10). (Ex. 1002, ¶118.) Again, a POSITA would have understood that the user attributes would be stored in the memory of the “electronic circuit” and hence, conveyed from there. (*Id.*)

The claim further requires that the above step of displaying data in response to the control device triggering occur “if said switching element is in said inactive state.” In other words, the claim requires the portable electronic device to have the capability of displaying data on the device’s display when the switching element is in an inactive state (*i.e.*, when an activation cue has not been received). (Ex. 1002, ¶119.¹³) Therefore, even though Rowe discloses the display of user information on the display of the smart card 10 outside of the presence of the interrogation signal, as discussed above, the claim is met even if this display occurs in the presence of the

¹³ To be sure, the claim is not requiring that the data display occur *exclusively* when the switching element is in an inactive state. Such a requirement would be inconsistent with the specification and the claims. For instance, the specification includes an embodiment when the display occurs while the switching element is in the activated state. (Ex. 1001, 9:12-25.) And claim 13 recites displaying data with the switching element in the activated state. (*Id.*, claim 13.)

interrogation signal as long as the display is occurring in response to selective triggering of the fingerprint reader.

2. Claim 2

Rowe discloses this feature for at least the same reasons as presented above for limitation 1[c]. (See Section IX.D.1.c, *supra*; Ex. 1002, ¶120.)

3. Claim 4

Rowe discloses this feature for at least the same reasons as presented above for limitation 1[b]. (See Section IX.D.1.b, *supra*; Ex. 1002, ¶121.)

4. Claim 5

Rowe discloses this limitation. (Ex. 1002, ¶122.) As explained in Section IX.D.1.b, *supra*, Rowe discloses a fingerprint scanner capable of obtaining a fingerprint scan. (Ex. 1002, ¶122.) Rowe discloses that “simply by placing a thumb over the sensor 20, the internal electronics reads the fingerprint and verifies it against a reference fingerprint. (Ex. 1006, ¶[0030].) Rowe further discloses that “more than one fingerprint may be stored and the person may have the option to use any of the severally stored fingerprints to effect the enablement of the smart card.” (*Id.*, ¶[0050].) Accordingly, Rowe discloses that the claimed “control device” is triggered when a current fingerprint scan matches a pre-saved fingerprint image. (Ex. 1002, ¶122.)

5. Claim 11

Preamble

To the extent the preamble is limiting, Rowe discloses these features. (Ex. 1002, ¶¶123-124.) For example, Rowe discloses each of the “electronic circuit,” “control device,” “user interface device,” “switching element,” and “power means” features for at least the reasons presented above for limitations 1[Preamble]-[h]. (See Section IX.D.1, *supra*; Ex. 1002, ¶123.) Rowe further discloses that the “switching element” is in a default inactive state. (Ex. 1002, ¶123.) Rowe explains that “software resident on the smart card 10 awaits receipt of a[n] interrogation signal.” (Ex. 1006, ¶[0056].) Without receipt of that “interrogation signal,” Rowe teaches that the software program represented in Figure 11 cannot proceed past step 212, thereby leaving the “switching element” (*i.e.*, steps 214–220 of Figure 11) in a “default inactive state.” (Ex. 1002, ¶123.)

Rowe further discloses “communication ports operatively linked to” an electronic circuit. (Ex. 1002, ¶124.) As explained in Section IX.D.1.d, *supra*, Rowe discloses smart card 10 having a “data transceiver” containing “transmitter 170” and “receiver 180.” (Ex. 1006, FIG. 9, ¶[0051].) Further, Rowe discloses smart card 10 having “electronic coupling facilities for interfacing the smart card to a reader or other communication equipment,” such as “electrical contacts 14,” and/or “an infrared interface 15 for wireless communications.” (*Id.*, ¶[0025].)

- a. **“awaiting for an activation cue to be received at a predetermined one of said communication ports;”**

Rowe discloses this limitation. (Ex. 1002, ¶¶125.) For instance, Rowe discloses that “software resident on the smart card 10 awaits receipt of an interrogation signal from the subsystem 190.” (Ex. 1006, ¶[0056].) A POSITA would have understood that the interrogation signal is received at the “data transceiver” (specifically, receiver 180) of smart card 10. (Ex. 1002, ¶125; Ex. 1006, ¶[0052].)

- b. **“if an activation cue is received at one of said communication ports, changing the state of said switching element from its default inactive state to an activated state; and”**

Rowe discloses this feature for at least the same reasons as presented above for limitation 1[e]. (See Section IX.D.1.e, *supra*; Ex. 1002, ¶126.)

- c. **“selectively triggering said control device to issue an invariable activation command, whereby said method will further comprise one of the two following steps:”**

Rowe discloses this feature for at least the same reasons as presented above for limitation 1[b]. (See Section IX.D.1.b, *supra*; Ex. 1002, ¶127.)

- d. **“if said switching element is in its activated state, initiating a data exchange with an external data exchange device through at least one of said communication ports; and”**

Rowe discloses this feature for at least the same reasons as presented above for limitation 1[g]. (See Section IX.D.1.g, *supra*; Ex. 1002, ¶128.) Rowe discloses

that transmitter 170 is the “communication port” through which the data exchange occurs. (Ex. 1002, ¶128; Ex. 1006, ¶¶[0051], [0052].)

- e. **“if said switching element is in its inactive state, conveying data from said electronic circuit to said user interface device for communicating information to the portable electronic device holder.”**

Rowe discloses this feature for at least the same reasons as presented above for limitation 1[h]. (*See* Section IX.D.1.h, *supra*; Ex. 1002, ¶129.)

E. Ground 5 – Rowe in view of Teicher renders Claim 6 obvious

1. Claim 6

While Rowe’s transducer 20 is a “manually activated button” (Ex. 1002, ¶¶130-131), a POSITA would have found it obvious to perform Rowe’s user authentication process by verifying a PIN entered via a keypad, like in Teicher, in place of verifying a user’s fingerprint. (*See supra* Section IX.B.) The keypad in such a modification of Rowe would constitute a “manually activated button.”

As explained above in Section IX.B, Teicher discloses a smart card with a keypad where the user can enter a PIN via the keypad for authentication purposes. (*Supra* Section IX.B.) As exemplified by Teicher, authentication by entering a PIN on the smart card’s keypad was a known alternative to authentication by a fingerprint match. (Ex. 1002, ¶131.) Thus, it would have been obvious to provide a keypad in Rowe’s smart card 10, based on Teicher’s disclosure of a smart card with a keypad,

and perform user authentication in Rowe’s smart card by verifying a PIN entered by the user through the keypad. (*Id.*) Such a substitution would have been within ordinary skill and obvious as it would yielded the expected result of issuing the authorization signal in Palmer upon verifying the PIN entered by the user. (*Id.*; *supra* Section IX.B.) *KSR*, 550 U.S. at 416-21. The proffered modification would have been within ordinary skill as exemplified by Teicher, which discloses smart cards having keypads. (Ex. 1002, ¶131.)

F. Ground 6 –Rowe and Rolf renders Claim 13 obvious

1. Claim 13

Rowe in combination with Rolf discloses these features for at least similar reasons as presented above for claim 1[h]. (Ex. 1002, ¶133-136; *see supra* Section IX.D.1.h.) Rowe teaches conveying data to LCD display 24 upon smart card 10 being enabled, such as the words “CARD VERIFIED.” (Ex. 1006, ¶[0027].) The conveyance of such information to LCD display 24 (*i.e.*, “user interface device”) could occur if the “switching element” of Rowe was in an activated state upon the selective triggering of the control device. The “electronic circuit” of smart card 10 drives the user interface to display such data. (Ex. 1002, ¶133; *see supra* Section IX.D.1.a.)

Like Rowe, Rolf discloses a hand held personal electronic device “for performing financial transactions and, particularly sales transactions via a wireless

communications link.” (Ex. 1009, 1:16-26.) Rolf discloses that a user makes a purchase at a point of sale terminal by entering information through the keypad of the user’s mobile device; after the user enters the information and the transaction is executed a “confirmation signal” is transmitted to the user’s mobile device, which will “display an indication that the transaction has been complete” that “may include information relating to the sale just made.” (*Id.*, 6:3-10; *see also* 5:26-6:14 (describing the full transaction process); *supra* Section IX.C.)

Similar to the combination of Palmer, Rowe, and Rolf, a POSITA would have found it beneficial, and a matter of common sense, to configure Rowe’s smart card to receive and display a transaction confirmation, including information related to a transaction, as disclosed by Rolf. (Ex. 1009, 6:3-10; *supra* Section IX.C.1.a.) In other words, after data is transmitted in step 220 of figure 11 of Rowe, and where that data results in a transaction, a transaction confirmation would have been displayed on LCD display 24 of Rowe’s smart card technique. (Ex. 1002, ¶135.) Such a modification could be, for example, included as an additional step after step 220 of figure 11 in Rowe. (*Id.*) Doing so would have had foreseeable benefits including enabling a user to confirm on their device that a transaction was successful, or to confirm the transaction details were correct. Thus, a POSITA would have been motivated and found it obvious to combine Rowe with Rolf. (*Id.*) *KSR*, 550 U.S. at 416-21.

Modifying Rowe in view of Rolf would have been a routine task for a POSITA and well within their skill. (Ex. 1002, ¶136.) Utilizing Rolf's method of receiving and displaying a transaction confirmation in Rowe's smart card would have yielded the expected result of Rowe's electronic circuit, which as explained above already drives the user interface to display data, displaying the received transaction confirmation on its display 24 ("conveying data from said electronic circuit to said user interface device for communicating information to the portable electronic device holder"). (*See supra* Section IX.D.1(a).) A POSITA would also have a reasonable expectation of success in the combination at least because Rowe's smart card, as described for claim 1, already discloses performing transactions over wireless communications (*supra* Section IX.D.1(g)) and displaying information to a user (*supra* Section IX.D.1(h)). (Ex. 1002, ¶136.) The combined Rowe-Rolf technique discloses or suggests the limitation of claim 13 because there is a display of information after the transaction occurs (which based on Figure 11 occurs after the switching element is in the activated state and the user has provided the fingerprint).

X. DISCRETIONARY DENIAL IS NOT APPROPRIATE

A. The Prior Art Relied on Herein Is Not the Same or Substantially Similar to Any Art the Examiner Considered

The prior art references relied upon in this Petition were not considered during prosecution of the '333 Patent, nor are they cumulative of the prior art the Examiner considered.

B. The Related Litigation Provides No Basis For Discretionary Denial

The *Fintiv* factors favor institution. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5-6 (Mar. 20, 2020) (precedential).¹⁴

For the first factor (stay), there is no stay at this time, but Petitioner will seek a stay in the parallel proceeding *G. Holdings Ltd. v. Samsung Electronics Co., Ltd. et al.*, 2:20-cv-00342 (E.D. Tex.) and, if necessary, a renewed motion to stay after the Board institutes.

¹⁴ The *Fintiv* rule should not be applied because it violates the AIA, which allows an IPR to proceed in tandem with infringement litigation so long as the petition is filed within one year of service of a complaint of infringement. *See* 35 U.S.C. §315(b). The rule also is arbitrary and capricious because its vague factors lead to speculative, unpredictable, and unfair outcomes. Further, the rule is procedurally invalid because it was not adopted through notice-and-comment rulemaking.

The second *Fintiv* factor (proximity of trial dates) is neutral, and thus the Board should defer to the other factors which favor institution. Jury selection in the district court proceeding is currently scheduled for November 15, 2021, but it is unclear whether that date will remain unchanged over the course of litigation. “[A]n early trial date” is “non-dispositive” and simply means that “the decision whether to institute will likely implicate other factors,” which, as explained, favor institution. *Fintiv*, IPR2020-00019, Paper 11 at 5, 9; *see also Intuitive Surgical, Inc. v. Ethicon LLC*, IPR2018-01703, Paper 7 at 12 (Feb. 19, 2019) (recognizing that, even if a trial will come before a final decision, institution is appropriate to “give[] the district court the opportunity, at its discretion, to conserve judicial resources by staying the litigation until the review is complete,” which helps “satisfy[] the AIA’s objective”).

The third factor (investment in parallel proceedings) weighs in favor of institution. The district court case is in its infancy. Petitioner only recently filed its Answer on February 1, 2021. PO then filed an Amended Complaint on April 7, 2021. Petitioner’s invalidity contentions were submitted April 23, 2021. Furthermore, as with the present Petition, when “the petitioner filed the petition expeditiously” this “mitigates somewhat the investment in the District Court litigation by the parties.” *Apple Inc. v. Seven Networks, LLC*, IPR2020-00180, Paper 12, 12 (Aug. 14, 2020). For example, the Board has found that in a circumstance in which the “Petitioner filed the Petition a week shy of four months before the

statutory deadline for filing an inter partes review under 35 U.S.C. § 315(b),” this weighed in favor of Petitioner with respect to *Fintiv* factor 3. *Id.*, 11-12. Here, Petitioner Samsung Electronics America was served on November 12, 2020 and therefore has been even more diligent than the Petitioner in IPR2020-00180, filing the petition more than six months prior to the statutory deadline. Thus, Petitioner has “filed the instant Petition in a reasonably timely fashion.” *Id.*; *Mylan Pharma, Inc. v. Sanofi-Aventis Deutschland GMBH*, IPR2018-01680, Paper 22, 18 (PTAB Apr. 3, 2019) (finding that petition filed two months before bar date is “well within the timeframe allowed by statute, weighing heavily in [petitioner’s] favor”). Petitioner’s diligence in pursuing this petition more than six months before the statutory bar and immediately after serving its invalidity contentions, weighs in favor of institution under the third *Fintiv* factor.

The fourth *Fintiv* factor (overlap) also weighs in favor of institution. There is no overlap between the grounds here and any invalidity positions to be pursued in the district court because ***Petitioner stipulates that it will not pursue invalidity in the district court litigation based on any instituted IPR ground in this proceeding.*** Thus, “[i]nstituting trial here serves overall system efficiency and integrity goals by not duplicating efforts and by resolving materially different patentability issues.” *Apple, Inc. v. SEVEN Networks, LLC*, IPR2020-00156, Paper 10 at 19 (June 15, 2020) (finding the fourth factor “strongly favored” institution even though there was

no stipulation and a significant dispute about the extent of overlap); *see also Sand Revolution II, LLC v. Continental Intermodal Group-Trucking LLC*, IPR2019-01393, Paper 24 at 12 (June 16, 2020) (finding the fourth factor weighs in favor of institution due, in part, to petitioner’s stipulation that it will not pursue the same grounds in district court).

The Board should give no weight to the fact that Petitioner and PO are the same parties in the district court litigation (fifth factor) to support exercise of its discretion to deny institution. *See Weatherford U.S., L.P., v. Enventure Global Tech., Inc.*, Paper 16 at 11-13 (April 14, 2021) (giving no weight to the fifth *Fintiv* factor where “Petitioner and Patent Owner [were], respectively, the defendant and complainant in the parallel district court proceeding”). Petitioner has no control over whom PO targets with its lawsuits.

The sixth *Fintiv* factor (other circumstances) weighs heavily in favor of institution given the undeniable similarity between Petitioner’s references and the ’333 Patent. (*See supra* Section IX.) As the Supreme Court recently explained, there is a significant public interest against “leaving bad patents enforceable.” *Thryv, Inc v. Click-To-Call Techs., LP*, 140 S. Ct. 1367, 1374 (2020). Petitioner’s IPR challenging the ’333 Patent is the only challenge to the ’333 Patent before the Board. No challenge has been filed before. Additionally, the prior art at issue here has not previously been considered by the Office. (*See supra* Section X.A.)

Instituting here could save district courts, future parties, and the Board—if a future defendant files an IPR because this one was not considered—significant resources.

XI. CONCLUSION

For the foregoing reasons, Petitioner requests IPR and cancellation of Claims 1–2, 4–6, 11, and 13 of the '333 Patent.

Respectfully submitted,

Dated: April 30, 2021

By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)
Counsel for Petitioner

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 7,628,333 contains, as measured by the word-processing system used to prepare this paper, 13,749 words. This word count does not include the items excluded by 37 C.F.R. § 42.24(a).

Respectfully submitted,

Dated: April 30, 2021

By: /Naveen Modi/
Naveen Modi (Reg. No. 46,224)
Counsel for Petitioner

CERTIFICATE OF SERVICE

I hereby certify that on April 30, 2021, I caused a true and correct copy of the foregoing Petition for *Inter Partes* Review of U.S. Patent No. 7,628,333 and supporting exhibits to be served via express mail on the Patent Owner at the following correspondence address of record as listed on PAIR:

Shumaker, Loop & Kendrick, LLP
1000 Jackson Street
Toledo OH 43604-5573

The Petition and supporting exhibits were also served upon counsel of record for Patent Owner in the litigation pending before the U.S. District Court for the Northern District of California entitled *G. Holdings LTD. v. Samsung Elecs. Co., Ltd.*, Case No. 2-20-cv-00342 (E.D. Tex.) by electronic mail at the following addresses:

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Petition for *Inter Partes* Review
Patent No. 7,628,333

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