

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TOYOTA MOTOR CORP. AND KIA CORPORATION,
Petitioners,

v.

EMERGING AUTOMOTIVE LLC,
Patent Owner

PGR2026-00008
U.S. Patent No. 12,337,715

**DECLARATION OF DR. SAM MALEK IN SUPPORT OF PATENT
OWNER'S PRELIMINARY RESPONSE**

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I, Dr. Sam Malek, declare under penalty of perjury as follows:

I. INTRODUCTION AND BACKGROUND

1. I have been retained as an expert witness on behalf of Emerging Automotive LLC (“Emerging Auto”) to provide information and assistance regarding U.S. Patent No. 12,337,715 (“the ’715 patent”). Specifically, I have been asked to consider the Petition for Post-Grant Review numbered PGR2026-00008 (“the Petition”) regarding the ’715 patent, and specifically the Declaration of Dr. Almeroth (EX1003) that accompanies the Petition.

2. In this declaration I provide my independent analysis of the ’715 patent in light of the materials cited below and discussed herein and my knowledge and experience in this field during the relevant time frame. I have been asked to consider what one of ordinary skill in the art at the time of the invention of the ’715 patent (a “POSITA,” see Section V below) would have understood from the specification, including scientific and technical knowledge related to the patent. I have been asked to consider whether the specification described the challenged inventions in sufficient detail to demonstrate to a POSITA that the inventor possessed the claimed inventions at the time of filing. I have also been asked to consider whether the specification provides enough detail for a POSITA to make and use the challenged inventions. I have also been asked to consider certain references and opinions of Dr. Almeroth with respect to obviousness challenges in the Petition.

3. My findings, as explained below, are based on my study, experience, and background in the fields discussed below, informed by my education and my extensive experience in the field of cloud-based processing systems. I have also relied on my review and analysis of the references identified by Dr. Almeroth, information provided to me, and information that I have independently reviewed. I have personal knowledge of the facts and opinions set forth in this declaration, and, if called upon to do so, I would testify competently thereto.

4. I am being compensated for my independent analysis as an expert with respect to this post-grant review proceeding. My compensation is not contingent in any way on the content of my analysis, the opinions that I offer, or the outcome of this proceeding. I have no financial interest in either Petitioner (Toyota or Kia) or Patent Owner (Emerging Auto) and I have no financial interest in the '715 patent.

II. QUALIFICATIONS

5. My qualifications for forming the opinions given in this declaration are summarized here and are addressed more fully in my curriculum vitae, which is submitted as EX2012. That exhibit also includes a list of my publications.

6. I have approximately 26 years of experience in the general area of computer and software technology in a variety of roles, including as a software engineer, software architect, and programmer at a variety of companies, as well as a researcher and professor at several universities.

7. I am currently a Full Professor of Software Engineering with tenure in the Informatics Department within the School of Information and Computer Sciences at the University of California, Irvine. I am also the Director of the Software Engineering and Analysis Laboratory (“SEAL”). My general research interests are in the field of software engineering, and to date my focus has spanned the areas of software analysis and testing, mobile computing, architecture and design, and software dependability and security. The underlying theme of my research has been to devise techniques and tools that aid with the construction, analysis, and maintenance of largescale software systems.

8. I received my Ph.D. and M.S. degrees in Computer Science from the University of Southern California and my B.S. degree in Information and Computer Science from the University of California, Irvine. I have received numerous awards for my research contributions, including the Test of Time Award from the Association for Computing Machinery Special Interest Group on Software Engineering (2020), National Science Foundation CAREER award (2013), GMU Emerging Researcher/Scholar/Creator award (2013), and the GMU Computer Science Department Outstanding Faculty Research Award (2011).

9. I have authored over 140 peer-reviewed research publications. These publications have been highly cited (more than 12,000 times according to scholar.google.com). Many of my publications have dealt with the topics that are related to this proceeding, including distributed software systems, cloud computing,

client-server architecture, and software settings and configuration. I provide a few examples here.

10. My Ph.D. dissertation resulted in novel algorithms for optimizing the deployment architecture of a distributed software system. The deployment architecture of a distributed software system is the allocation of its software components to its hardware devices. There are many deployments of a software system possible, but some may be superior to others with respect to certain quality of service objectives (e.g., latency, availability, security). One application of my dissertation work was in the context of cloud computing, because in most cloud-based software systems there are many geographically distributed nodes (servers) available for the deployment of software components.

11. I have also worked on techniques to leverage cloud computing for software testing. For instance, in an article titled “A Whitebox Approach for Automated Security Testing of Android Applications on the Cloud,” I showed how the resources in the cloud can be effectively harnessed to facilitate security testing at scale.

12. In another article titled “GLIDE: A Grid-based Lightweight Infrastructure for Data-intensive Environments,” I described the results of my work with colleagues from NASA in the development of a new distributed software system for sharing large amounts of data generated by NASA. This capability was the first of its kind in the realm of Grid Computing, which is a precursor to Cloud

Computing.

13. A significant focus of my work has been on computer security, including electronic forms of access control and management of privileges in software systems. For instance, I led a team of researchers in a project sponsored by the Defense Advanced Research Project Agency (DARPA) to develop a novel approach for protecting Android applications from various form of access control attacks. The project resulted in the development of a tool called COVERT. I have published extensively on this work, including a highly cited manuscript that appeared in the IEEE Transactions on Software Engineering in 2015. In another project, I developed DelDroid, which at the time was the first approach for automated determination and enforcement of least privilege architecture in Android. This work was published in the Journal of Systems and Software in 2019.

14. I have received numerous research grants from a variety of organizations, including the National Science Foundation (NSF), Federal Bureau of Investigation (FBI), Air Force Office of Scientific Research, Department of Homeland Security (DHS), National Security Agency (NSA), Defense Advanced Research Projects Agency (DARPA), Office of the Director of National Intelligence, and Army Research Office among others. Software systems and results produced in my research lab have been adopted for use by various organizations in both private (e.g., Boeing, Bosch) and public (e.g., NASA, DHS, FBI) organizations. Many of the above-mentioned projects and software systems involved analysis and design of

client-server software systems deployed on the cloud. For instance, in a project called “RASS: Resilient Autonomic Software Systems” funded by Air Force Office of Scientific Research, I led a team of researchers to develop a new method of automatically adapting Air Force’s software systems to fluctuations in communication networks, thereby making them resilient to network interruptions.

15. I also have several years of experience as a software engineer, software architect, and programmer at a variety of companies, namely the Boeing Company, PricewaterhouseCoopers Consulting (later acquired by International Business Machines (“IBM”) Corporation), FieldCentrix, and Neural Computing Systems Lab. During my tenure in the industry, I gained professional experience in the design, development, and management of largescale software engineering efforts. Among the software systems that I designed and developed were commercial ecommerce and enterprise software systems. Many of the software systems developed in the context of my professional experience were built according to the general client-server architectural style and deployed on the cloud or cloud-like environments. In most of these systems, the server held the state of the distributed application, allowing for that state, such as the preferred user settings, to be transferred to client at runtime.

16. I have taught software engineering and computer science courses on a regular basis at the B.S., M.S., and Ph.D. levels at the universities where I have been

employed. I cover concepts related to cloud computing, distributed software, client-server architectural style, authentication, encryption techniques, access control mechanisms, and protocols for exchange of electronics credentials (e.g., electronic keys, passwords, and tokens) in many of the courses that I teach at the university. Notably, I have regularly taught distributed software engineering courses at UC Irvine and previously at George Mason University (GMU). In these courses, I cover concepts such as the client-server architectural style, cloud computing principles, and server-side storage of user-defined preferences.

17. I have been a frequent speaker at scientific conferences, symposia, workshops, and gatherings of software engineering academics and professionals. I have served as chair, committee member, and reviewer for numerous software engineering journals, magazines, and conferences. I have served on the editorial board of the ACM Transactions on Software Engineering and Methodology, IEEE Transactions on Software Engineering, the ACM Transactions on Autonomous and Adaptive Systems, the Springer Journal of Automated Software Engineering, and the Springer Journal of Computing. I am a member of the Association for Computing Machinery (ACM), ACM Special Interest Group on Software Engineering (SIGSOFT), and the Institute of Electrical and Electronics Engineers (IEEE). I have testified at trial and deposition as an expert witness in numerous cases in the past five years.

III. MATERIALS CONSIDERED

18. In preparing this declaration and forming my opinions, I have considered: the claims, specification, and prosecution history of the '715 patent; the Petition and declaration by Dr. Almeroth ("Almeroth Decl.") (including all materials cited in each); and all materials cited and discussed in this declaration. In addition, I have considered the relevant legal standards, as they have been explained to me by counsel and as I understand them. I have also considered the knowledge and understanding of a person of ordinary skill at the time of the invention of the '715 patent, of which I am familiar. As part of my analysis for this matter, I have also considered my own knowledge and experience, including my work and experience with cloud-based processing systems.

IV. LEGAL PRINCIPLES

19. In forming my opinions here, I have applied the following understanding of certain legal concepts related to written description, enablement, obviousness, combinations of references, and knowledge of one of ordinary skill in the art. Counsel for Patent Owner has informed me of legal principles that apply in this proceeding.

A. Written Description

20. I have been informed and understand that a patent specification must contain a written description of the invention, and this written description requirement confirms the inventor's possession of the claimed invention. I further

understand that the adequacy of the disclosure is judged from the perspective of a POSITA, and the adequacy of the description depends on its content in relation to the particular invention.

21. I am further informed and understand that the patent specification is written for a POSITA and judging adequacy of written description queries whether a POSITA would recognize the invention claimed. I am informed and understand that this POSITA comes to the patent with the knowledge of what has come before. I also understand that elements that are conventional or well-known to a POSITA do not need to be disclosed in detail to meet the written description requirement.

22. I have also been informed and understand that an adequate written description does not require a particular form of disclosure, and drawings or figures may be sufficient to meet the written description requirement.

B. Enablement

23. I have been informed and understand that in order to meet the enablement requirement, an inventor is required to disclose sufficient information to allow a POSITA to make and use the claimed invention without undue experimentation. I further understand that the enablement requirement must be satisfied at the time the patent application was filed.

24. I have also been informed and understand that a POSITA may determine whether a disclosure calls for undue experimentation considering the following factors: (a) the quantity of experimentation necessary; (b) the amount of

direction or guidance presented; (c) the presence or absence of working examples; (d) the nature of the invention; (e) the state of the prior art; (f) the relative skill of those in the art; (g) the predictability or unpredictability of the art; and (h) the breadth of the claims. I have also been informed and understand that these factors are illustrative and are used to weigh whether the application's disclosure is enabling.

C. Obviousness

25. It is my understanding that assessing the validity / patentability of a U.S. patent claim based on a prior art analysis requires two essential steps. First, one must analyze the terms of the patent claims to understand what meaning one of ordinary skill in the art would give the terms. Second, one may then assess validity by comparing a patent claim to the "prior art." I understand that the teaching of the prior art is viewed through the eyes of a person of ordinary skill in the art at the time the invention was made. My opinion as to what constitutes a relevant person of ordinary skill in the art is set forth below.

26. I understand that a claim is invalid as obvious under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter as a whole would have been obvious at the time of the invention to a person having ordinary skill in the art.

27. I understand that a person of ordinary skill in the art provides a reference point from which the prior art and the claimed invention should be viewed.

This reference point prevents one from using his or her own insight or hindsight in deciding whether a claim is obvious.

28. I have been informed that the following factors are used to determine whether or not the claimed subject matter would have been obvious: (i) the scope and content of the prior art; (ii) the differences between the prior art and the claimed invention; (iii) the level of ordinary skill in the field of the invention; and (iv) any relevant objective considerations of non-obviousness, such as commercial success, long-felt but unresolved needs, failure of others, etc.

29. I also understand that in considering the scope and content of the prior art, references must be reasonably related (i.e., analogous) to the claimed invention of that patent. I understand that the test for determining whether a prior art reference constitutes analogous art to the claimed invention is (1) whether the reference is from the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor's endeavor, whether the reference is still reasonably pertinent to the particular problem the inventor is trying to solve.

30. I understand that a party asserting obviousness based on a combination of prior art references must demonstrate that one of ordinary skill in the art would have been motivated to combine the teachings of those references to achieve the claimed invention and that the skilled artisan would have had a reasonable expectation of success in doing so. It is my understanding that it is not enough to show that one skilled in the art could combine elements of multiple references, but

instead there must be some reason that would have prompted a person of ordinary skill in the art to combine the elements in the way the claimed invention does. I understand that there must be some reasoned explanation as to why one of ordinary skill in the art would combine the references. The reason cannot come from hindsight.

31. I understand that in considering whether a claimed invention is obvious, one may but is not required to find obviousness if at the time of the claimed invention there was a reason that would have prompted a person having ordinary skill in the field of the invention to combine the known elements in a way the claimed invention does, taking into account such factors as: (1) whether the claimed invention was merely the predictable result of using prior art elements according to their known function(s); (2) whether the claimed invention provides an obvious solution to a known problem in the relevant field; (3) whether the prior art teaches or suggests the desirability of combining elements claimed in the invention; (4) whether the prior art teaches away from combining elements in the claimed invention; (5) whether it would have been obvious to try the combinations of elements, such as when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions; and (6) whether the change resulted more from design incentives or other market forces. To find it rendered the invention obvious, the prior art must provide a reasonable expectation of success. Obvious to try is not sufficient in unpredictable technologies.

32. I understand that each claim must be evaluated separately for obviousness, and that it is improper to use hindsight. I understand that the disclosures in a patent or a prior art reference are viewed from the perspective of a person of ordinary skill in the art at the time of the invention. The obviousness analysis by a person of ordinary skill in the art must consider only what was known at the time of the invention.

33. It is my further understanding that obviousness cannot be based on a hindsight combination of components selected from one or more prior art references. I also understand that an invention would not have been obvious simply because all of the elements of the invention may have been known separately in the prior art.

34. I understand that a combination of disclosures or references would not have been obvious if the alleged modification(s) to be made to the reference(s) would have been inconsistent with the reference's stated goals or would have rendered the combination inoperable for its intended purpose. I further understand that for something to have been obvious, the party asserting obviousness must explain why a POSITA would have selected components or features for combination in the manner claimed.

35. I have been informed that a prior art reference must be considered in its entirety, i.e. as a whole, including portions that would lead away from the claimed invention.

36. I understand that with respect to claim construction, the proper

construction is considered in the context of, and must be consistent with, the specification and that the claim language should be read in light of the specification and file history as it would be interpreted by one of ordinary skill in the art.

V. PERSON OF ORDINARY SKILL IN THE ART (“POSITA”)

37. Counsel for Patent Owner has informed me that a person of ordinary skill in the art is a hypothetical person who is presumed to have known the relevant art at the time of the invention. In my opinion, the relevant field of art for the ’715 patent is that of cloud-based processing systems.

38. For the purpose of this Declaration, and based on my opinions herein, the time of invention for the ’715 patent is October 25, 2013. My opinions regarding a POSITA applies to a date of invention in October 2013.

39. I have been informed by counsel for Patent Owner that the person of ordinary skill is generally familiar with the type of problems encountered in the field and the prior art solutions to those problems and possesses an ordinary level of creativity.

40. I understand that Petitioners’ expert, Dr. Almeroth, opined that a person of ordinary skill in the art would have “had at least a four-year undergraduate degree in electrical engineering, automotive engineering, or a closely related field and at least two years of experience in the fields of access control systems, vehicle electronics, and/or cryptography. Additional education could substitute for professional experience and vice versa.” EX1003, Almeroth

Decl., ¶ 84.

41. For purposes of this declaration, I apply Dr. Almeroth's definition. However, I note that the opinions I set forth below are applicable under any reasonable definition of a POSITA. I also note that I qualify as a POSITA under Dr. Almeroth's proposed definition.

VI. BACKGROUND

A. Overview of the '715 Patent

42. United States Patent Number 12,337,715 (the "'715 patent") is titled "Methods and Systems for Sharing e-Keys to Access Vehicles." EX1001, Face Page. The '715 patent "relates to systems and methods for generating and sharing electronic keys (e-Keys) with users and cloud-based processing systems." EX1001, 1:1-2, 2:7-9.

43. "One method includes processing operations to share electronic keys (e-keys). The method includes receiving a request to share an electronic key (e-key) of a vehicle with a recipient device. The request to share the e-key is initiated by sending a message to the recipient device using a sharing device. The method includes processing the request to validate the request to share the e-key, as received from the sharing device having associated therewith a registered owner e-key. Processing the request includes generating the e-key securely by the sharing device and registering the e-key that was generated with a server associated with a manufacturer of the vehicle. The method includes

enabling the e-key for use on the vehicle by the recipient device responsive to said processing of the request. The request to share the e-key includes enabling a setting to apply a privilege level for use of the vehicle via the e-key. The privilege level provides one or more conditions of use of the vehicle via the e-key.” EX1001, Abstract.

44. For example, independent claim 1 of the ’715 patent recites:

“A method for sharing electronic keys (e-keys), comprising:

processing a request to share an electronic key (e-key) of a vehicle with a recipient device, the request to share the e-key being received responsive to a message being sent to the recipient device from a sharing device;

determining that the request to share the e-key was associated with a registered owner e-key;

processing instructions to enable the e-key to be securely generated for use by the recipient device; and

saving information regarding the e-key with a server associated with a manufacturer of the vehicle;

wherein the e-key is enabled for use on the vehicle by the recipient device.”

B. Priority

45. I understand that the application for the ’715 patent was filed on October 11, 2023, which is linked by continuation applications, the earliest of which is U.S. Patent Application No. 14/063,638 (“the ’638 application”). The ’638 application has a filing date of October 25,

2013. I also understand that the '715 patent and the '638 application are continuation-in-part applications of applications that were filed on March 15, 2013, and on April 22, 2012, respectively, and claim priority to two U.S. provisional applications, one filed on December 24, 2012, and one filed on April 22, 2011. I understand that Dr. Almeroth opines that the time of the invention is October 25, 2013, based on the filing date of the '638 application. I understand that the '715 patent shares a specification with the '638 application, as the two are linked by continuation applications. Therefore, the '715 patent is entitled to a priority date of at least October 25, 2013. For purposes of this Declaration, I apply Dr. Almeroth's assessment of a priority date of October 25, 2013, based on the '638 application filing date.

VII. CLAIM CONSTRUCTION

46. I understand that the district court issued a Markman Order on May 14, 2025 for each of U.S. Patent No. 10,407,026 (“the '026 patent”), U.S. Patent No. 11,738,659 (“the '659 patent”), and U.S. Patent No. 9,365,188 (“the '188 patent”) (collectively “related e-key patents”)—identified by Dr. Almeroth as “related patents directed to e-keys.”EX2005; EX1003, Almeroth Decl., ¶ 78. I understand that the district court construed the “e-key” terms of those related e-key patents as “electronic data that enables one or more functions of the vehicle”:

Term	Disputed Term	The Court's Construction
1	"electronic key"/ "eKey"/ "e-key" ('026 patent, Claims 1, 2, 6, 13, 15; '659 Patent, Claims 1, 3, 4, 12, 13, 20; '188 Patent, Claims 1, 11, 16, 17; '268 Patent, Claims 10, 18)	"electronic data that enables one or more functions of the vehicle"

EX2005, at 32.

47. I also understand that the district court ordered that the plain and ordinary meaning of various "privileges" / "conditions of use" terms (EX2005, at 12) as recited in the related e-key patents, specifically excludes "unfettered access". See EX2005, at 12-13, excerpted below.

From Defendants' perspective, the dispute centers on whether the "privileges" or "conditions of use" can allow what they call "unfettered access." They say Plaintiff's "non-construction of these terms invites the incorrect possibility that mere (unrestricted) access alone might be a privilege within the context of the . . . patents." Dkt. No. 134 at 5. For support, they cite prosecution-history and IPR statements purportedly distinguishing cited references that allow such access.

The Court agrees with Defendants. The patents use "privileges" and "conditions" similarly, and there appears to be no dispute about what "conditions" are. For example, the specification explains various drivers can each have their own user account, "which provides specific privileges (use capabilities, restrictions, limits, parameters, etc.)." '026 Patent at 36:46–50. Elsewhere, the patents explain conditions of use "define[] one or more privileges associated to use of the e-key." *Id.* at 4:65–66; *see also id.* at 6:60–63 (describing "use of the vehicle in accordance with conditions defined in the privilege settings").

EX2005, at 12. *See also* EX2005, at 13:

Id. (internal citations omitted). Plaintiff then emphasized its prosecution remarks that Zaid did not disclose “a unique access code that includes privilege settings set for additionally limiting types of use of the vehicle.” *Id.* at 17. In other words, Plaintiff equated “unfettered access” with the absence, not presence, of “privileges.” Given that, the Court agrees with Defendants that “privileges for use of the vehicle” cannot simply be “unfettered access” to the vehicle, which is the “plain and ordinary meaning” of these phrases on this record.

48. I am informed that the standard for claim construction of terms within the claims of the patent is the same as that applied in federal district court litigation. I apply the district court’s constructions for these terms, as set forth above, in my analysis herein.

VIII. OPINIONS

A. A POSITA would not have been motivated to combine Sekiyama (EX1005) in view of Kleve (EX1004) as proposed.

49. I understand that Dr. Almeroth contends that a POSITA would have been motivated to combine Sekiyama (EX1005), Kleve (EX1004), Hatton (EX1008) and Xiao (EX1010). EX1003, Almeroth Decl., ¶¶ 103-128. I disagree, for at least the reasons set forth below.

50. Sekiyama discloses a deliberately simple method for exchanging electronic keys that expressly avoids any requirement for pre-registration. Sekiyama illustrates this approach using a valet-parking scenario, where a vehicle owner wishes to lend a key to a valet employee without requiring to pre-register devices and create user accounts. See, e.g., EX1005, ¶¶ 4, 48, 50. To that end,

Sekiyama teaches that an electronic key may be transmitted directly from portable telephone A to portable telephone B using short-range or ad-hoc communication mechanisms such as Bluetooth, infrared, or email. EX1005, ¶¶ 31-40. In Sekiyama, the owner and recipient exchange keys directly, with no requirement to pre-register and create accounts on a server. See, e.g., EX1005, ¶¶ 35-39, 50, Figure 3.

51. This design choice is intentional. Sekiyama seeks to eliminate the complexity associated with conventional electronic key systems that require device pre-registration—i.e., the creation of accounts or profiles on a server—before a key can be shared. See, e.g., EX1005, ¶ 50. In my opinion, Sekiyama explicitly teaches away from such solutions. See EX1005, ¶ 50 (“Additionally, with conventional electronic key systems, there was the problem that a prerequisite for generating an electronic key was the pre-registration of the electronic device (terminal) to be used as an electronic key, which involved complex procedures, making it difficult to lend an electronic key temporarily.”).

52. Kleve, by contrast, discloses precisely the type of conventional solution that Sekiyama criticizes. EX1004. In Kleve, both the vehicle owner and the temporary user must first register on a website and create user profiles before an electronic key can be issued and transferred. See, e.g., EX1004, steps 602 and 612 of Figure 6. Pre-registration may be a reasonable solution in the context of a vehicle-rental scenario discussed in Kleve, but it is unwieldy in the context of a valet-parking scenario that is discussed in Sekiyama. Kleve and Sekiyama address

problems arising in different operational settings.

53. Accordingly, a POSITA would not have looked to Kleve to improve or modify Sekiyama. Because Sekiyama expressly teaches away from solutions requiring pre-registration prior to electronic key exchange, combining Sekiyama with Kleve would undermine Sekiyama's core design objective and would not have been a natural or motivated modification for a POSITA.

54. For at least these reasons, I disagree with Dr. Almeroth's conclusion that a POSITA would have been motivated to modify Sekiyama in view of Kleve.

55. I further disagree with Dr. Almeroth's conclusion that the proposed modifications to Sekiyama in view of Kleve would have been obvious to a POSITA. For example, as I discuss above, the proposed modifications to Sekiyama in view of Kleve would have been inconsistent with Sekiyama's stated goals.

B. Written Description

57. Dr. Almeroth opines that claims 1-11 and claims 17-24 do not satisfy the written description requirement under 35 U.S.C. § 112. These opinions criticize specific limitations of independent claims 1, 17 and 23 of the '715 patent. I disagree with these opinions, as explained more fully below.

58. Specifically, Dr. Almeroth contends that the '715 patent specification does not describe (1) claim limitation 1[a] "processing a request to share an electronic key (e-key) of a vehicle with a recipient device, the request to share the e-key being received responsive to a message being sent to the recipient device

from a sharing device,” or (2) claim limitation 23[b] “the request to share is configured to be initiated using a message communicated to the recipient device.”

EX1003, Almeroth Decl., ¶¶ 214-216. I disagree.

59. Dr. Almeroth opines that “the specification never describes a message to the recipient that causes the server to receive/process the share request or that initiates the request.” EX1003, Almeroth Decl. ¶ 216. I disagree with this opinion.

60. I note that the specification of the '715 patent describes Figure 35, which “illustrates an example where a request is sent by John via device 702 to cloud services 120.” EX1001, 45:37-38. The specification also explains that “[t]he request sent by the requester can include an action request.” EX1001, 45:41-42. The specification goes on to describe examples of different action requests. EX1001, 45:37-54, Figure 35. In one example, the user can utilize an application on their mobile device to request that a message is sent to the recipient, so that the recipient can receive the e-keys and be granted access to the vehicle. EX1001, 45:51-54. As illustrated in Figure 35, a user, John, can send an action request to cloud services 120, as shown below:

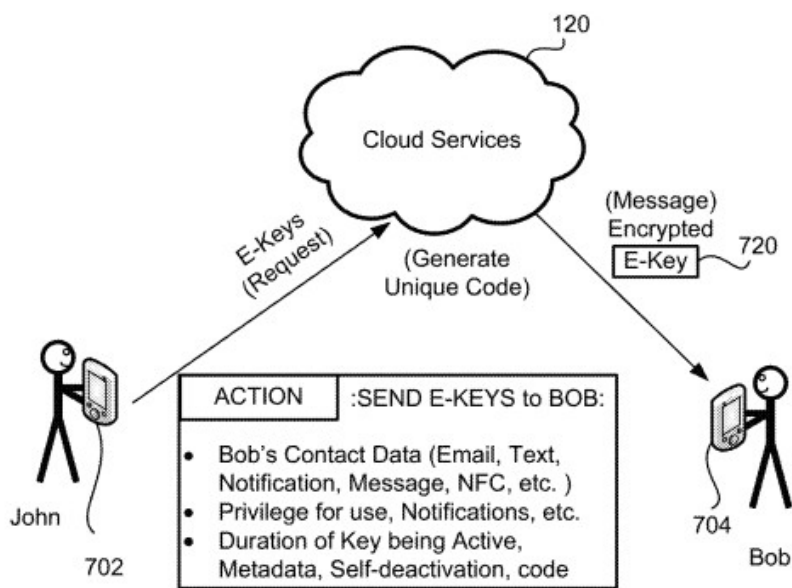


FIG. 35

EX1001, Figure 35.

61. The '715 specification provides that the action request sent by the requester can include information to identify the recipient, such as the recipient's contact data, and can define privileges for use. EX1001, 45:43-50, Fig. 35. For example, the requester can set "[t]he duration that the e-keys will remain active[.]" EX1001, 45:43-50, Fig. 35.

62. In another example described by the specification, "the user-owner of the vehicle can assign a valet with access to the vehicle by going on an application (App or website) on a computing device (e.g., mobile or non-mobile device), identifying the recipient, identifying a mode for communicating with the recipient

(e.g., text, email, message, notification, etc.), selecting the advisor account privileges (e.g., what type of access, speed limits, geographic restrictions, amount of time the keys will be valid (or else expire)), and requesting that e-keys be sent to the recipient.” EX1001, 43:35-46.

63. “In one example, the app on the user’s mobile device can request that a message be sent to the recipient, so that the recipient can receive the e-keys and be granted access to the vehicle.” EX1001, 45:51-54. The specification describes examples of this message sent to the recipient device. The specification also describes how the recipient can utilize a message received on their mobile device to activate a request to share an e-key.

64. For example, the specification describes “one embodiment,” in which “the recipient may have a mobile device or computing device (e.g., smartphone, tablet computer, laptop computer, personal digital assistant, smartwatch, computer glasses, or the like), on which a communication can be received that provides instructions for obtaining/validating/using the e-keys. In one example, a message can be sent to the recipient, which may provide instructions on how to activate the e-keys.” EX1001, 45:51-61.

65. The specification also describes that “[i]n one embodiment, the message may have a link to an application that can be launched, which can be used to complete the activation and access with the vehicle.” EX1001, 45:62-64.

66. “In another embodiment, a simple link can be sent, which when

selected will link the user to a webpage, which provides instructions for activating the access for the e-keys.” EX1001, 45:64-67.

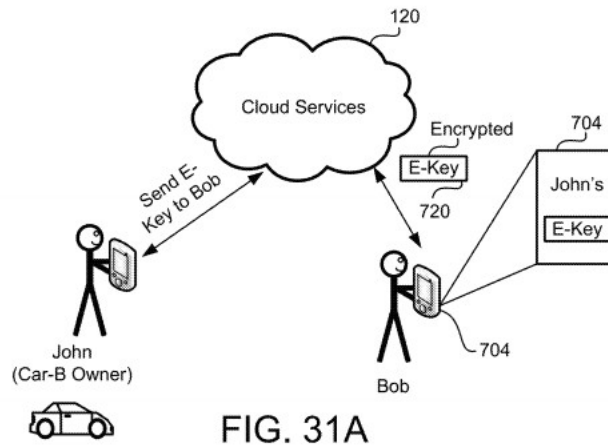
67. I understand from these disclosures that the request to share the e-key may be initiated by/configured to be initiated by a requester/user sending a message to the recipient device. I also understand that these disclosures adequately describe to a POSITA the recited limitations in independent claims 1[a] and 23[b]: “processing a request to share an electronic key (e-key) of a vehicle with a recipient device, the request to share the e-key being received responsive to a message being sent to the recipient device from a sharing device” (claim limitation 1[a]) / “the request to share is configured to be initiated using a message communicated to the recipient device” (claim limitation 23[b]). A POSITA would understand that the inventors had possession of the inventions claimed in claims 1 and 23 at the time of filing.

68. Dr. Almeroth further contends that the '715 patent specification does not describe “confirmation events” in claim 17: specifically, claim limitation 17[a], which recites “receiving confirmation of a sharing request being sent for an electronic key (e-key) for use of the vehicle by a recipient device,” and claim limitation 17[b], which recites “receiving confirmation of the sharing request from the recipient device.” EX1003, Almeroth Decl. ¶¶ 217-219. I disagree.

69. Dr. Almeroth states that “the written description contains no disclosure of (i) the system receiving a confirmation of a sharing request was

sent, or (ii) the system receiving a confirmation from the recipient device.”
EX1003, Almeroth Decl., ¶ 219. I disagree.

70. I note that the '715 patent specification describes an example in which a “user, John, utilizing his mobile device **702**, is able to communicate and send e-keys to another user (Bob). In this example, the sending of e-keys can include the sending of the request to a server, which may be operated by cloud services **120**.” EX1001, 43:47-51. Figure 31A is depicted below:



EX1001, Figure 31A.

71. The '715 patent specification also includes a description of Figure 31B, in which “FIG. 31B illustrates an example of operations that may be performed by cloud services **120** when a request to send e-keys to a recipient is received. Cloud services can receive the request **741**. The request can include identification of the recipient and the privileges defined by the requester for that issuance of e-keys to the recipient and identification of the device that will

receive the e-keys.” EX1001, 44:34-40.

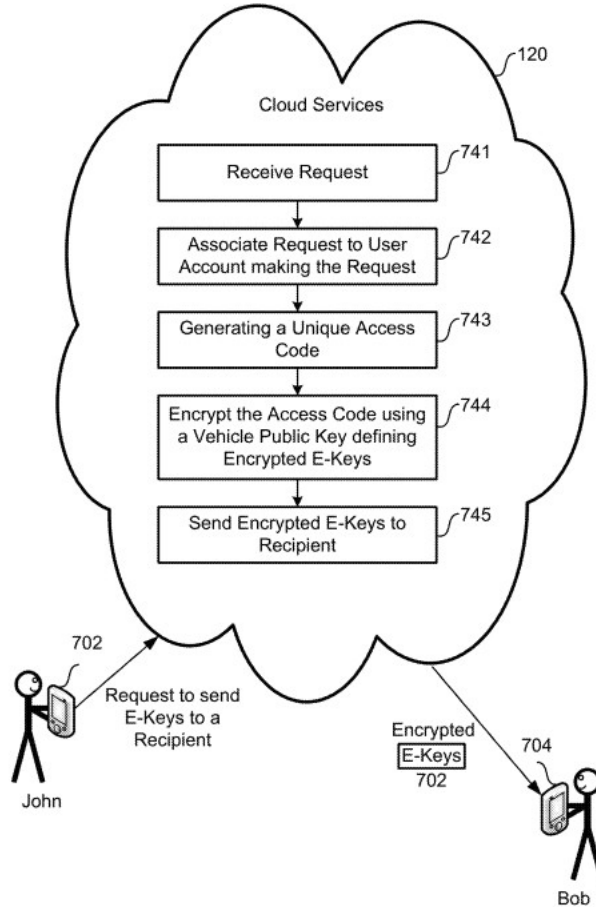


FIG. 31B

EX1001, Figure 31B.

72. I understand from these disclosures that cloud services 120 is shown to “receive request” at operation 741. EX1001, Figure 31B, 44:34-40.

73. I understand these disclosures to adequately describe and support the recited limitation in independent claim 17[a]: “receiving a confirmation of a sharing request being sent for an electronic key (e-key) for use of the vehicle by

a recipient device[.]” EX1001, claim 17.

74. The '715 patent specification also provides adequate written support for the claim limitation set forth in claim 17[b]: “receiving confirmation of the sharing request from the recipient device.” EX1001, claim 17.

75. For example, as I described above with respect to claim limitations 1[a] and 23[b], the '715 patent specification describes “one embodiment,” in which “the recipient may have a mobile device or computing device (e.g., smartphone, tablet computer, laptop computer, personal digital assistant, smartwatch, computer glasses, or the like), on which a communication can be received that provides instructions for obtaining/validating/using the e-keys. In one example, a message can be sent to the recipient, which may provide instructions on how to activate the e-keys.” EX1001, 45:54-61.

76. The '715 patent specification goes on to describe an example of such a message, in which “a simple link can be sent, which when selected will link the user to a webpage, which provides instructions for activating the access for the e-keys.” EX1001, 45:64-67.

77. A POSITA would understand from these disclosures that the recipient may select the link that was sent in a message to the recipient device, and when that link is selected, the recipient device will be connected to a webpage. A POSITA would further understand from these disclosures that the web server receives confirmation of the sharing request from the recipient device

before the web server provides the recipient device with a webpage containing the instructions for activating the access for the e-keys.

78. A POSITA would be familiar with how a webpage is retrieved when a user selects a URL link. Selecting a URL link results in an HTTP request message being sent to a web server to retrieve the corresponding webpage.

79. A POSITA would have understood that an HTTP request message may include parameters, which are embedded in the URL, and transmitted to the web server upon selection of the link. To illustrate this, consider the following example URL:

`https://example.com/activate?ekey=ABC123&user=sam`

80. Here, the base URL is "<https://example.com/activate>." The question mark ("?") indicates the parameters that are sent to the web server. In the above example, the parameters are "ekey" with a value of "ABC123" and "user" with a value of "sam." Upon selection of this link, those parameters are sent to the server, allowing the server to determine the ekey and user that correspond to this request.

81. From the '715 patent specification, a POSITA would have understood that selection of the link would result in the web server receiving a request for activation instructions for a specific e-key, thereby serving as confirmation of the sharing request for that key from the recipient device. A POSITA would have understood that upon this confirmation, the web server

would return the activation instruction in the form of a web page to the recipient device.

82. I understand these disclosures to adequately describe and support the recited limitation in independent claim 17[b]: “receiving confirmation of the sharing request from the recipient device[.]” EX1001, claim 17.

83. A POSITA would understand that the inventors had possession of the invention claimed in claim 17 at the time of filing.

C. Enablement

84. I understand Dr. Almeroth contends that the '715 patent is not enabled.

85. Specifically, Dr. Almeroth opines that the '715 patent is not enabling for: (1) claim limitation 1[a] “processing a request to share an electronic key (e-key) of a vehicle with a recipient device, the request to share the e-key being received responsive to a message being sent to the recipient device from a sharing device,” (2) claim limitation 23[b] “the request to share is configured to be initiated using a message communicated to the recipient device,” (3) claim limitation 17[a] “receiving confirmation of a sharing request being sent for an electronic key (e-key) for use of the vehicle by a recipient device,” and (4) “receiving confirmation of the sharing request from the recipient device.” I disagree.

86. As a POSITA, I understand how to use the method claimed in independent claim 1 to share electronic keys (e-keys) as claimed. As I discuss in

the Written Description section above, the disclosures of the '715 patent adequately describe claim limitation 1[a], and these disclosures enable a POSITA to use the invention without undue experimentation.

87. As a POSITA, I understand how to make and use the system claimed in independent claim 23 for enabling use and sharing of an electronic key (e-key) for a vehicle as claimed. As I discuss in the Written Description section above, the disclosures of the '715 patent adequately describe claim limitation 23[b], and these disclosures enable a POSITA to make and use the invention without undue experimentation.

88. As a POSITA, I understand how to use the method claimed in independent claim 17 for providing access to a vehicle as claimed. As I discuss in the Written Description section above, the disclosures of the '715 patent adequately describe claim limitations 17[a] and 17[b], and these disclosures enable a POSITA to use the invention without undue experimentation.

IX. CONCLUSION

89. This declaration reflects my opinions as currently held. However, my analysis may continue such that I may consider additional information that may result in additional observations.

90. I hereby declare that all statements made herein of 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 Section 1001 of Title 18 of the United States Code.

Executed this 23rd day of January, 2026, at Irvine, California

A handwritten signature in black ink, appearing to read "Sam Malek", with a long horizontal flourish extending to the right.

Dr. Sam Malek