

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

FINTIV, INC.,
Patent Owner.

IPR2023-00399
U.S. Patent No. 9,208,488

**SUPPLEMENTAL DECLARATION OF DR. HENRY HOUH
IN SUPPORT OF PETITIONER’S REPLY**

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I, Henry Houh, do hereby declare as follows:

I. INTRODUCTION

1. I am making this supplemental declaration at the request of Apple Inc. in support of Petitioner's Reply in the matter of the *Inter Partes* Review of U.S. Patent No. 9,208,488 ("the '488 patent").

2. I am being compensated for my work in this matter at my customary rate. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony. My compensation is not contingent on the outcome of this matter or the specifics of my testimony.

3. Dr. Shamos provided proposed claim constructions for six claim terms recited in claims 1-22 ("the Challenged Claims") of the '488 patent. I have been asked to provide my supplemental opinions as to Dr. Shamos' proposed claim constructions.

4. In the preparation of this Supplemental Declaration, I have reviewed:

- The '488 patent, APPL-1001;
- The prosecution history of the '488 patent, APPL-1002;
- U.S. Patent Publication No. 2009/0265272 to Dill et al. ("Dill"), APPL-1005;
- U.S. Patent Publication No. 2010/0133334 to Vadhri ("Vadhri"), APPL-1006;

- U.S. Patent Publication No. 2009/0217047 to Akashika et al.
 (“Akashika”), APPL-1007;
- “Designing System for Internet Commerce” by G. Winfield Treese
 et al. (2003), APPL-1008;
- U.S. Patent Publication No. 2013/0332352 to Imrey et al.
 (“Imrey”), APPL-1009;
- U.S. Patent Publication No. 2014/0032758 to Barton et al.
 (“Barton”), APPL-1010;
- U.S. Patent Publication No. 2008/0167988 to Sun et al. (“Sun”),
 APPL-1011;
- U.S. Patent No. 7,865,141 to Liao et al (“Liao”), APPL-1012;
- U.S. Patent Publication No. 2009/0055322 to Bykov et al.
 (“Bykov”), APPL-1013;
- U.S. Patent Publication No. 2004/0196858 to Tsai et al. (“Tsai”),
 APPL-1014;
- U.S. Patent Publication No. 2012/0117178 to Price et al. (“Price”),
 APPL-1015;
- Declaration of Michael I. Shamos, Ph.D. in Support of Patent
 Owner’s Response, EX2003;

- Web Services Architecture, W3C Working Group Note (Feb. 11, 2004), EX2009;
- Q. Mohmoud, Service Oriented Architecture (SOA) And Web Services: The Road to Enterprise Application Integration (EAI) (2005), EX2010;
- R. Studer et al., Semantic Web Services, Concepts, Technologies and Applications (2007), EX2011;
- Electronic Services: Concepts, Methodologies, Tools and Applications (2010), EX2012;
- E. van de Kar et al., Designing Mobile Service Systems (2008), EX2013;
- I. Taylor et al., From P2P And Grids To Services On The Web, Second Edition (2009), EX2014;
- C. Petrie et al., Semantic Web And Beyond: Computing For Human Experience, Semantic Web Services Challenge, Results From The First Year (2009), EX2015;
- Guthery, Scott C.; Guthery, Scott C.; Guthery, Scott C.; Cronin, Mary J.; Cronin, Mary J.; Cronin, Mary J., Mobile Application Development with SMS and the SIM Toolkit (McGraw-Hill

Telecom Professional), McGraw Hill LLC. Kindle Edition (2002), EX2021;

- GSM 11.11 - Version 5.3.0 - Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module Mobile Equipment (SIM - ME) interface; (GSM 11.11) (etsi.org) (July 1996), EX2022;
- Techopedia, “Home Location Register” definition (last updated November 17, 2011) (<https://www.techopedia.com/definition/7580/home-locationregister-hlr>), EX2023;
- Techopedia, “Visitor Location Register” definition (last updated September 12, 2011) (<https://www.techopedia.com/definition/9951/visitor-locationregister-vlr>), EX2024;
- The GSM Standard, An Overview Of Its Security, SANS Institute 2000-2002 (<https://www.giac.org/paper/gsec/1499/gsm-standard-anoverview-security/102787>) (giac.org), EX2025;
- Deposition Transcript of Dr. Michael I. Shamos (Dec. 20, 2023), APPL-1022; and

- Decision Granting Institution of *Inter Partes* Review in IPR2023-00399 ('488 patent) ("Institution Decision").

5. In forming the opinions expressed below, I have considered:
- a) The documents listed above;
 - b) My own knowledge and experience based upon my work in the field of financial transfer systems, as described below; and
 - c) The level of skill of a POSITA at the time of the alleged invention of the '488 patent.

6. Unless otherwise noted, all emphasis in any quoted material has been added.

II. LEGAL PRINCIPLES ON CLAIM CONSTRUCTION

7. I am not an attorney. For the purposes of my Original Declaration and this Supplemental Declaration, I have been informed about certain aspects of the law that are relevant to my opinions. My understanding of the law was provided to me by Petitioner's attorneys.

8. I understand that the claims are to be construed according to the same claim construction standard that district courts use wherein claim terms are given their ordinary and customary meaning from the perspective of a POSITA at the time of the invention (i.e., the *Phillips* standard). I understand that claim terms are generally to be construed according to their plain and ordinary meaning from the

perspective of a POSITA at the time of the invention in the context of the patent's disclosure, unless the inventor provided an express definition for a claim term (i.e., the inventor acts as his or her own lexicographer), or the applicant disavowed or disclaimed the full scope of a claim term either in the specification or during prosecution. I understand that when the inventor acts as a lexicographer, the definition must be definition for a term, and that definition must be set forth in the specification with reasonable clarity, deliberateness, and precision. I also understand that to constitute disavowal or disclaimer, the applicant must clearly and unambiguously express surrender of subject matter during prosecution. I understand that it is important not to import limitations from a disclosed embodiment—even if it is the only embodiment disclosed in the specification—into a claim if the claim does not require those limitations, absent a clear indication that the applicant intended the claims to be so limited.

9. The analysis in this Supplemental Declaration is in accordance with the above-stated legal principles.

III. SUPPLEMENTAL CLAIM CONSTRUCTION ANALYSIS

A. Construction of “Integration Tier...Including Web Services Communication Mechanisms”

10. Dr. Shamos claims that the plain and ordinary meaning of this term requires the “web services communication mechanisms” to “be included in (i.e.,

are part of) the integration” tier. EX2003, ¶ 19. I do not believe that this is the plain and ordinary meaning of the term.

11. The relevant limitation recites in full:

an integration tier configured to manage mobile wallet sessions with a mobile device and including web services communication mechanisms for interfacing with a mobile wallet application installed on a hardware SIM card as well as with a plurality of different device types over a plurality of different communication channels, the integration tier being configured to receive binary and text messages from the mobile device;

APPL-1001 at 23:29-36.

12. Claim 1 does not contain any explicit or implicit requirement that the claimed “web services communication mechanisms” **must** be “included in (i.e., are part of) the integration” tier, as Dr. Shamos suggests.

13. The specification similarly does not, in my opinion, support Dr. Shamos’ proposed interpretation. The ’488 patent describes the integration tier 101 “can also include a communication (e.g., Web services) API and/or other communication mechanisms to accept messages from challenges 111.” APPL-1001 at 9:48-51. A POSITA would have understood the mentioned “communication (e.g., Web services) API and/or other communications mechanisms” to correspond to the claimed “web services communication mechanisms.” In my opinion, the phrase “can also include” in the above text **does not require** the web services

communication mechanisms to be “included in” or “part of” the integration tier. At best, it only requires that the web services communication mechanisms *interface* with the integration tier as is shown in Fig. 1 of the ’488 patent below, nothing more. As shown in Fig. 1, “web services communication mechanisms” are not required to be part of the integration tier 101.

14. The specification also states that the “[n]otification services 102 can be configured through a web services API.” APPL-1001 at 9:62-63. A POSITA would have understood the reference to “web services API” to correspond to the claimed “web services communication mechanisms.” As shown in Fig. 1, however, the notification services 102 is *outside* of the integration tier 101. A POSITA would have therefore understood that the “web services communication mechanisms” could be external to the integration tier 101.

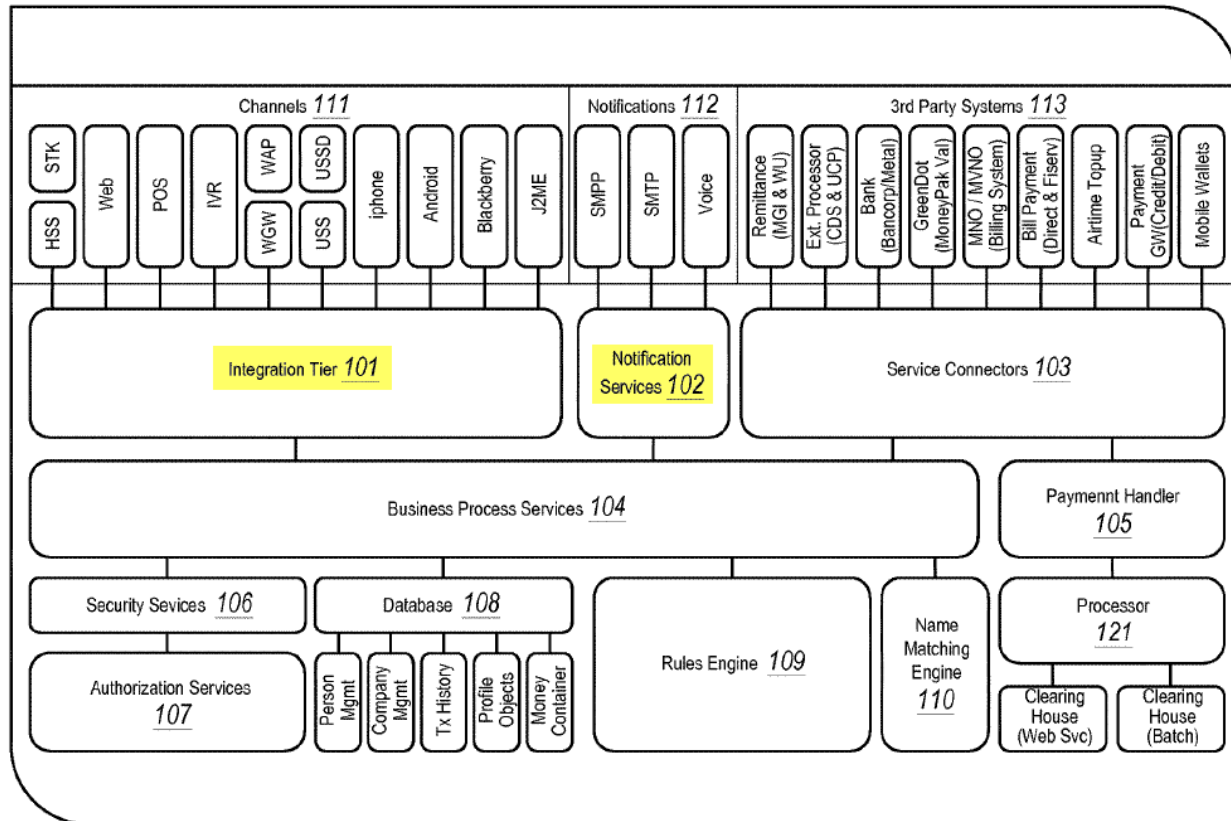


FIG. 1

'488 patent, Fig. 1 (annotated)

15. Therefore, it is my opinion that a POSITA would have understood the plain and ordinary meaning of this term to mean that the integration tier interfaces with the claimed “web services communication mechanisms,” where the “web services communication mechanisms” may be external to the integration tier.

B. Construction of “Web Services Communication Mechanisms for Interfacing with a Mobile Wallet Application”

16. Dr. Shamos claims that the plain and ordinary meaning of this term requires the “web services communication mechanisms” to “interface with a

mobile wallet application that resides on a mobile device.” EX2003, ¶ 20. On its face, this appears to be a reasonable interpretation. Dr. Shamos does not stop there, however, and attempts to further limit his understanding of the term in his substantive analysis. I do not believe that Dr. Shamos’ further limits on the term are its plain and ordinary meaning.

17. The relevant limitation recites in full:

an integration tier configured to manage mobile wallet sessions with a mobile device and including web services communication mechanisms for interfacing with a mobile wallet application installed on a hardware SIM card as well as with a plurality of different device types over a plurality of different communication channels, the integration tier being configured to receive binary and text messages from the mobile device;

APPL-1001 at 23:29-36.

18. In his substantive analysis, Dr. Shamos claims that “web service” is a term of art that “involves a machine-to-machine interaction over the Internet using Web protocols.” EX2003, ¶ 46. Dr. Shamos claims that a machine-to-machine interaction amounts to “a computer-to-computer function invoked automatically, and not at the request of user (like clicking on a hyperlink).” EX2003, ¶ 45.

19. Claim 1 does not contain any explicit or implicit definition of “web services communication mechanisms,” and certainly does not support any of the limitations Dr. Shamos proposes.

20. The specification similarly does not, in my opinion, support Dr. Shamos' proposed interpretation. There is no requirement for the “web services communication mechanisms” to involve machine-to-machine interactions or to require an automatic action that excludes a request of the user.

21. The '488 patent merely states (in its entirety) that the integration tier includes “communication (Web services) API and/or other communication mechanisms to accept messages from channels 111” and the “[n]otification services 102 can be configured through a web services API.” APPL-1001 at 9:48-51, 9:62-63. As stated above, a POSITA would have understood the mentioned “communication (e.g., Web services) API and/or other communications mechanisms” to correspond to the claimed “web services communication mechanisms.” According to Fig. 1, however, many of the channels or services that interface with the web services communication mechanisms are not machine-to-machine and do not require automatic action that excludes a request from a user. For example, voice notifications that use the notification services 102, which is configured through the web services communications mechanisms (APPL-1001 at 9:62-63), is not a machine-to-machine interaction. Similarly, IVR, or Interactive Voice Response—a tool that users interact with when they call into an automated telephone system, e.g., customer service line, and interact with a series of

interactive, pre-recorded voice prompts—is not automatic and only operates in response to user requests or user input.

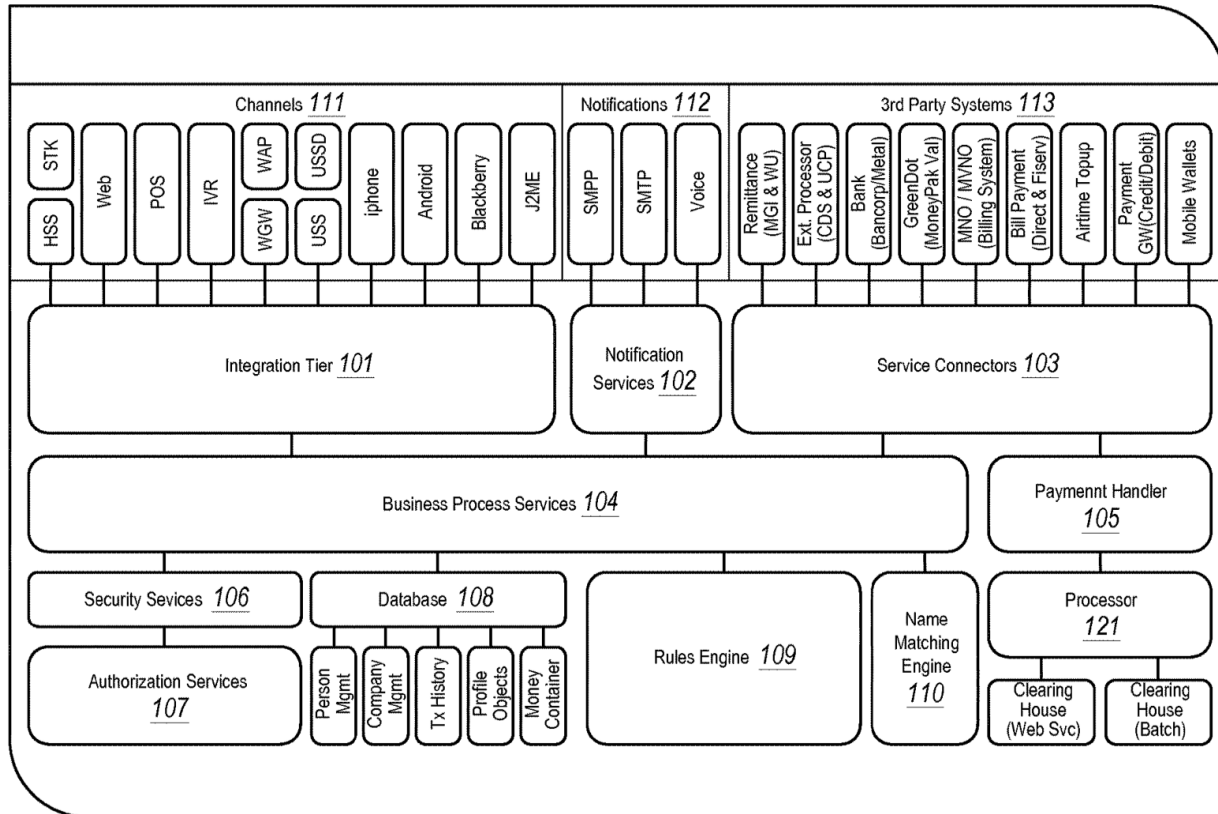


FIG. 1

'488 patent, Fig. 1

22. I should also note that none of the documents Dr. Shamos cites to in support of his proposed interpretation are in the '488 patent itself or the '488 patent's file history. EX2003, ¶ 46 (citing EX2009 to EX2015). All the cited documents are external sources that were not before the examiner during prosecution of the '488 patent. APPL-1022 at 55:14-16.

23. Therefore, it is my opinion that a POSITA would have understood the plain and ordinary meaning of this term to only require the “web services communication mechanisms” to “interface with a mobile wallet application that resides on a mobile device.”

C. Construction of “Different Communication Channels”

24. Dr. Shamos claims that the plain and ordinary meaning of this term requires that “different communication channels” must “(1) interface with the ‘web services communication mechanisms’; and (2) connect the ‘integration tier’ to the ‘different device types’ outside of the ‘integration tier.’” EX2003, ¶ 21. Dr. Shamos further states that the “different communication channels” “cannot be completely contained within ‘the integration tier’” and a “communication channel that does not interface with ‘web service communication mechanisms’ is not within the scope of the claimed ‘different communication channels.’” EX2003, ¶¶ 21-22. I do not agree that this is the plain and ordinary meaning of the term.

25. The relevant limitation recites in full:

an integration tier configured to manage mobile wallet sessions with a mobile device and including web services communication mechanisms for interfacing with a mobile wallet application installed on a hardware SIM card as well as with a plurality of different device types over a plurality of different communication channels, the integration tier being configured to receive binary and text messages from the mobile device;

APPL-1001 at 23:29-36.

26. Claim 1 does not contain any explicit or implicit limitation on the term “different communication channels” to exclude communication channels that may not interface with the “web service communication mechanisms,” as Dr. Shamos suggests.

27. The specification similarly does not, in my opinion, support Dr. Shamos’ proposed interpretation. There is no disclosure that would exclude different communication channels that may not interface with the web service communication mechanisms from the scope of the patent. A POSITA would have understood that a communication channel that interfaces, even indirectly, with the web services communications mechanisms is still interfacing with the web services communications mechanisms. Dr. Shamos agreed during his deposition that an interface occurs when communications are established, even when the communications have to go through multiple interconnections. APPL-1022 at 58:10-13 (“So when you speak of the interface, there is going to be more than one interface because there has to be an interface at each end of the communication.”); *see also* APPL-1022 at 82:17-83:10 (testifying that in the embodiment of the monetary transaction system of Fig. 1 of the ’488 patent, there are a “number of intermediaries” between an external device (e.g., an Android phone) and internal components of the monetary transaction system), 75:7-19 (explaining that Dill’s

communication channels in Fig. 9 involve multiple hardware and software interfaces).

28. Moreover, as noted above, the '488 patent states that its “[n]otification services 102 can be configured through a web services API.” APPL-1001 at 9:62-63. As stated above, a POSITA would have understood the reference to web services API to correspond to the claimed “web services communication mechanisms.” And as can be seen in Fig. 1, communications channels that are utilized by notification services 102, labeled as notifications 112, are not shown to directly interface with the integration tier, even though the notification services are configured through the web services API.

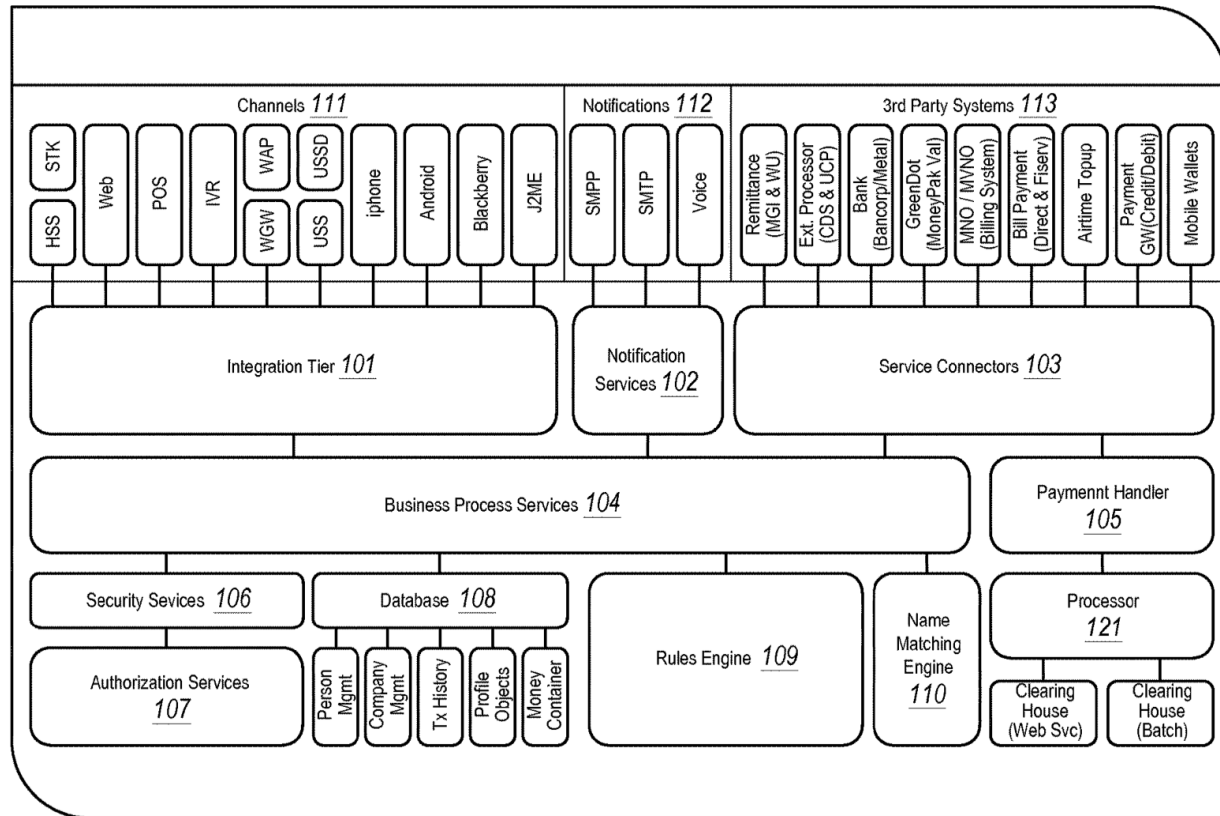


FIG. 1

'488 patent, Fig. 1

29. Therefore, it is my opinion that a POSITA would have understood the plain and ordinary meaning of this term to include within its scope communication channels that may not interface with the “web service communication mechanisms.”

D. Construction of “Mobile Device”

30. I believe that the Board correctly construed the term “mobile device” to mean a “physical device that is mobile, such as a phone or tablet.” Institution

Decision at 10-11. This construction does not change the analysis in my original declaration.

E. Construction of “Mobile Wallet Application”

31. I believe that the Board correctly interpreted the term “mobile wallet application” to mean a “wallet application installed on a SIM card,” as required by the claims. Institution Decision at 12. This construction does not change the analysis in my original declaration.

F. Construction of “Hardware SIM Card”

32. Dr. Shamos claims that the plain and ordinary meaning of this term is “a secure, tamper-resistant chip on a mobile device that is separate from the mobile device’s main memory that enables the mobile device to access the cellular network.” EX2003, ¶ 29. Then, Dr. Shamos provided a slightly different proposed construction of “hardware SIM card”: “a secure, tamper resistant smart chip that is discrete from the mobile device’s main memory that enables the mobile device to access the cellular network. EX2003, ¶ 32.¹ I do not agree that either of these proposed constructions are the plain and ordinary meaning of the term.

¹ I also note that Dr. Shamos referred to a “hardware SIM card” as “a secure, tamper-resistant smart card...” in EX2003, ¶33 when he previously claimed that a

33. The relevant limitation recites in full:

an integration tier configured to manage mobile wallet sessions with a mobile device and including web services communication mechanisms for interfacing with a mobile wallet application installed on a hardware SIM card as well as with a plurality of different device types over a plurality of different communication channels, the integration tier being configured to receive binary and text messages from the mobile device;

APPL-1001 at 23:29-36.

34. Claim 1 does not contain any explicit or implicit requirements for what constitutes a hardware SIM card, and certainly does not support any of the limitations Dr. Shamos proposes.

35. The specification similarly does not, in my opinion, support Dr. Shamos' proposed interpretation. The '488 patent does not define a "hardware SIM card." It instead states that "a mobile wallet application [can be] installed on a SIM card or elsewhere on a mobile device." APPL-1001 at 7:1-3. That's all. There is no discussion about what hardware should or could be part of a hardware SIM card or what features or functionality must or may be implemented or supported by a hardware SIM card. There is no discussion in the '488 patent of a SIM card that is

"hardware SIM card" is "a secure, tamper-resistant chip" (EX2003, ¶29) or "a secure, tamper resistant smart chip" (EX2003, ¶ 32).

secure or tamper-resistant or one that is discrete from the mobile device's main memory. There is also no discussion of a SIM card enabling the mobile device to access the cellular network. These additional limitations Dr. Shamos is trying to read into the term are all from documents that were not part of the prosecution history of the '488 patent. EX2003, ¶¶ 30-32 (citing EX2021 to EX2025). I do not see any reason to read into the term all the additional requirements Dr. Shamos suggests.

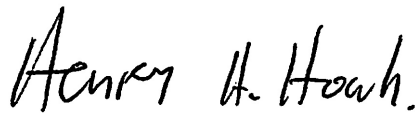
36. Therefore, it is my opinion that a POSITA would have understood the plain and ordinary meaning of this term to mean SIM cards implemented in hardware, rather than software.

IV. CONCLUSION

37. This declaration and my opinions herein are made to the best of my knowledge and understanding, and based on the material available to me, at the time of signing this declaration. I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 35 U.S.C. § 1001.

Date: January 11, 2024

Respectfully submitted,

A handwritten signature in black ink that reads "Henry H. Houh." The signature is written in a cursive, flowing style.

Henry H. Houh, Ph.D.