UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,

Petitioner,

v.

RFCYBER CORP.,

Patent Owner

PGR2021-00028
PGR2021-00029

U.S. Patent No. 10,600,046

DECLARATION OF STEPHEN GRAY UNDER 37 C.F.R. § 1.68

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I, Stephen Gray, do hereby declare as follows:

I. INTRODUCTION

1. My name is Stephen Gray, and I have been retained by counsel for GOOGLE LLC ("Google" or "Petitioner") as a technical expert in connection with the proceedings identified above. I submit this declaration in support of Google's Petition for Post-Grant Review of U.S. Patent No. 10,600,046 ("the '046 Patent").

2. I am being compensated for my work in this matter at my accustomed hourly rate. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony in this investigation. My compensation is not contingent on the results of my study, the substance of my opinions, or the outcome of this matter.

3. I have been asked to provide my opinions regarding (1) whether any of claims 1-20 of the '046 Patent contain subject matter that has an effective filing date on or after March 16, 2013, (2) whether any of claims 1-17 of the '046 Patent recite patent-ineligible subject matter, (3) whether the specification and drawings of the '046 Patent fail to contain a written description of any of claims 1-17 of the '046 Patent, and (4) whether any of claims 1-17 are unpatentable as they would have been obvious to a person having ordinary skill in the art ("POSITA") at the time of the alleged invention, in light of the prior art. The following table shows

the challenges discussed in this Declaration and how they correspond to the above-listed proceedings:

Challenge No. in Declaration	Claims Challenged	Ground	Corresponding Petition Challenge
#1	1-17	35 U.S.C. § 101	PGR2021-00028, Challenge #2
#2	1-17	35 U.S.C. § 112(a)	PGR2021-00028, Challenge #1
#3	1-5 and 12-14	35 U.S.C. § 103 over **Moshal** in view of **Jogu** and **Dessert**	PGR2021-00029, Challenge #1
#4	6, 15, and 16	35 U.S.C. § 103 over **Moshal** in view of **Jogu**, **Dessert**, and **Ohlhausen**	PGR2021-00029, Challenge #2
#5	7-11 and 17	35 U.S.C. § 103 over **Moshal** in view of **Jogu**, **Dessert**, **Ohlhausen**, and **Aabye**	PGR2021-00029, Challenge #3

4. In the preparation of this declaration I have reviewed the following, each of which is a type of material that experts in my field would reasonably rely upon when forming their opinions:

a) the ’046 Patent, GOOG-1001;

b) the prosecution file history of the '046 Patent ("'046 patent file history"), GOOG-1002;

c) U.S. Patent Application Publication No. 2014/0310117 to Moshal ("Moshal"), GOOG-1005;

d) Verified English Language Translation of Japanese Patent No. 4901053 B2 ("Jogu"), GOOG-1006;

e) U.S. Patent No. 9,027,827 to Dessert et al. ("Dessert"), GOOG-1007;

f) U.S. Patent Application Publication No. 2014/0365371 to Ohlhausen ("Ohlhausen"), GOOG-1008;

g) U.S. Patent Application Publication No. 2010/0211507 to Aabye et al. ("Aabye"), GOOG-1009; and

h) U.S. Patent Application Publication No. 2014/0297381 to Park ("Park"), GOOG-1010;

i) U.S. Patent Application Publication No. 2011/0066550 to Shank et al. ("Shank"), GOOG-1011;

j) U.S. Patent No. 8,170,527 to Granucci ("Granucci"), GOOG-1012;

k) U.S. Patent Application Publication No. 2013/0166448 to Narayanan ("Narayanan"), GOOG-1013;

l) U.S. Patent Application Publication No. 2011/0173060 to Gallagher ("Gallagher"), GOOG-1015;

m) U.S. Patent Application Publication No. 2013/0048717 to Brendell et al. ("Brendell"), GOOG-1016;

n) U.S. Patent No. 9,202,330 to Boucher ("Boucher"), GOOG-1017;

o) Mifare in Action, GOOG-1018;

p) U.S. Patent No. 7,890,371 to Chao ("Chao"), GOOG-1019;

q) U.S. Patent No. 10,380,573 to Lin ("Lin"), GOOG-1020;

r) U.S. Patent Application Publication No. 2009/0094123 to Killian ("Killian"), GOOG-1021;

s) U.S. Patent Application Publication No. 2010/0174650 to Nonaka ("Nonaka"), GOOG-1022;

t) U.S. Patent Application Publication No. 2012/0296819 to Lu ("Lu"), GOOG-1024;

u) U.S. Patent Application Publication No. 2010/0287095 to Ueno ("Ueno"), GOOG-1025;

v) Comparison of the specification of U.S. Patent 9,047,601 and the specification of U.S. Patent Application No. 13/350,832, GOOG-1026;

w) Comparison of the specification of U.S. Patent 9,047,601 and U.S. Provisional No. 61/618,802, GOOG-1027;

x) U.S. Patent No. 8,118,218, GOOG-1028;

y) U.S. Patent Application Publication No. 2012/0130838, GOOG-1029;

z) U.S. Provisional No. 61/618,802, GOOG-1030;

aa) U.S. Patent 9,047,601, GOOG-1031;

bb) Vuorinen, GOOG-1035;

cc) Shopping Without Cash, GOOG-1036;

dd) History of Money and Payments, GOOG-1037;

ee) PayPal, Britannica, GOOG-1039;

ff) U.S. Patent No. 7,597, 250, GOOG-1040;

gg) and any other document cited in this Declaration.

5. In forming the opinions expressed within this declaration, I have considered:[1]

a. The documents listed above; and

b. My own knowledge and experience, including my work experience in the field of mobile payment techniques, as described below.

6. I am over 18 years of age and, if I am called upon to do so, I am competent to testify as to the matters set forth herein. I am willing to provide testimony about the opinions provided in this declaration if asked to do so.

7. Although I have attempted to organize the information presented in this declaration into helpful sections and/or divisions, my opinions are supported by the information in the declaration in its entirety.

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

II. QUALIFICATIONS AND PROFESSIONAL EXPERIENCE

9. My complete qualifications and professional experience are described in my *Curriculum Vitae*, a copy of which can be found in **GOOG-1004**. The following is a brief summary of my relevant qualifications and professional experience.

[1] All exhibit numbers use the prefix "GOOG-" (e.g., **GOOG-1001** is used for Exhibit 1001).

10. Throughout my career, I have designed, developed, and deployed computing systems and products related to payment systems. As such, I have acquired expertise and am an expert in the areas of distributed computing architecture and design, distributed data management, web-based commerce, payment techniques, and various programming languages used in the development of those systems and products.

11. I have several relevant professional experiences that demonstrate my expertise with systems developed to operate in World Wide Web computing environments deployed over the Internet. For example, in the 1998 to 2000 time period, I served as the CTO for Sicommnet: an e-Commerce Internet start-up. The firm developed a product that specialized in procurement for public agencies over the Internet. For another example, in the 2001-2002 time period, I was the Chief Technology Officer of Networld Exchange Inc. In both assignments, I was responsible for the design, development and deployment of a suite of products that delivered e-Commerce functions. These functions were provided over the Internet and included product catalog information display, purchase and/or purchase order creation, order delivery to fulfillment systems, order status reporting, and interoperability with third party inventory and pricing systems. The products that I had responsibility for utilized protocols and technologies common for web-based systems.

12. Additionally, as my *curriculum vitae* shows, I have performed a detailed analysis of the competitive environment for retail point-of-sale hardware and software systems. This analysis included technology, marketing, compensation, and back office interface issues. I also led the design of an image-assisted remittance processing system using IBM system components and Sybase relational database in a client/server architecture for TRW. Additionally, I designed an object-oriented front end to the database so that the UNIX platform could execute Sybase applications.

13. My practical experience regarding mobile device computing software includes development at NTN Communication of a multiplayer game system operating over mobile phones where issues of data synchronization, event handling, and centralized control of distributed devices was required. I have been retained in several matters relating to mobile computing software. For example, I have been retained in patent and copyright matters involving touch screen user interface operations on mobile phones, Internet protocol implementation on mobile phones, and data synchronization between centralized servers and distributed computing devices.

14. In addition, on several occasions, I have served as an expert witness where web and Internet protocols and technology analysis were required to render an opinion. These matters include *HyVee v. Inmar Inc., Diet Goal Innovations v.*

Chipotle, et al., Enfish, LLC v. Microsoft Corp., et al., Optimize Technology Solutions, LLC v. Staples, Inc., et al., and others.

15. In summary, I have extensive familiarity with the field of electronic payment techniques and mobile computing, and, as I have worked in this field since the early 2000s, I am familiar with what the state of this field was at the relevant time of the ’046 Patent and before.

III. LEVEL OF ORDINARY SKILL IN THE ART

16. I understand that the level of ordinary skill may be reflected by the prior art of record and that a person of ordinary skill in the art (“POSITA”) to which the claimed subject matter pertains would have the capability of understanding the scientific and engineering principles applicable to the pertinent art.

17. I understand there are multiple factors relevant to determining the level of ordinary skill in the pertinent art, including (1) the levels of education and experience of persons working in the field at the time of the invention, (2) the sophistication of the technology, (3) the types of problems encountered in the field, and (4) the prior art solutions to those problems.

18. For purposes of this Declaration, I have been asked to apply an effective filing date for the ’046 Patent of **March 29, 2013**. I note that claims 1-17 claims may have a later effective filing date of June 2, 2015 based on lack of

written description support in the ’046 Patent, but the definition of a person of ordinary skill in the art (noted below) is the same for both dates.

19. A POSITA on and before March 29, 2013 would have had a working knowledge of mobile payment techniques pertinent to the ’046 Patent, including art describing mobile payment techniques. A POSITA would have had a bachelor’s degree in computer science, computer engineering, or an equivalent, and one year of professional experience relating to mobile payment. Lack of professional experience can be remedied by additional education, and vice versa.

20. For purposes of this Declaration, in general, and unless otherwise noted, my statements and opinions, such as those regarding my experience and the understanding of a POSITA generally (and specifically related to the references I consulted herein), reflect the knowledge that existed in the field at least as early as March 29, 2013. Unless otherwise stated, when I provide my understanding and analysis below, it is consistent with the level of a POSITA on or before the effective filing date of the ’046 Patent.

IV. RELEVANT LEGAL STANDARDS

21. I am not an attorney. In preparing and expressing my opinions and considering the subject matter of the ’046 Patent, I am relying on certain legal principles that counsel has explained to me. These principles are discussed below.

A. Entitlement to an Earlier Priority Date

22. I understand that a patent is eligible for post-grant review if the patent contains or contained at any time, a claim having an effective filing date of March 16, 2013.

23. I have been informed that a patent, such as the ’046 Patent, that claims priority to a prior patent application (non-provisional or provisional) may only obtain the benefit of the earlier filing date of the prior patent application if the prior patent application contains written description support for every element of a claim in question. I understand that this analysis is performed on a claim-by-claim basis.

24. I have been informed that a patent claiming priority to several prior patent applications may not be entitled to the earlier filing date of all prior patent applications, such that the patent may be entitled to the benefit of only some of the prior patent application(s) that provide(s) written description support for every element of a claim in question. I understand that this analysis is performed on a claim-by-claim basis.

25. I have been informed that a disclosure satisfies the written description requirement if it reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the date in question. It is my understanding that one shows that one is in possession of the claimed invention by

describing the invention, with all its claimed limitations, and that this requirement is not satisfied by a description which makes the claimed invention obvious.

26. I have been informed that a disclosure that satisfies the written description requirement may be incorporated by reference in the provisional application, by way of incorporation by reference of a U.S. patent or U.S. patent publication, but the incorporation by reference does not extend to material incorporated by reference within such referenced U.S. patent or U.S. patent publication.

B. Written Description Requirement

27. I understand that a patent must include a specification that contains "a written description of the invention." 35 U.S.C. § 112(a). I also understand that, to comply with the written description requirement, the specification or earlier-filed application must reasonably convey to a POSITA that the inventor had possession of the claimed subject matter as of the filing date. I understand that such possession is established only by disclosure. I further understand that a disclosure is insufficient if it merely renders the later-claimed invention obvious, as the disclosure must describe the claimed invention with all its limitations.

28. I understand that the purpose of the written description requirement is to prevent an applicant from later asserting that he invented that which he did not. I therefore understand that, while it is legitimate to amend claims or add claims to a

patent application during prosecution, there must be support for such amendments or additions in the originally filed application.

C. Subject-Matter Eligibility

29. I understand that a claimed invention may be patent-eligible if it is a new and useful process, machine, manufacture, or composition of matter, but that this includes exceptions, i.e., laws of nature, natural phenomena, and abstract ideas are not patentable. I understand that the patent eligibility analysis follows a two-step framework. I understand that the first step of that inquiry is to ask whether the claim at issue is directed to a patent-ineligible concept, such as an abstract idea. I understand that this inquiry requires looking at the focus of the claims, which may be informed by analyzing the specification to understand the problem facing the inventor.

30. If a claim is directed to an abstract idea, I understand that the second step in the inquiry requires an examination of the claim elements to determine whether they contain an inventive concept sufficient to transform the claimed abstract idea into a patent-eligible application. I also understand that merely appending conventional steps, specified at a high level of generality, is not enough to supply an inventive concept.

31. I have been informed that the U.S. Patent and Trademark Office ("USPTO") has issued guidance ("*Guidance*") for applying the two-part test

described above. I understand that, at Step 1 of the *Guidance*, the USPTO looks to whether the claimed subject matter falls within the four statutory categories of patentable subject matter: process, machine, manufacture, or composition of matter. I further understand that Step 2 of the *Guidance* is divided into multiple parts. I understand that Step 2A, Prong 1 of the *Guidance* asks whether a claim recites a judicial exception, i.e., whether a law of nature, natural phenomenon, or abstract idea is set forth or described in the claim. I further understand that, at Step 2A, Prong 2 of the *Guidance*, one determines whether the claim as a whole integrates the recited judicial exception into a practical application of the exception. Finally, I understand that Step 2B of the *Guidance* asks whether the claim recites additional elements that amount to significantly more than the judicial exception.

D. Obviousness

32. I understand that prior art to the ’046 Patent includes patents and printed publications in the relevant art that predate at least March 29, 2013.

33. I understand that a claim is unpatentable if it is either anticipated or rendered obvious by the prior art.

34. I have been informed by counsel that a patent claim is unpatentable as anticipated if each element of that claim is present either explicitly or inherently in a single prior art reference. I have also been informed that, to be an inherent

disclosure, the prior art reference must necessarily disclose the limitation, and the fact that the reference might possibly practice or contain a claimed limitation is insufficient to establish that the reference inherently teaches the limitation.

35. I have been informed that a claimed invention is unpatentable for obviousness if the differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. I have also been informed by counsel that the obviousness analysis takes into account factual inquiries including the level of ordinary skill in the art, the scope and content of the prior art, and the differences between the prior art and the claimed subject matter.

36. It is my understanding that the teachings of two or more references may be combined, if such a combination would have been obvious to one having ordinary skill in the art. In determining whether a combination based on either a single reference or multiple references would have been obvious, it is appropriate to consider whether:

- the teachings of the prior art references disclose known concepts combined in familiar ways;
- a person of ordinary skill in the art could implement a predictable variation, and would see the benefit of doing so;

- the claimed elements represent one of a limited number of known design choices, and would have a reasonable expectation of success by those skilled in the art;
- a person of ordinary skill would have recognized a reason to combine known elements in the manner described in the claim;
- there is some teaching or suggestion in the prior art to make the modification or combination of elements claimed in the patent; and
- the innovation applies a known technique that had been used to improve a similar device or method in a similar way.

37. I have also been informed that one of ordinary skill in the art has ordinary creativity, and is not an automaton. I also understand that in considering obviousness, it is important not to use the benefit of hindsight derived from the patent being considered.

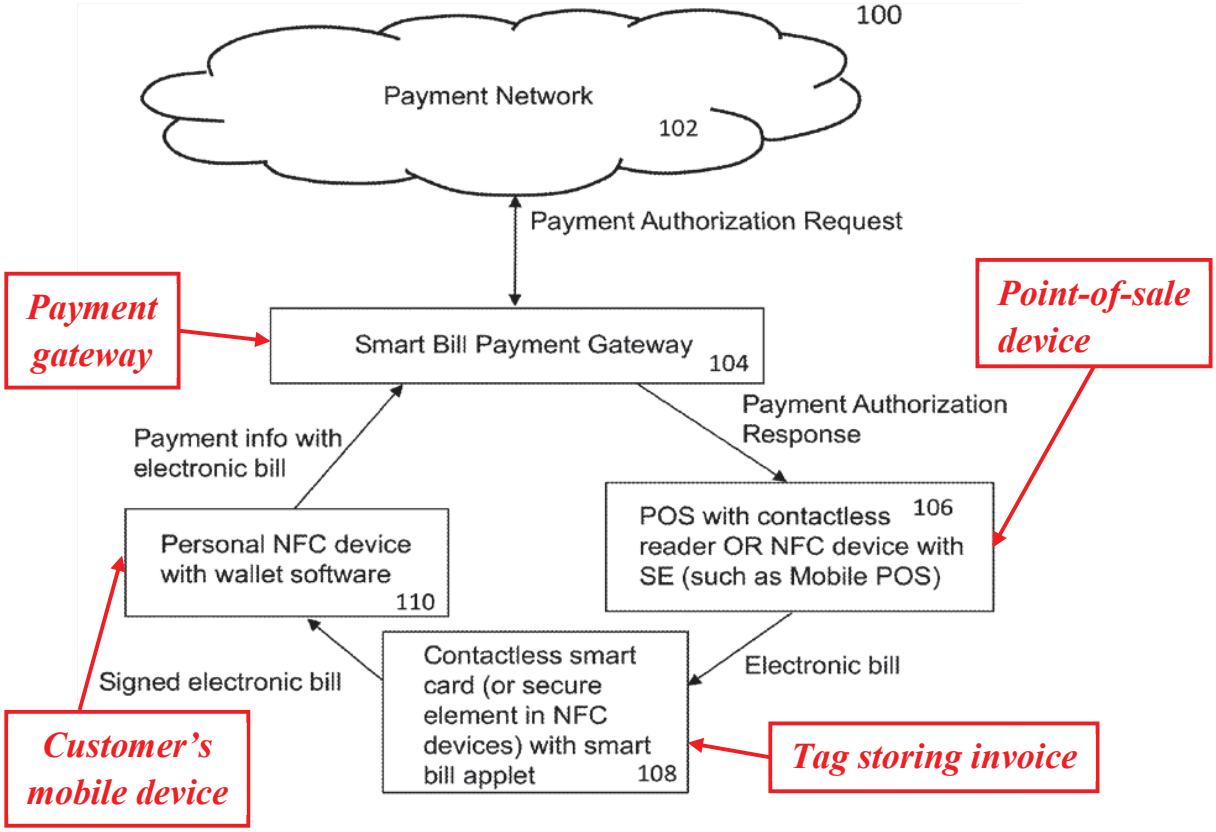
38. I have been informed by counsel that the Supreme Court has recognized several rationales for combining references or modifying a reference to show obviousness of claimed subject matter. Some of these rationales include the following: (a) combining prior art elements according to known methods to yield predictable results; (b) simple substitution of one known element for another to obtain predictable results; (c) use of a known technique to improve a similar device (method, or product) in the same way; (d) applying a known technique to a known

device (method, or product) ready for improvement to yield predictable results; (e) choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; and (f) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

V. THE '046 PATENT

A. Overview of the '046 Patent

39. The '046 Patent pertains to a method of presenting and settling an invoice. **GOOG-1001**, Abstract. While the specification describes many different embodiments, the claims generally correspond to Figures 1A and 1B (but with several important differences). Figures 1A and 1B describe a method in which a restaurant waiter delivers a bill/invoice to a customer via a "tag" or "contactless card," rather than on paper. **GOOG-1001**, 7:19-26. The customer uses a mobile device (e.g., a smartphone) to read the invoice, select a payment method, and settle the invoice by sending a payment request to a server (e.g., a "payment gateway"). **GOOG-1001**, 7:25-8:24. Figure 1A illustrates the system for carrying out this method:



GOOG-1001, Fig. 1A (annotated).

40. Figure 1B illustrates that the merchant's point-of-sale (POS) device 106 generates a bill or invoice that is written to the tag 108 (step 122). When the tag 108 is presented to the user (step 124), an application on the mobile device reads the tag 108 (step 126), and the bill is displayed to the customer on the mobile device. **GOOG-1001**, 7:19-33. The user can optionally add a tip (step 128). **GOOG-1001**, 7:59-61. The mobile device user selects a payment method, such as "an electronic wallet or purse (a.k.a. e-purse) already created in the mobile device"

(step 130). **GOOG-1001**, 7:48-50, 7:57-59. The mobile device then transmits a payment request to a payment gateway (server) 104 (step 132). **GOOG-1001**, 7:62-65. The payment gateway 104 next verifies whether the payment request authorized by the customer is sufficient to cover the amount on the bill (step 134), and, if so, authorizes the payment with a financial payment network (step 136). Once the transaction is approved or denied, the payment server notifies the merchant as to whether payment has been authorized (step 138). **GOOG-1001**, 7:65-8:15.

41. The methods in independent claims 1 and 12 fundamentally differ from the embodiment of Figures 1A and 1B in that they each require an e-purse balance verification on the mobile device before sending the payment request to the payment gateway. Contingent upon that verification, the mobile device then transmits the payment request. Specifically, the claims require that, after the mobile device calculates the total amount (invoice amount + tip), it "verif[ies] the total amount with a balance in the e-purse…without sending the payment request to a payment gateway." **GOOG-1001**, 25:47-51. "[W]hen the balance is less than the total amount," the mobile device "display[s] a denial of the payment request." **GOOG-1001**, 25:52-53. Alternatively, when "the balance is sufficient to honor the payment request," the mobile device "send[s] the payment request from the mobile device to the payment gateway." **GOOG-1001**, 25:54-55.

42. Independent claim 1 is reproduced below:

1. A method for mobile payment, the method comprising:

causing a mobile device to capture data directly from a tag physically presented thereto, wherein the tag receives the data directly from a POS device and allows the mobile device to capture the data, the data embedded in the tag includes an electronic invoice and settlement information with a merchant associated with the POS device;

extracting the electronic invoice from the captured data in the mobile device; displaying the electronic invoice on a display of the mobile device to show an amount to be paid by a user of the mobile device, wherein the mobile device is configured to execute an installed application therein to capture the data from the tag;

receiving an entry by the mobile device, the entry including the amount for the invoice and optionally an additional amount from the user;

calculating a total amount by adding the additional amount to the amount in the electronic invoice;

generating a payment request in the mobile device in response to the electronic invoice after the user has chosen an electronic purse (e-purse) maintained locally in the mobile device;

displaying the electronic invoice on the display of the mobile device for the user to verify the payment request

verifying the total amount with a balance in the e-purse, wherein said verifying the total amount with a balance in the e-purse is performed within the mobile device without sending the payment request to a payment gateway;

displaying a denial of the payment request when the balance is less than the total amount;

sending the payment request from the mobile device to the payment gateway, wherein the balance is sufficient to honor the payment request, the payment gateway sends a message directly to the POS

device that a monetary transaction per the payment request sent from the mobile device has been successfully completed; and

displaying a confirmation in the mobile device that the balance in the e-purse has been reduced by the total amount.

'046 Patent, 25:20-63.

43. Independent claim 12 is reproduced below:

12. A method for mobile payment, the method comprising:

generating a set of data in a point of sale (POS) device, the data including an electronic invoice and settlement information with a merchant associated with the POS device;

embedding the data directly to a tag;

presenting the tag to a mobile device;

causing the mobile device to capture the data from the tag, wherein the mobile device executes an installed application therein to retrieve an amount in the electronic invoice from the data and generate a payment request in response to the captured data, the payment request is denied in the mobile device when the amount is more than a balance of an electronic purse (e-purse) maintained locally in the mobile device, the payment request is sent to a payment gateway when the amount is less than a balance of an electronic purse (e-purse) maintained locally in the mobile device; and

receiving a message in the POS device directly from the payment gateway that the electronic invoice has been settled, wherein the payment gateway is configured to cause the balance in the e-purse reduced by the amount.

'046 Patent, 26:54-27:10.

44. Independent claim 18 is reproduced below:

18. A system for mobile payment, the system comprising:

> a point of sale (POS) device provided to generate a set of data including an electronic invoice upon receiving an entry, wherein the data including the electronic invoice and settlement information is transferred to a tag, a mobile device is executing a module configured to capture the data directly from the tag physically presented thereto, extract an amount expressed in the electronic invoice and display the amount in the mobile device; and wherein
>
> the POS device receives an electronic notification directly from a payment gateway that the electronic invoice has been settled for a total amount including an additional amount and the amount expressed in the electronic invoice, the additional amount is added optionally by the user, after the user of the mobile devices verifies the electronic invoice displayed on the mobile device and authorizes a payment to the electronic invoice, the mobile device is configured to generate a payment request, wherein the payment request is denied within the mobile device without sending the payment request to the payment gateway when the amount is less than a balance of an electronic purse (e-purse) maintained locally in the mobile device; the payment request is sent to the payment gateway to proceed with a payment according to the payment request when the amount is more than the balance of the e-purse.

'046 Patent, 27:30-28:23.

45. As demonstrated in this declaration, there is nothing novel or non-obvious about the claims of the '046 Patent, as all the claim elements were taught in the prior art, and it would have been obvious to combine the relevant teachings as claimed well before March 29, 2013.

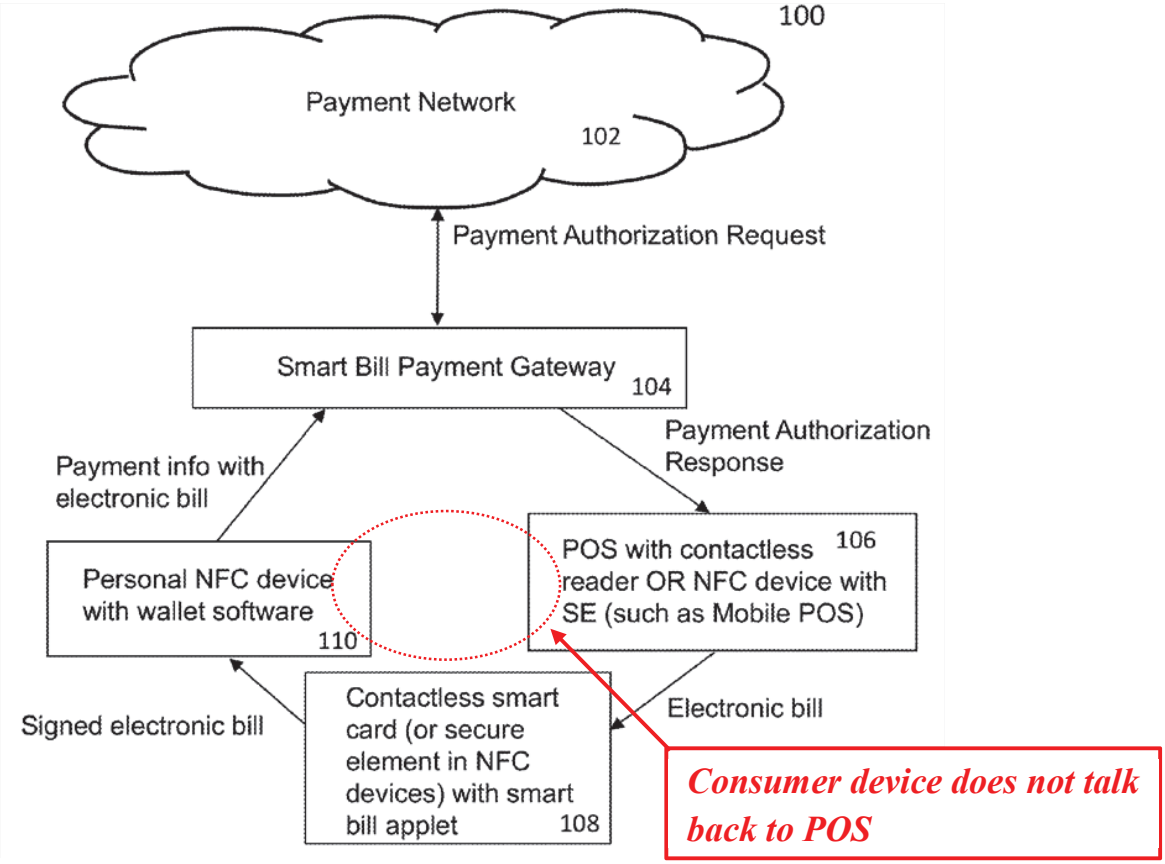
B. Prosecution History of the '046 Patent

46. The '046 Patent issued on March 24, 2020 from U.S. Patent Application No. 14/728,349 ("the '349 application") filed June 2, 2015. The '046 Patent claims priority to a number of previous applications, but, as described in

Section VI below, the subject matter claimed in the ’046 Patent is not disclosed in those applications.

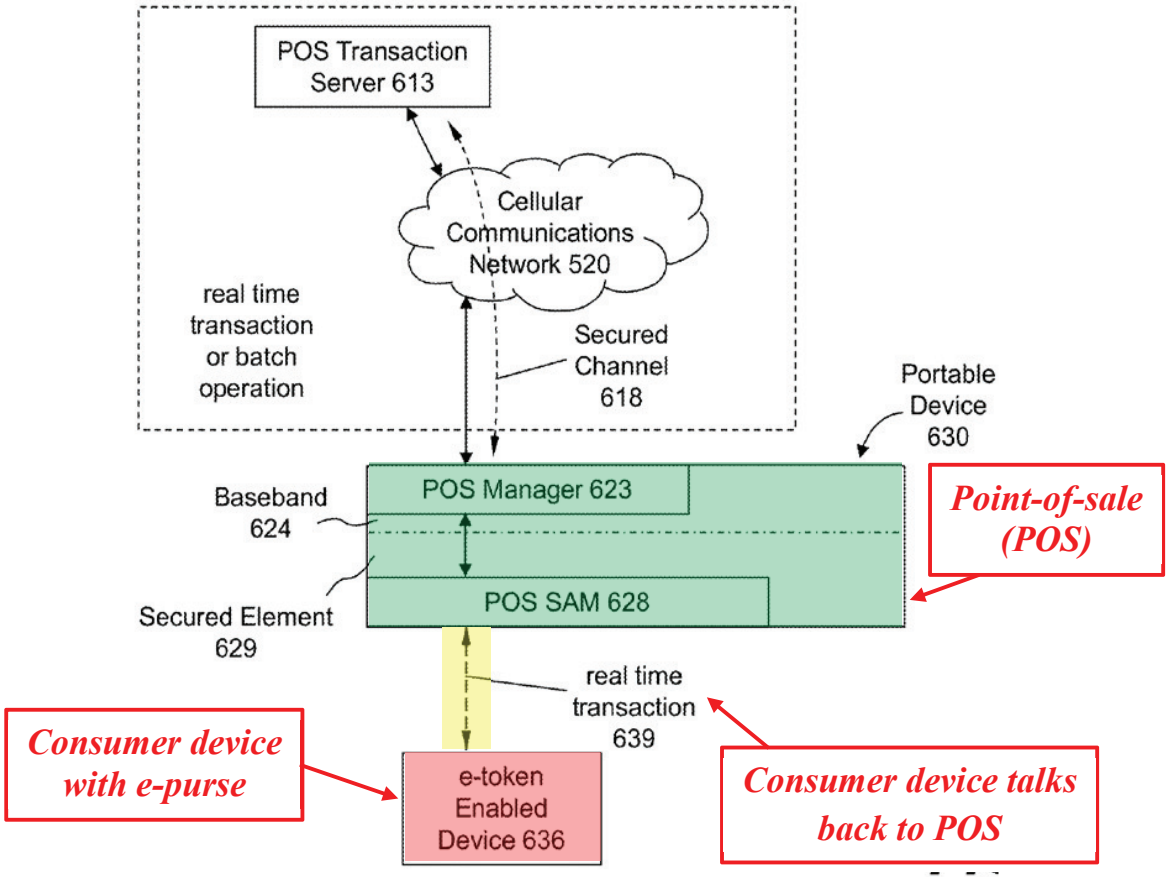
47. During prosecution, the Examiner rejected the pending claims of the ’349 application over various prior art references. **GOOG-1002**, pp. 622, 468, 370, 266, 166. After each rejection, the applicants amended the claims. **GOOG-1002**, pp. 561, 451, 357, 253, 153.

48. After various rejections, the applicants added the concept of an “e-purse” and related functionality to the pending claims (“the E-purse Amendment”). **GOOG-1002**, pp. 153-58. For support, the applicants cited Figure 6C and related paragraph [0131]. **GOOG-1002**, p. 160. While Figure 6C describes e-purse functionality, it does so in the context of a fundamentally different system (Fig. 6A) from the one on which the pending claims were based (Fig. 1A). **GOOG-1001**, 20:13-51 (paragraph [0131]). In the system of Figure 1A, as the applicants emphasized, the mobile device does “NOT” talk back to the POS device after receiving the invoice. **GOOG-1002**, p. 568. Instead, it communicates with a payment gateway. **GOOG-1001**, Fig. 1A.



GOOG-1001, Fig. 1A (annotated).

49. In the system of Figure 6A, however, there is no payment gateway, and the mobile device must talk back to the POS device because the transaction 639 is "conducted between" the two devices, as shown below. **GOOG-1001**, 19:6-10; see also id. 20:41-44 ("Whereas there is enough balance in the e-token, the process 650 deducts or debits the purchase amount from the e-token of the e-token enabled device 636 at 660.").



GOOG-1001, Fig. 6A (annotated); *see also id.*, 20:4-21:15 (describing the back-and-forth communication between the POS 630 and mobile device 636).

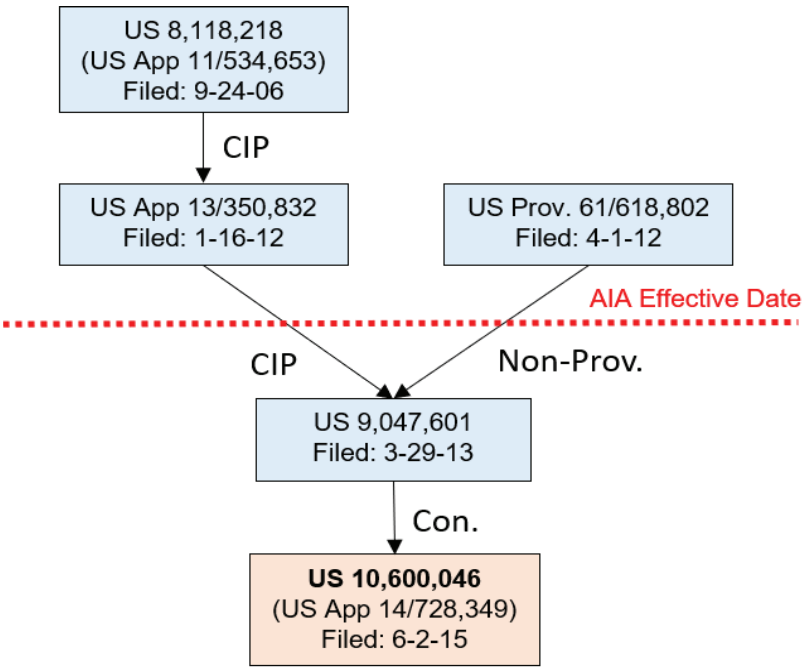
50. The applicants added limitations into the pending claims that required specific interactions between an e-purse on a mobile device and a payment gateway. Such interactions are not disclosed in either embodiment. Figures 1A and 1B, while disclosing a payment gateway, do not disclose specific e-purse functionality; and Figures 6A and 6C, while disclosing e-purse functionality, do not disclose a payment gateway that communicates with the mobile device.

51. The Examiner issued a notice of allowance after the E-purse Amendment, and the amended claims issued in the ’046 Patent. **GOOG-1002**, pp. 7–21.

VI. PRIORITY DATES OF THE CHALLENGED CLAIMS

52. The ’349 application that led to the ’046 Patent was filed on June 2, 2015 as a continuation of U.S. Patent 9,047,601 (“’601 Patent”) filed on March 29, 2013, just after the effective date of the America Invents Act (“AIA”).[2] The’601 Patent, in turn, claims priority to U.S. Provisional No. 61/618,802 (“the ’802 provisional”) filed April 1, 2012 (pre-AIA). The ’601 Patent also claims to be a continuation-in-part of U.S. application No. 13/350,832 (“’832 application”), filed on Jan. 16, 2012 (pre-AIA), now abandoned, which is a continuation-in-part of application No. 11/534,653 (“the ’653 application”), filed on Sep. 24, 2006 (pre-AIA), now Patent No. 8,118,218. The ’046 Family relative to the AIA effective date is illustrated below:

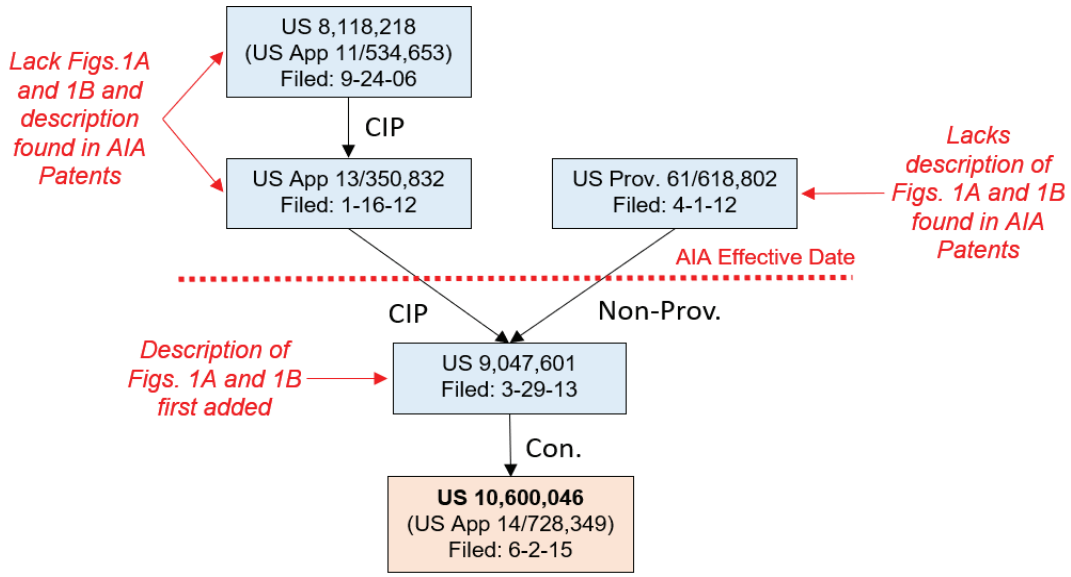
[2] I have been informed that the effective date of the AIA was March 16, 2013.



53. A POSITA would have understood that the '046 Patent and the '601 Patent ("the AIA Patents") contain figures and description not found in the pre-AIA applications. For example, the two pre-AIA CIP applications (the '832 application and the '653 application) do not include Figures 1A and 1B and the associated description in the common specification of the AIA Patents (5:29-8:30 in the '046 Patent).[3] These figures and description were first introduced together in the '601 Patent. **GOOG-1026** (comparison of the '601 Patent specification and

[3] The '832 and the '653 applications instead include Figures 1A and 1B that are wholly different than the Figures 1A and 1B in the AIA Patents. *See* GOOG-1028 ('218 Patent), Figs. 1A-B; GOOG-1029 ('838 publication of '832 app).

'832 application specification). While Figures 1A and 1B of the AIA Patents were included in the pre-AIA '802 provisional, the associated description in the AIA Patents was not included. **GOOG-1027** (comparison of the '802 provisional specification and the '601 Patent specification). Instead, the '802 provisional includes a high-level overview of the figures.[4] These differences in disclosure are depicted below:



[4] The '802 provisional also includes an "Appendix" containing the majority of the specification and figures of the '832 application. **GOOG-1030**, pp. 13-81 ('802 provisional). Paragraphs 1-8 and 10-142 of the "Appendix" of the correspond to paragraphs 2-142 of the '832 Application, respectively.

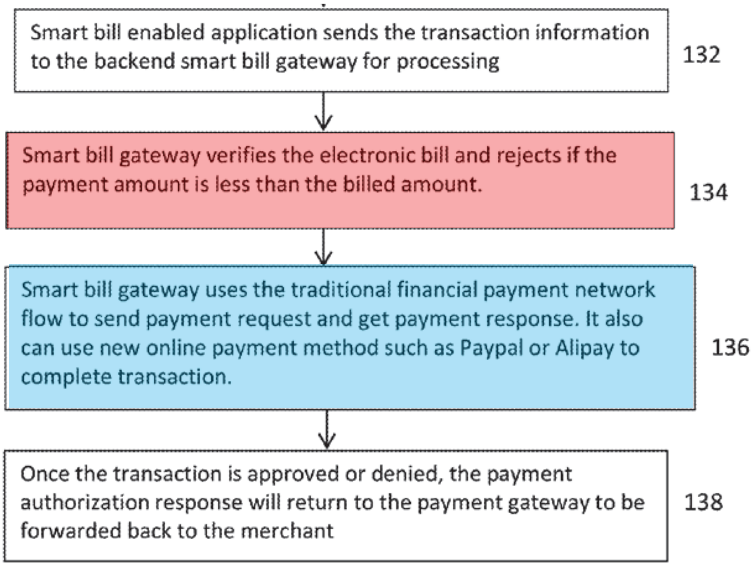
54. A POSITA would have understood that claims 1, 6, 15, and 19 of the '046 Patent recite subject matter supported only in the description of Figures 1A and 1B that were first filed with the '601 Patent on March 29, 2013. Additionally, POSITA would have understood that claims 1, 7, and 12 recite subject matter without support in any of the above specifications because such subject matter was added by amendment during prosecution of the '046 Patent.

A. The "displaying a denial" step in claim 1 lacks written description support in the pre-AIA applications.

55. Claim 1 recites the step of "displaying a denial of the payment request when the balance is less than the total amount." **GOOG-1001**, 25:52-53. A POSITA would have understood that, while there is not support for this step in the specification of the '046 Patent, the closest disclosure is in the description of Figure 1B, which was added to the '601 Patent specification after the AIA effective date. *See* **GOOG-1001**, 8:5-12 (corresponding to **GOOG-1031** ('601 Patent), 7:53-60). The specification explains that after step 134 in Figure 1B "the bill application in the mobile device displays the rejection to get attention from the consumer." **GOOG-1001**, 8:9-12 (corresponding to **GOOG-1031** ('601 Patent), 7:53-60). This disclosure does not support the recited display in claim 1.[5]

[5] Claim 1 requires displaying the rejection "when the *[e-purse] balance* is less than the total amount," whereas the rejection associated with step 134 in Figure 1B is

Regardless, such disclosure is missing in the specifications of the pre-AIA applications. Figure 1B, which *is* included in the '802 provisional, is silent as to displaying a denial after step 134. *See* **GOOG-1001**, Fig. 1B. The next step 136 in the process assumes the verification was successful:



GOOG-1001, Fig. 1B (annotated and cropped).

56. A POSITA would have further understood that the two pre-AIA CIP applications, the '653 application and the '832 application, similarly lack written description support for the step "displaying a denial" based on a balance verification. The earlier '653 application (issued as U.S. 8,118,218) lacks any disclosure of a verification step and subsequent display step. **GOOG-1028**. The

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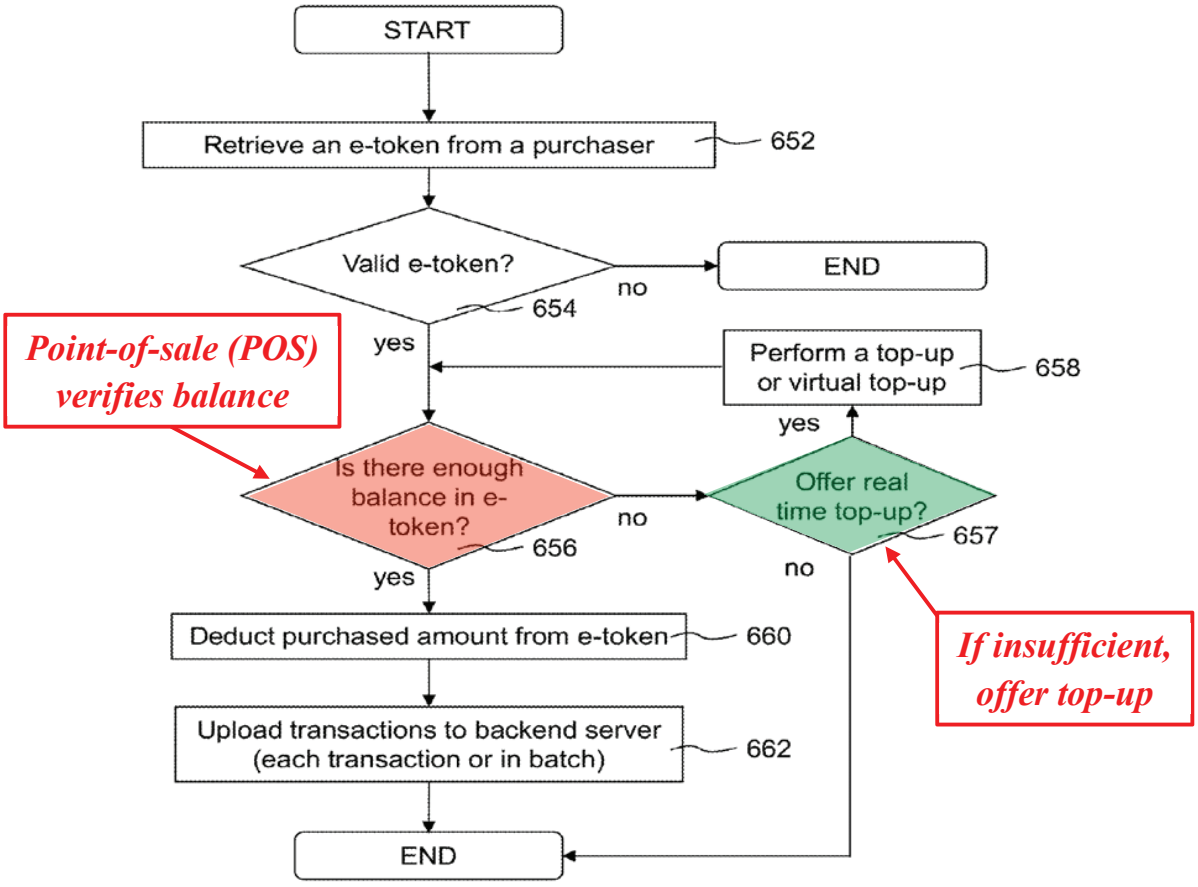
displayed "if the ***payment amount*** is less than the billed amount." *See* **GOOG-1001**, Fig. 1B.

'832 application (published as US 2012/0130838) generally describes comparing the balance of an e-token with a purchase amount in association with Figures 6C and 6D, but it fails to describe displaying a denial when the balance is insufficient. **GOOG-1029**, Figs. 6C-6D, ¶¶ [0173]-[0177]. For example, in the embodiment of Figure 6C, shown below, when the balance is insufficient at step 656, the process displays an option to "top-up" rather than a denial. **GOOG-1029**, Fig. 6C, ¶ [0174].



GOOG-1029 ('832 application), Fig. 6C (annotated). In the embodiment of Figure 6D, shown below, when the balance is insufficient at step 674, the process 670

simply ends after a "return message" denying the purchase is received by the POS manager 623. GOOG-1029 ('832 application), Fig. 6D, ¶ [0177]. No denial is displayed in the mobile device. Moreover, even if process 670 disclosed "displaying a denial" (which it does not), any such denial would not be based upon the balance being less than a "total amount" (*i.e.*, the invoice amount plus an additional amount from the user, such as a gratuity). Process 670 does not contemplate a user entering an additional amount.

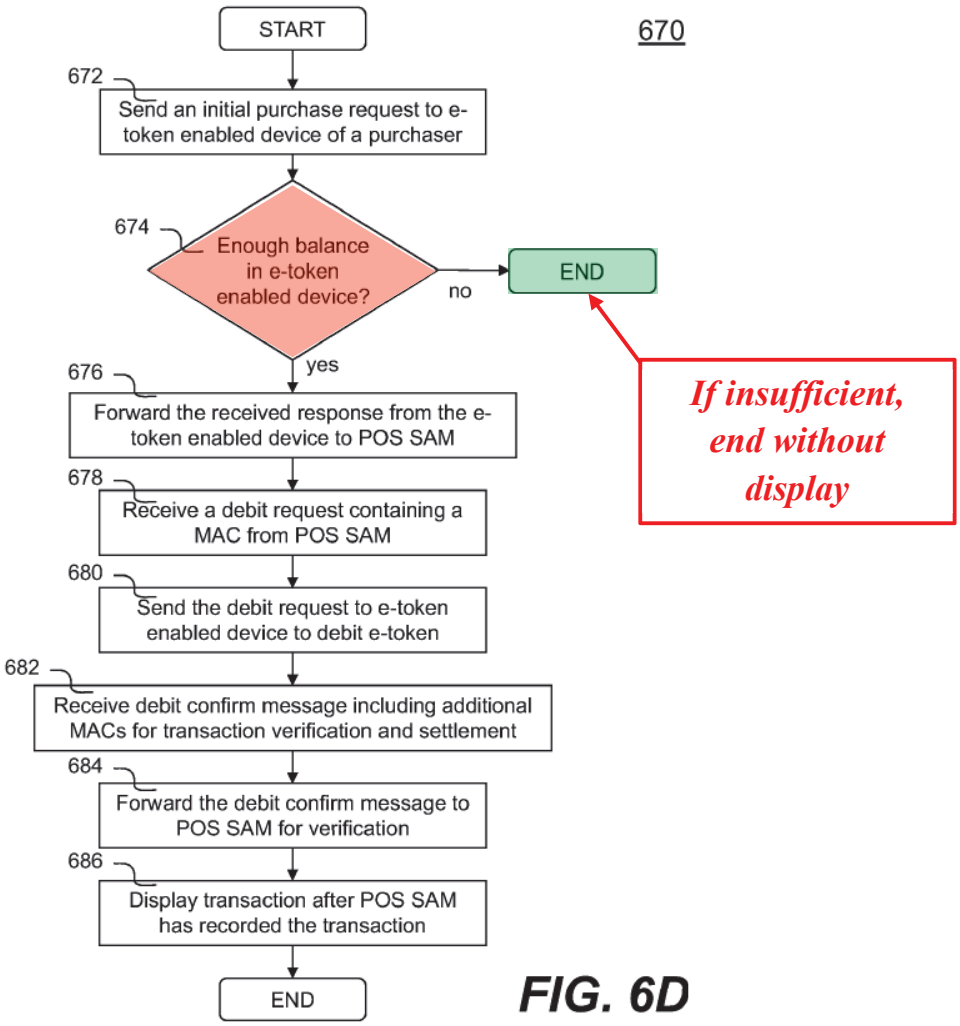


FIG. 6D

GOOG-1029 ('838 application), Fig. 6D (annotated).

57. Without disclosure of a "display," a POSITA would have understood that Figures 6C and 6D cannot provide written description support for the "displaying a denial" in claim 1.

B. Claims 1 and 12 include subject matter that lacks written description support in any application in the '046 Patent family.

58. As I explain in Section IX below, the applicants added subject matter to independent claims 1 and 12 as part of the E-purse Amendment that does not find written description support in the as-filed specification of the '046 Patent or any prior applications.

C. The "account and bank information of the registered merchant" limitation in claims 6 and 15 lacks written description support in the pre-AIA applications.

59. Independent claims 1 and 12 each recite a tag with "data" that is captured by the mobile device. Dependent claims 6 and 15 further define the recited "data" by requiring it to include "account and bank information" of the merchant.

60. The idea that the tag (or "contactless card") includes "account and bank information" of the merchant is supported only in the description of Figures 1A and 1B added to the '601 Patent specification after the AIA effective date. See **GOOG-1001**, 7:33-40 (corresponding to **GOOG-1031** ('601 Patent), 7:14-22)

("… the electronic bill in the contactless card and being transferred from the contactless card to the mobile device includes security information of a registered user associated with the restaurant or the merchant. The security information includes, but may not be limited to, an account and bank information of the restaurant…"). Figures 1A and 1B (filed with the pre-AIA '802 provisional) disclose only that the merchant's contactless card presented by the POS device to the customer's mobile device includes an "electronic bill," as shown below:

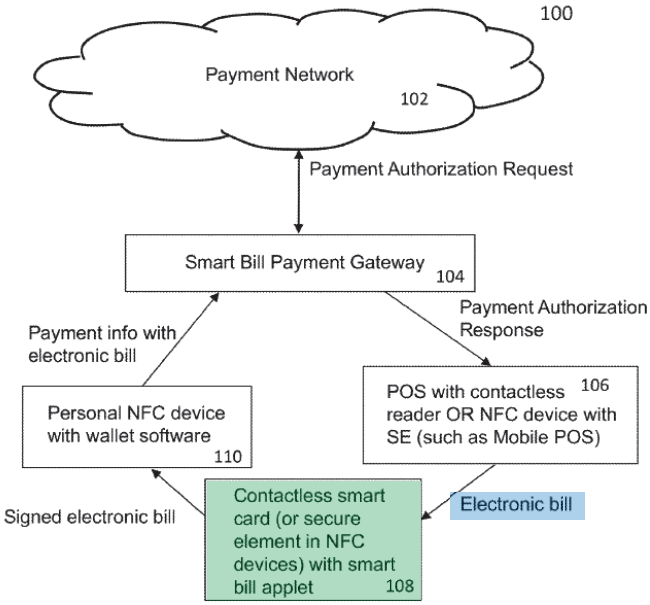


FIG. 1A

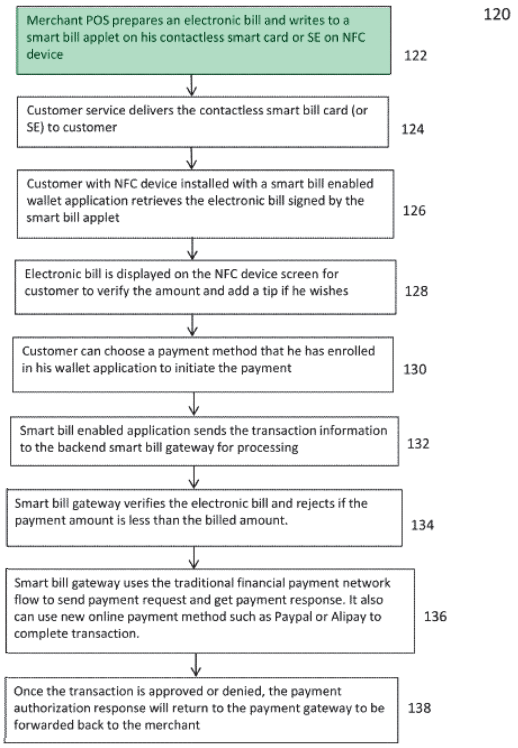


FIG. 1B

GOOG-1001, Figs. 1A, 1B (annotated).

61. A POSITA would have understood that the two pre-AIA CIP applications, the '653 and the '832, lack written description support for storing "account and bank information" of the "merchant" in the tag because each application fails to disclose storing *any* merchant information on a tag. At best, the pre-AIA applications disclose storing *customer* information in a mobile device tag that is read by the merchant POS device. *See, e.g.*, GOOG-1029 ('832 application), ¶ [0113] ("The cell phone is equipped with a contactless interface (e.g., ISO 14443 RFID) that allows the cell phone to act as a tag."); ¶ [0174] ("At 652, the portable device 630 retrieving an e-token (e.g., tag ID of Mifare card) by reading the e-token enabled device [of the customer].").

62. The pre-AIA '802 provisional also does not disclose "account and bank information" on the tag. As mentioned above, the disclosure is limited to Figures 1A and 1B and a different (high-level) description than the description introduced in the post-AIA '601 Patent. This general description includes a bulleted list of information stored on the "Contactless Smart Card" (i.e., tag) shown in Fig. 1A (Fig. 1 in the provisional), but "account and bank information" of the merchant is not on that list. See **GOOG-1030**, pp. 8-11. The only disclosure of anything related to "account and bank information" is a bullet point noting that "necessary information needed to conduct the payment" is included in the "Payment Information." **GOOG-1030**, pp. 10-11. But, as shown in Fig. 1A, such

"Payment info" flows from the "Personal NFC device" (i.e., consumer's mobile device) to the "Payment Gateway," and is not included in the "Contactless Smart Card" (i.e., tag). **GOOG-1030**, p. 8.

VII. CLAIM CONSTRUCTION

63. It is my understanding that, in order to properly evaluate the '046 Patent, the terms of the claims must first be interpreted.

64. It is my understanding that for the purposes of a post-grant review, claim terms are given their ordinary and customary meaning as would have been understood by one of ordinary skill in the art in light of the specification and prosecution history, unless the inventor has set forth a special meaning for a term. I have also been informed that claim terms only need to be construed to the extent necessary to resolve the issues in these proceedings.

65. For the purposes of my analysis below, I have reviewed the claim language, the specification, and the prosecution history. For the purposes of my analysis below, I do not believe any of the claim terms require a specific construction beyond the plain and ordinary meaning as would be understood by a POSITA.

66. Independent claims 1 and 12 of the '046 Patent recite the term "e-purse." Dependent claims 4, 7, and 11 also recite the term "e-purse." The '046 Patent does not provide an express definition for the term "e-purse." I understand

that during prosecution of the '046 Patent, the applicants did not provide a definition of the term "e-purse" when the claims were amended to specifically recite the term "e-purse." GOOG-1002, 160. When the applicants amended the claims to specifically recite the "e-purse," they noted that "[a]s described in Para [0033] and [0037], a customer may choose to settle the charge with an electronic wallet or purse (a.k.a., e-purse)." GOOG-1002, p. 160. Paragraphs [0033] and [0037] (corresponding to GOOG-1001, 7:46-52 and 8:25-30) do not distinguish between or give any special meanings to "electronic wallet" and "e-purse."

67. In the absence of an express definition, a POSITA would interpret the term "e-purse" according to the features recited in the claims. For instance, claims 1 and 12 recite that the e-purse is "maintained locally in the mobile device." GOOG-1001, 25:42-43 (claim 1), 27:2-3 (claim 12). In addition, claims 1 and 12 recite that there is a "balance in the e-purse." GOOG-1001, 25:47 (claim 1), 25:62 (claim 1), 27:1-2 (claim 12), 27:10 (claim 12). Claims 12 further recites that the e-purse balance may be "reduced" by the payment gateway. GOOG-1001, 27:11-13 (claim 12); *see also id*., 26:26-29 (claim 7). A POSITA would interpret the meaning of the term "e-purse" according to the features of the "e-purse" as recited in the claims.

VIII. Challenge #1: Claims 1-17 are unpatentable under 35 U.S.C § 101.

68. It is my opinion that claims 1-17 of the '046 Patent are unpatentable under 35 U.S.C. § 101.

A. *Guidance* Step 1: Statutory Category

69. Claims 1–17 recite "a method" (i.e., a process). **GOOG-1001**, claims 1–17.

B. *Guidance* Step 2A, Prong 1: The '046 Patent claims recite the abstract idea of presenting and settling an invoice, a fundamental economic practice.

70. Claims 1–17 describe the abstract idea of presenting and settling an invoice. **GOOG-1001**, claims 1–17.

71. Representative claim 1 is a "method for mobile payment" comprising steps generally required in any retail transaction (electronic or otherwise): (i) receiving an invoice from a point-of-sale (POS) system, (ii) displaying the amount to be paid, (iii) adjusting the to be paid amount, (iv) calculating a total amount, (v) displaying the total amount, (vi) determining the sufficiency of a balance against the total amount, and (vii) making the payment or denying the payment based on whether the balance is sufficient. *See* **GOOG-1001**, claim 1. A POSITA would have understood that these steps describe the generic process of presenting and settling an invoice in essentially any sort of transaction.

72. A POSITA reading the ’046 Patent would have understood that the problem the inventors were seeking to solve was related to perceived inefficiencies in the payment process, i.e., a need to “simplify the payment process” (such as the “payment process in a restaurant”). **GOOG-1001**, 1:40, 2:8-9; **GOOG-1001**, Title (“Method and apparatus for mobile payments”); **GOOG-1001**, Abstract (“Techniques for mobile devices configured to support settlement of charges in electronic invoices or bills are described.”); **GOOG-1001**, 1:16-17 (“Particularly, the present invention is related to a mobile device configured to settle payments…”); **GOOG-1001**, 2:15-18 (“According to still another aspect of the present invention, a consumer uses his/her mobile device, per the data received therein, to settle the payment process with a payment network…”).

73. Few economic practices are as fundamental as the one recited in the claims of the ’046 Patent. Presenting and settling an invoice is one of the oldest economic practices. *See, e.g.*, **GOOG-1037** at 1 (“People have engaged in commerce to exchange goods and services for payment throughout the ages.”). Even the practice of settling payment using a mobile device was well known over a decade prior to the earliest possible priority date of the ’046 Patent. *See, e.g.*, **GOOG-1037** at 8 (noting mobile payment transactions occurring in 1997); **GOOG-1038** at 1-4 (explaining that “[i]t is another object of this invention to provide a wireless/cellular terminal which can perform purchase payment and bill

payment transactions and be used as the use[r]'s electronic wallet" and specifically suggesting use of "mobile phones").

C. *Guidance* Step 2A, Prong 2: The '046 Patent claims do not integrate the abstract idea into a practical application.

74. Claims 1-17 are directed to the abstract idea of presenting and settling an invoice, and they do not integrate the idea of settling an invoice into a practical application. Although the claims use technological components, the claims merely utilize those components to perform the abstract idea of presenting and settling an invoice. The claims do not seek to improve the functioning of the technology involved, but instead merely use that technology for its expected purpose. As described further below, the claims merely use off-the-shelf e-commerce tools to address alleged perceived inefficiency in the fundamental economic practice of presenting and settling an invoice.

75. The '046 Patent's specification confirms that the claims merely add computer functionality to increase efficiency of the process of presenting and settling an invoice. **GOOG-1001**, 1:25-36. In particular, the specification explains that the problem identified by the inventors of the '046 Patent was that traditional retail transactions can be a "lengthy process":

> For many credit or debit card transactions, the payment process is started by a customer asking for a bill when checking out a purchase. A cashier or service member brings a bill to the customer for verification. The customer then hands out a credit/debit card to the service member.

> The service member brings the card to a Point of Sales (POS) counter to initiate a transaction payment. The service member then brings back a receipt to the customer for signature to authorize the transaction. It is a lengthy process that typically takes a couple of minutes or much longer when the service member has to take care of multiple payment transactions at a time.

GOOG-1001, 1:25-36. The '046 Patent seeks to "simplify [this] payment process" by using a "mobile device" and "electronic invoice" rather than a paper bill or invoice. **GOOG-1001**, 1:40-44, claim 1. For example, in further explaining the problem facing the inventors, the specification explains that traditionally in a restaurant when the "consumer is given a check first for verification and a chance to add a gratitude," the payment process requires "more than one contact[] between a merchant and the consumer." **GOOG-1001**, 2:1-14. The '046 Patent aims to eliminate all but one of these contacts with a "contactless card [that] is loaded with the electronic invoice and brought to the customer for authorization and payment." **GOOG-1001**, 6:28-30, 2:11-14 ("Using the NFC mobile device, the consumer can finish the payment using a chosen payment method at the point of sale without further contacting the merchant.").

76. In short, a POSITA reading the specification of the '046 Patent would understand that the goal of the inventors was to increase efficiency in the traditional process of paying a bill or check. **GOOG-1001**, 1:25-36, 1:40-44, 2:1-14, 6:28-30. Thus, the '046 Patent does not purport to address any sort of

technological problem. Rather, it seeks to improve the efficiency of the traditional payment process itself through the use of a mobile device.

77. As described further below, claims 1-17 employ standard e-commerce components to implement an abstract idea. The performance of the claimed steps by conventional and off-the-shelf e-commerce components further confirms that the claims are focused on presenting and settling an invoice.

78. Specifically, each additional hardware element recited in the challenged claims is described by the ’046 Patent as either commercially available, standardized, or well-known to a POSITA. For example, the recited “mobile device” is the consumer’s own device. **GOOG-1001**, 2:15–16 (“According to still another aspect of the present invention, a consumer uses his/her mobile device…”), 1:40–44 (“With the advancement in mobile devices, it is anticipated that many consumers will carry one with them. Thus there is an opportunity of using a mobile device to quickly settle the payment.”). Moreover, the type of mobile device is unimportant. **GOOG-1001**, 5:65–6:5 (“[T]he description herein shall be equally applicable to other devices such as a wearable watch, a tablet, a laptop computer, and other portable computing device with the capability of near field communication (NFC).”).

79. The recited “e-purse” maintained in the mobile device may be simply the commercially-available “Smart MX (SMX) module” loaded with the “Mifare

emulator" applet. **GOOG-1001**, 12:47–13:5. By the earliest possible priority date of the '046 Patent, Mifare was a conventional type of contactless card tag, well-known in the industry. *See, e.g.*, **GOOG-1040**, 41:28-30 (describing Mifare as a "market standard[]"), 50:2-7.

80. The user is described as downloading the "commercially offered" e-purse applet from an "applet repository."[6] **GOOG-1001**, 17:61-18:8. Similarly, the recited "application" on the mobile device that captures the tag data is only described as "the smart bill application" that "is published in the Internet and may be downloaded from a designated place." **GOOG-1001**, 7:26-31, 5:56-60. Indeed, when practicing the method, it is "assumed" the mobile device is already "installed with a corresponding smart bill application." **GOOG-1001**, 7:26-31, 5:56-60. Thus, a POSITA would have understood that the recited mobile device is simply a consumer's pre-existing device with publicly-available applications downloaded on it.

81. Further, non-limiting examples of the recited "tag" described in the specification include a "contactless card" or "NFC device" that is implemented

[6] Much of the specification is devoted to an allegedly new way to personalize the standard Mifare e-purse applet, but the '046 Patent claims do not recite any personalization steps.

with standardized wireless protocols, such as "near field communication (NFC)" and "ISO 14443 RFID." **GOOG-1001**, 12:66–13:1; *see also* **GOOG-1001**, 5:22–28. NFC technology and RFID technology were well-understood, routine, and conventional by the earliest possible priority date of the '046 Patent. *See, e.g.*, **GOOG-1019** (Chao), 2:3-12 (discussing use of RFID in an e-purse context); **GOOG-1020** (Lin), Abstract (request for payment transmitted between devices using an NFC interface).

82. The specification describes the "POS device" as being a device "those skilled in the art can fully appreciate." **GOOG-1001**, 6:33-35.

83. The remaining hardware element recited in claim 1, the "payment gateway," is described as being associated with an "existing payment infrastructure" such as that provided by "Visa or Master Card." **GOOG-1001**, 2:15-22, 5:46-51. In particular, the specification notes that the payment gateway 104 in Figure 1B "provides a payment service similar to Paypal commonly used in US and other countries or Alipay mainly used in China." **GOOG-1001**, 8:20-24. Taking the patentee's example as illustrative, for context, PayPal was created in 2000, well over a decade prior to the earliest possible priority date of the '046 Patent. **GOOG-1039** at 1. PayPal was acquired by eBay for $1.5 billion in 2002, demonstrating the prevalence of PayPal in the industry by that time. **GOOG-1039** at 2. In short, the payment-gateway technology referenced in the '046 Patent

claims refers to generic technology that was well-understood, routine, and conventional by the earliest possible priority date of the ’046 Patent.

84. In other words, the challenged claims rely solely upon pre-existing hardware and software e-commerce tools to perform the abstract idea of presenting and settling an invoice. The specification does not suggest that the existing devices or software used are improved from a technical perspective, or that they would operate differently than they otherwise could.

85. The inventors of the ’046 Patent did not purport to invent the recited e-commerce devices—or even a new use of the devices. The specification acknowledges that “NFC-enabled mobile phones are being advanced” to support “applications such as payment.” **GOOG-1001**, 5:22-28. No technical details for these off-the-shelf elements are provided because the specification simply relies on the standard functionality of each (e.g., the “POS device” generates an invoice; the contactless interface in the mobile device receives data from a “tag,” such as an NFC or RFID tag; the Mifare “e-purse” maintains a balance; the “payment gateway” processes a payment). **GOOG-1001**, 6:10-14, 7:21-26, 12:64-65, 8:20-24.

86. In sum, the recited “mobile device,” “tag,” “POS device,” and “payment gateway” are all generic, unimproved devices.

87. In short, the challenged claims of the ’046 Patent focus on improving a fundamental economic practice, rather than solving a technological problem—and do so using conventional and off-the-shelf tools functioning as expected. The claims therefore fail to integrate the abstract idea of presenting and settling an invoice into a practical application, and are directed to the abstract idea of presenting and settling an invoice.

D. *Guidance* Step 2B: The ’046 Patent claims do not provide an inventive concept.

88. By March 29, 2013, the activities and components recited in the challenged claims were already well-known and conventional. Mobile payment was no longer an emerging technology and, by then, was prevalent in restaurants, sports arenas, subways, and other establishments. For example, the Mifare e-purse technology relied upon by the ’046 Patent was already the “industry standard” a full decade before the priority date. **GOOG-1018** (Mifare in Action).

1. The additional claim elements simply append well-understood, routine, and conventional e-commerce activities to the abstract idea.

89. As discussed above and reiterated here, the hardware elements recited in representative claim 1 are unimproved, “off-the-shelf” e-commerce tools: the “mobile device” is the consumer’s personal phone loaded with the “commercially available” Mifare applet and “smart bill application” available “in the Internet”

(**GOOG-1001**, 2:15–16, 12:47–13:5, 7:26–31, 5:56–60); the "POS device" is a device "those skilled in the art can fully appreciate" (**GOOG-1001**, 6:33-35); the "tag" may be a generic "NFC" or "RFID" tag (**GOOG-1001**, 12:66-13:1); and the "payment gateway" is part of an "existing payment infrastructure" (**GOOG-1001**, 2:15–22, 8:20–24).

90. For example, the recited "mobile device" is touted as the consumer's own device he or she already carries with them. **GOOG-1001**, 2:15–16 ("According to still another aspect of the present invention, a consumer uses his/her mobile device…"), 1:40–43 ("With the advancement in mobile devices, it is anticipated that many consumers will carry one with them. Thus there is an opportunity of using a mobile device to quickly settle the payment."). Moreover, the type of mobile device is unimportant. **GOOG-1001**, 5:65–6:5 ("[T]he description herein shall be equally applicable to other devices such as a wearable watch, a tablet, a laptop computer, and other portable computing device with the capability of near field communication (NFC).").

91. The recited "e-purse" maintained in the mobile device may simply be the commercially-available "Smart MX (SMX) module" loaded with the "Mifare emulator" applet. **GOOG-1001**, 12:47–13:5. By the earliest possible priority date of the '046 Patent, Mifare was a conventional type of contactless card tag, well-known in the industry. *See, e.g.*, **GOOG-1040**, 41:28-30 (describing Mifare as a

"market standard[]"), 50:2-7; **GOOG-1018** ("Mifare is the industry standard . . . .").

92. The user is described as downloading the "commercially offered" e-purse applet from an "applet repository."[7] **GOOG-1001**, 17:61-18:8. Similarly, the recited "application" on the mobile device that captures the tag data is only described as "the smart bill application" that "is published in the Internet and may be downloaded from a designated place." **GOOG-1001**, 7:26-31, 5:56-60. Indeed, when practicing the method, it is "assumed" the mobile device is already "installed with a corresponding smart bill application." **GOOG-1001**, 7:26-31, 5:56-60. Thus, according to the '046 Patent's specification, the recited mobile device is a consumer's pre-existing device with publicly available applications downloaded on it.

93. Further, non-limiting examples of the recited "tag" described in the specification include a "contactless card" or "NFC device" that is implemented with standardized wireless protocols, such as "near field communication (NFC)" and "ISO 14443 RFID." **GOOG-1001**, 12:66-13:1; *see also* **GOOG-1001**, 5:22-

[7] Much of the specification is devoted to an allegedly new way to personalize the standard Mifare e-purse applet, but the '046 Patent claims do not recite any personalization steps.

28. NFC technology and RFID technology were well-understood, routine, and conventional by the earliest possible priority date of the '046 Patent. *See, e.g.*, **GOOG-1018** (discussing contactless cards); **GOOG-1019** (Chao), 2:3-12 (discussing use of RFID in an e-purse context); **GOOG-1020** (Lin), Abstract (request for payment transmitted between devices using an NFC interface); **GOOG-1021**, ¶ 40 (discussing near field communications with contactless payment cards).

94. The patent describes the "POS device" as being a device "those skilled in the art can fully appreciate." **GOOG-1001**, 6:33-35; **GOOG-1021**, ¶ 40 (describing a POS terminal).

95. The remaining hardware element recited in claim 1, the "payment gateway," is described as being associated with an "existing payment infrastructure" such as that provided by "Visa or Master Card." **GOOG-1001**, 2:15-22, 5:46-51. In particular, the specification notes that the payment gateway 104 in Figure 1B "provides a payment service similar to Paypal commonly used in US and other countries or Alipay mainly used in China." **GOOG-1001**, 8:20–24. Taking the patentee's example as illustrative, for context, PayPal was created in 2000, well over a decade prior to the earliest possible priority date of the '046 Patent. **GOOG-1039** at 1. PayPal was acquired by eBay for $1.5 billion in 2002, demonstrating the prevalence of PayPal in the industry by that time. **GOOG-1039**

at 2. In short, the payment-gateway technology referenced in the '046 Patent claims refers to generic technology that was well-understood, routine, and conventional by the earliest possible priority date of the '046 Patent.

96. The '046 Patent does not claim any improvements or modifications to these conventional components. Further, the functionality recited in connection with these hardware elements is likewise conventional in the e-commerce industry and thus does not add significantly more to the abstract concept to render it patent eligible.

97. The specification's description of an allegedly new way to personalize the standard Mifare e-purse applet is not included or part of the '046 Patent's claims.

a. Element [1.1]: "causing a mobile device to capture data directly from a tag physically presented thereto, wherein the tag receives the data directly from a POS device and allows the mobile device to capture the data, the data embedded in the tag includes an electronic invoice and settlement information with a merchant associated with the POS device"

98. Element [1.1] of representative claim 1 merely recites the well-known sequence of transferring an electronic invoice from a point-of-sale (POS) device to mobile device via a "tag." The specification explains that this contactless tag may use standardized "NFC" or "RFID" protocols and replace the paper check typically carried by a waiter from the POS device to the customer. **GOOG-1001**, 12:66-

13:1, 7:19-25, 2:8-14. The '046 Patent itself states that a waiter carrying a check from a POS device to a customer is a routine business activity. **GOOG-1001**, 1:25-33.

99. The '046 Patent states that "NFC-enabled mobile phones" were already being used to support "applications such as payment." **GOOG-1001**, 5:22-28. Indeed, by 2013, NFC and RFID tags were commonly used, including to transfer electronic bills to mobile phones. *See, e.g.*, **GOOG-1007** (Dessert), 6:25-34 (discussing use of "contactless technologies, such as near-field communications (NFC)" and "RFID cards as understood by one of ordinary skill in the art"), 38:52-39:60 (describing a diner scanning a "tag" at a restaurant as part of the bill paying process); **GOOG-1010** (Park), ¶ 52 ("transmitting payment information read from . . . or a wireless tag (an RF tag, an NFC tag, or the like)"); **GOOG-1021**, ¶ 45 (describing a mobile phone that "interact[s] with an RFID/NFC proximity reader of a POS terminal to provide a payment card account number for a purchase transaction at the POS terminal"); **GOOG-1035**, p. 39 (Vuorinen) ("The RFID technology has been applied for a long time in different areas: . . . ."). Even the specific scenario of a waiter carrying an electronic bill stored in an RFID tag to a customer was already taught in the prior art. *See* **GOOG-1016** (Brendell), [0033] ("a check presenter includes a smart RFID tag … configured to store … the amount due and merchant information"); *see also* **GOOG-1015** (Gallagher), Figs.

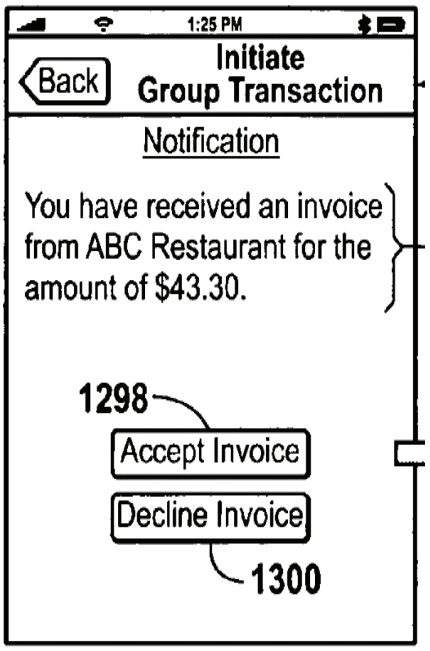
2-4, [0027]-[0045] (describing using a POS device to transfer bill settlement information to a NFC-enabled check presenter, which is brought by a waiter to a customer who extracts the information with a mobile phone).

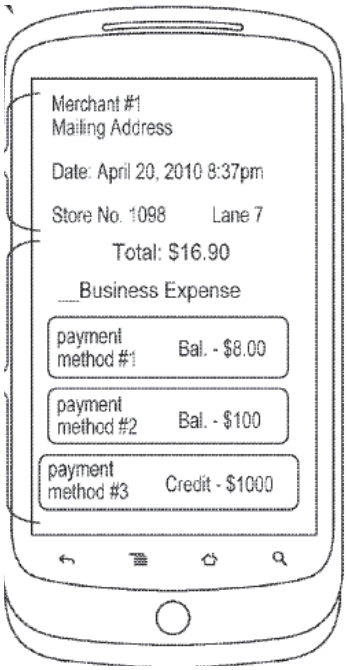
100. The remaining aspect of element [1.1]—that the data in the tag includes an electronic invoice and settlement information from a merchant—reflects the content of the data being captured and transmitted. This identified content bears no functional relationship to the well-known NFC technology described in the claim. And, by 2013, NFC and RFID tags were routinely used to transfer this type of content (electronic invoice and settlement information) from a merchant. **GOOG-1001**, 5:22-28; **GOOG-1016** (Brendell), [0033]; **GOOG-1015** (Gallagher), Figs. 2-4, [0027]-[0045]. Accordingly, element [1.1] fails to supply an inventive concept.

b. Elements [1.2] and [1.6]: "extracting the electronic invoice from the captured data in the mobile device; displaying the electronic invoice on a display of the mobile device to show an amount to be paid by a user of the mobile device, wherein the mobile device is configured to execute an installed application therein to capture the data from the tag," and "displaying the electronic invoice on the display of the mobile device for the user to verify the payment request"

101. Element [1.2] recites extracting the electronic invoice after receipt by the mobile device and displaying the amount to be paid on the mobile phone. Element [1.6] also recites displaying the electronic invoice. Obtaining and

displaying data are basic computer functions. The prior art further illustrates this was a conventional e-commerce activity, as illustrated by the prior art figures below.





GOOG-1020 (Lin), Fig. 30B (cropped); **GOOG-1007** (Dessert), Fig. 2G; **GOOG-1016** (Brendell), [0032], [0038] (teaching a mobile device displaying a total bill amount captured from a tag). The further recitation that an "application" on the mobile device "capture[s] the data from the tag" is likewise routine, as applications are typically the mechanism by which mobile devices initiate and receive data from a contactless tag, as illustrated in the prior art:

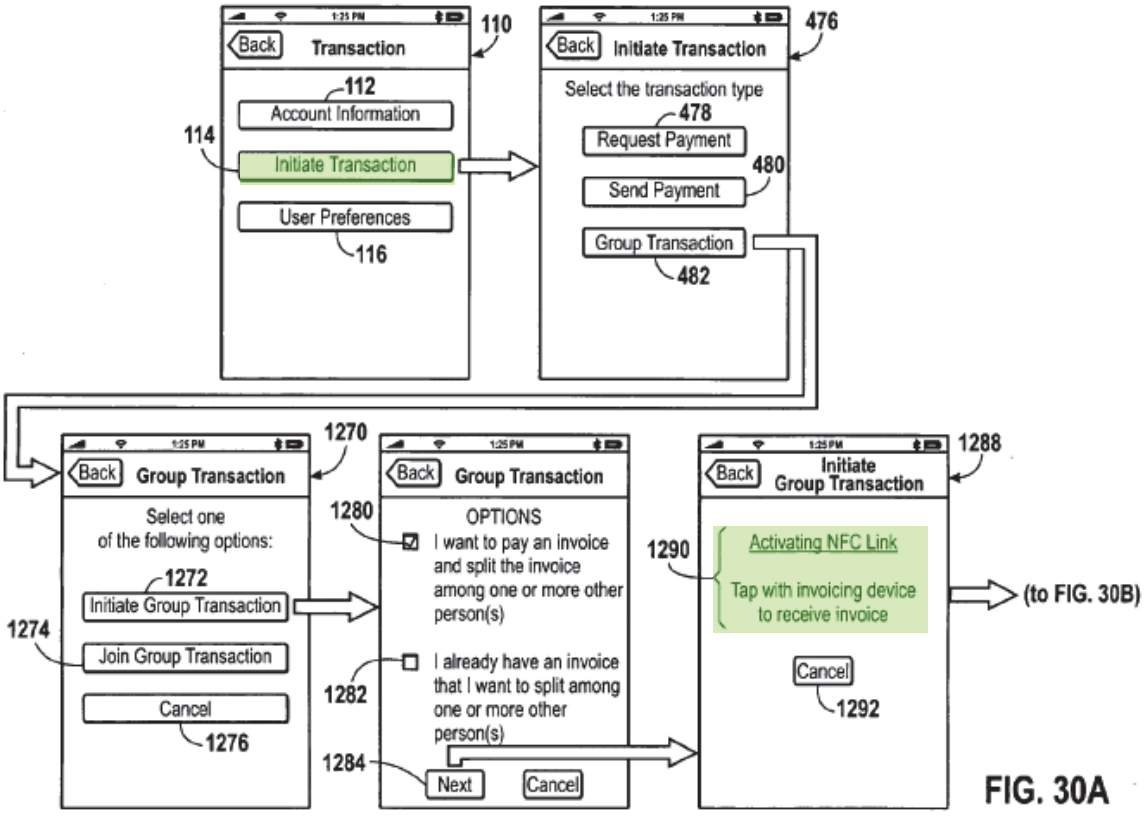


FIG. 30A

GOOG-1020 (Lin), Fig. 30A (annotated); *see also* **GOOG-1007** (Dessert), 5:7-9 ("The personalized shopping/payment application 113 may also allow the PCD 100 to collect information from a machine-readable tag 124…"), **GOOG-1007** (Dessert), 7:34-47. Elements [1.2] and [1.6] thus fail to supply an inventive concept.

c. Element [1.3] and [1.4]: "receiving an entry by the mobile device, the entry including the amount for the invoice and optionally an additional amount from the user;" and "calculating a total amount by adding the additional amount to the amount in the electronic invoice"

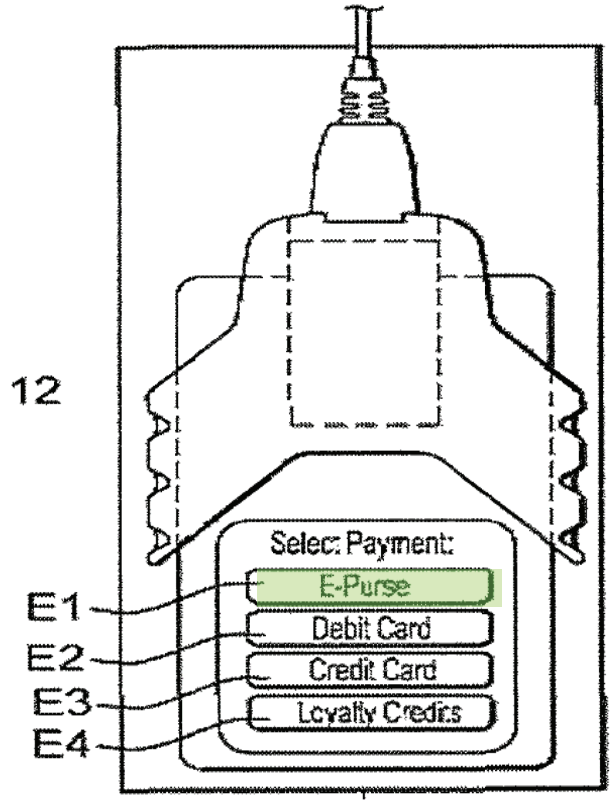
102. Elements [1.3]-[1.4] recite the mobile device receiving an entry (including the amount for the invoice and an optional adjustment amount from the

user), and then calculating a total amount. Further, the '046 Patent acknowledges that "a chance to add a gratitude before a final charge" was already a routine practice in the restaurant payment process. **GOOG-1001**, 2:8-11. By 2013, this was true in e-commerce transactions as well. **GOOG-1016** (Brendell), [0032] (teaching a smart phone with which "the consumer accesses the total bill and is able to add a tip if desired"); **GOOG-1015** (Gallagher), [0041] (teaching a guest reviewing the check on the mobile device and adding gratuity to the total); **GOOG-1020** (Lin), Fig. 30B (same). Elements [1.3]-[1.4] thus fail to supply an inventive concept.

d. Element [1.5]: "generating a payment request in the mobile device in response to the electronic invoice after the user has chosen an electronic purse (e-purse) maintained locally in the mobile device"

103. Element [1.5] recites generating a "payment request" after the user has chosen an "electronic purse (e-purse) maintained locally in the mobile device." Electronic payment requests and e-purses were both standard components in e-commerce transactions prior to the '046 Patent. For example, the specific e-purse product relied upon in the '046 Patent, the Mifare e-purse, had already shipped 250 million units by 2003 and was utilized in mass transit projects around the world. **GOOG-1018** (Mifare in Action); **GOOG-1019** (Chao), 4:65-5:4, Fig. 3 (teaching a "mobile electronic device having a built-in Subscriber Identity Module (SIM)

card comprising a contactless Radio Frequency Identification (RFID) and electronic purse"). As such, it was not inventive for a user to be given the choice of an e-purse as a payment option, as illustrated in the prior art:



GOOG-1017 (Boucher), Fig. 2 (annotated); *see also* **GOOG-1018** (discussing use of an e-purse); **GOOG-1036**, p. 34 (discussing e-purse technology).

104. The generation of a payment request was similarly routine when conducting e-commerce transactions, as such a request was the typical mechanism by which a mobile device would initiate payment via a payment network. *See, e.g.*, **GOOG-1016** (Brendell), [0006] ("the contactless-enabled device may submit a

payment transaction request to the payment network"). Element [1.5] thus fails to supply an inventive concept.

e. Elements [1.7] and [1.8]: "verifying the total amount with a balance in the e-purse, wherein said verifying the total amount with a balance in the e-purse is performed within the mobile device without sending the payment request to a payment gateway;" and "displaying a denial of the payment request when the balance is less than the total amount;"

105. Element [1.7] recites verifying, within the mobile device, the total amount with a balance in the e-purse, and element [1.8] recites displaying a denial when the balance is insufficient. Any e-purse payment requires determining whether the e-purse holds a sufficient balance to make the payment, as illustrated in the prior art. **GOOG-1019** (Chao), 5:19-28 (determining "whether the obtained balance of the electronic purse of the mobile electronic device is enough for the payment of bills"); **GOOG-1024** (Lu) , [0111] ("read balance of the e-purse and determine whether the transaction amount … is bigger than the balance"). Moreover, the notion of doing a balance check locally, within the mobile phone, is not any more inventive than the e-purse itself because handling transactions without online authorization is an inherent characteristic of an e-purse. **GOOG-1036**, p. 34 (Shopping Without Cash). It was also common in e-purse transactions to display a denial when a balance was insufficient. **GOOG-1025** (Ueno), Fig. 4;

GOOG-1006 (Jogu), Fig. 23. Elements [1.7] and [1.8] thus fail to supply an inventive concept.

f. Element [1.9]: "sending the payment request from the mobile device to the payment gateway, wherein the balance is sufficient to honor the payment request"

106. Element [1.9] recites sending the payment request from the mobile device to the payment gateway when the e-purse balance is sufficient. The '046 Patent lacks any detail about the transmission of the payment request to the payment server after determining whether the balance is sufficient.[8] And, by 2013, a mobile phone transmitting a payment request was a routine part of e-commerce transactions. *See* **GOOG-1016** (Brendell), Fig. 11, [0006] ("the contactless-enabled device may submit a payment transaction request to the payment network"); **GOOG-1015** (Gallagher), [0043] (teaching a mobile device sending "payment facilitating information … directly to the payment processing system 58 for processing the payment"). Element [1.9] thus fails to supply an inventive concept.

[8] Its disclosure is limited only to the opposite—transmitting the payment request *before* checking the balance. *See* **GOOG-1001**, 7:62-8:20, Fig., 1B.

g. Element [1.10]: "the payment gateway sends a message directly to the POS device that a monetary transaction per the payment request sent from the mobile device has been successfully completed"

107. Element [1.10] recites the payment gateway sending a message directly to the POS device that the transaction was successful. This limitation merely identifies the content of the data being transmitted and displayed. Moreover, sending a confirmation of a successful transaction was already routine and conventional in e-commerce, including sending confirmation directly from a payment gateway to a POS device, as illustrated in the prior art:

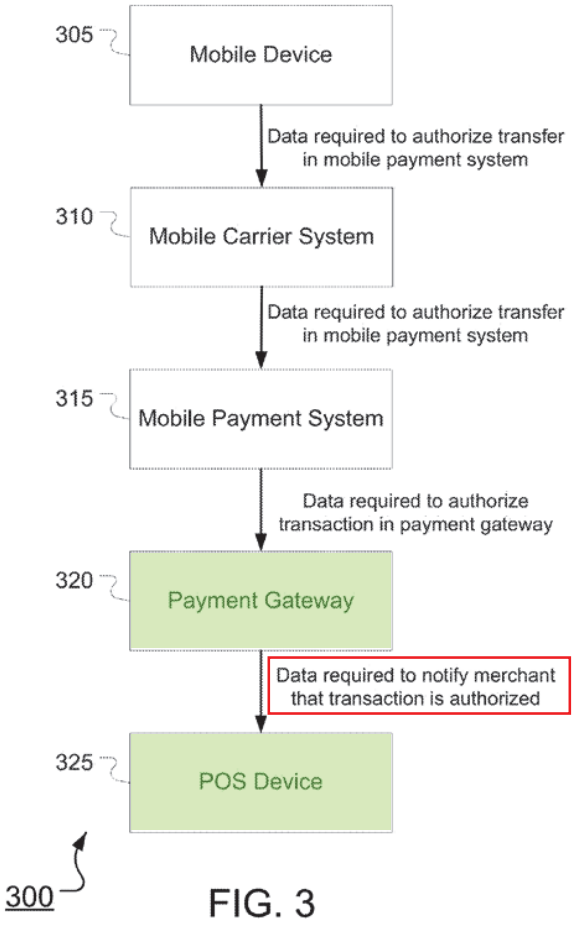


FIG. 3

GOOG-1013 (Narayanan), Fig. 3 (annotated); *see also* **GOOG-1021**, Fig. 2, ¶¶ 28, 37. Element [1.10] thus fails to supply an inventive concept.

h. Element [1.11]: "displaying a confirmation in the mobile device that the balance in the e-purse has been reduced by the total amount."

108. This limitation merely identifies the content of the data being displayed. Moreover, displaying a confirmation of a successful transaction was already standard in e-commerce. **GOOG-1022** (Nonaka), [0361] (teaching displaying an updated balance on the mobile device after the payment amount is

deducted); **GOOG-1020** (Lin), Fig. 30 (illustrating a mobile device displaying confirmation of a successful transaction of a specific amount). Element [1.11] thus fails to supply an inventive concept.

109. In sum, the functions performed by the conventional components in representative claim 1 were well-understood, routine, and conventional activities already engaged in by the e-commerce industry by 2013, and, therefore, fail to provide an inventive concept sufficient to ensure that patent amounts to significantly more than a patent on the abstract idea itself.

2. The ordered combination of elements does not add "significantly more" to the abstract idea of presenting and settling an invoice.

110. The ordered combination of these conventional e-commerce activities is likewise conventional and does not add an inventive concept. In particular, the ordering of claim 1 is dictated by the abstract idea: presenting and settling an invoice. The steps—receiving an invoice, adding an optional gratuity, choosing a payment method, determining whether a balance is sufficient to cover the total, and either denying the payment or making the payment based on the determination—is the ordinary course of any traditional payment settlement. This is not inventive.

111. The claims of the '046 Patent describe a retail transaction between a customer and a merchant facilitated by conventional e-commerce components, such as a mobile device and a NFC tag, functioning as expected. Accordingly,

claim 1 does not supply an inventive concept sufficient to save the claim from abstraction.

E. Independent Claim 12

112. Independent claims 12 is substantially similar to representative claim 1 and is directed to the same abstract idea. Claim 12 also recites a "method for mobile payment" and does not meaningfully differ from claim 1.

113. The following table demonstrates the substantial similarity between claims 1 and 12:

Claim 1	**Claim 12** (***order of limitations modified and limitations repeated as relevant***)
1. A method for mobile payment, the method comprising:	12. A method for mobile payment, the method comprising:
causing a mobile device to capture data directly from a tag physically presented thereto,	presenting the tag to a mobile device; causing the mobile device to capture the data from the tag, . . .
wherein the tag receives the data directly from a POS device and allows the mobile device to capture the data, the data embedded in the tag includes an electronic invoice and settlement information with a merchant associated with the POS device;	generating a set of data in a point of sale (POS) device, the data including an electronic invoice and settlement information with a merchant associated with the POS device; embedding the data directly to a tag;

extracting the electronic invoice from the captured data in the mobile device;	wherein the mobile device executes an installed application therein to retrieve an amount in the electronic invoice from the data
displaying the electronic invoice on a display of the mobile device to show an amount to be paid by a user of the mobile device, wherein the mobile device is configured to execute an installed application therein to capture the data from the tag;	wherein the mobile device executes an installed application therein to retrieve an amount in the electronic invoice from the data
receiving an entry by the mobile device, the entry including the amount for the invoice and optionally an additional amount from the user;	
calculating a total amount by adding the additional amount to the amount in the electronic invoice;	
generating a payment request in the mobile device in response to the electronic invoice after the user has chosen an electronic purse (e-purse) maintained locally in the mobile device;	generate a payment request in response to the captured data,
displaying the electronic invoice on the display of the mobile device for the user to verify the payment request	
verifying the total amount with a balance in the e-purse, wherein said verifying the total amount with a balance in the e-purse is performed within the mobile device without	the payment request is denied in the mobile device when the amount is more than a balance of an electronic purse (e-purse) maintained locally in the mobile device,

sending the payment request to a payment gateway;	
displaying a denial of the payment request when the balance is less than the total amount;	the payment request is denied in the mobile device when the amount is more than a balance of an electronic purse (e-purse) maintained locally in the mobile device,
sending the payment request from the mobile device to the payment gateway, wherein the balance is sufficient to honor the payment request,	the payment request is sent to a payment gateway when the amount is less than a balance of an electronic purse (e-purse) maintained locally in the mobile device;
the payment gateway sends a message directly to the POS device that a monetary transaction per the payment request sent from the mobile device has been successfully completed; and	receiving a message in the POS device directly from the payment gateway that the electronic invoice has been settled,
displaying a confirmation in the mobile device that the balance in the e-purse has been reduced by the total amount.	wherein the payment gateway is configured to cause the balance in the e-purse reduced by the amount.

114. Although claim 12 specifies that the "payment gateway" is what causes the balance in the e-purse to be reduced, this additional detail does not alter the § 101 analysis. There is no indication from the claim language or specification that this particular functionality was the focus of claim 12. Further, such functionality is part of the same basic process recited in claim 1. The '046 Patent also describes the payment gateway in generic terms. In particular, the specification notes that the payment gateway 104 in Figure 1B "provides a

payment service similar to Paypal commonly used in the US and other countries or Alipay mainly used in China." **GOOG-1001**, 8:20–24. Taking the patentee's example as illustrative, for context, PayPal was created in 2000, well over a decade prior to the earliest possible priority date of the '046 Patent. **GOOG-1039** at 1. PayPal was acquired by eBay for $1.5 billion in 2002, demonstrating the prevalence of PayPal in the industry by that time. **GOOG-1039** at 2. In short, the payment-gateway technology referenced in the '046 Patent claims refers to generic technology that was well-understood, routine, and conventional by the earliest possible priority date of the '046 Patent. For example, as I describe in Section X.B, Jogu illustrates that is was conventional for a payment gateway to reduce the balance of an e-purse on a mobile device. *See* **GOOG-1006**, Fig. 22, 14-15. Accordingly, this limitation would not provide an inventive concept such that it would meaningfully alter the § 101 analysis as compared to the § 101 analysis of claim 1.

F. Claims 2, 5, and 13

115. Claims 2, 5, and 13 are also invalid under § 101 because they are directed to the same abstract idea of presenting and settling an invoice, and they fail to provide an inventive concept.

116. Claims 2, 5, and 13 are directed to the same abstract idea of presenting and settling an invoice. For instance, the '046 Patent's specification

does not suggest that the limitations of claims 2, 5, or 13 were the focus of the claimed advance over the prior art. **GOOG-1001**, Title, Abstract, 1:15-20, 1:25-44, 2:3-18. Moreover, these claims merely describe features of conventional, off-the-shelf technology for their intended purposes.

117. Claims 2, 5, and 13 fail to provide an inventive concept because they describe the well-known, routine, and conventional functionality of existing near-field communication (NFC) devices.

118. Specifically, claim 2 depends from claim 1 and recites: "wherein said causing a mobile device to capture data directly from a tag physically presented thereto includes placing the mobile device near the tag." Claim 13 recites similar language. But having a mobile device that is located near an RFID or NFC tag capture data from that tag reflects the fundamental functionality of a RFID or near-field communication (NFC) tag. **GOOG-1021**, ¶ 144 ("the purchase transaction mode may be selected by . . . bringing a contactless payment card or payment device (including, e.g., a mobile telephone equipped with contactless payment device capabilities) ***into proximity with the RFID/NFC terminal component*** 316 of the POS terminal 202"); **GOOG-1021**, ¶ 45 ("RFID/NFC ***proximity*** reader"); **GOOG-1036**, p. 37 (noting the use of RFID to register payment when a card is waved within 4 inches of a reader).

119. Likewise, claim 5 depends from claim 1 and further recites: "causing the mobile device to execute an installed module upon detecting the POS device in a near field of the mobile device, wherein the installed module is executed to receive the data directly from the tag carrying the electronic invoice and the settlement information." But having a mobile device execute installed software upon detection of a nearby NFC tag, and having that software receive the data from that tag, describes basic NFC functionality. *E.g.*, **GOOG-1021**, ¶ 70 (noting that "the POS terminal may transmit the transaction information to the customer's mobile device via NFC (near field communication) or the like"); **GOOG-1035**, p. 39 ("The RFID reader integrated in the mobile phone will read the content of the RFID TAG . . . ."); **GOOG-1010** (Park), ¶ 52 ("transmitting payment information read from . . . or a wireless tag (an RF tag, an NFC tag, or the like)").

120. These additional limitations cannot provide an inventive concept because they merely describe well-understood, routine, and conventional functionality present in any generic NFC device. Indeed, there is no indication from the specification that such functionality was unconventional or employed in an unconventional way.

121. Accordingly, these additional limitations, when considered alone and in an ordered combination with the claims from which they depend, describe routine functionality employed by existing, generic NFC devices. Thus, these

claims fail to provide an inventive concept sufficient to transform the claimed abstract idea of presenting and settling an invoice into a patent-eligible invention.

G. Claims 3, 7, 9, 10, 14, and 17

122. Claims 3, 7, 9, 10, 14, and 17 are also invalid under § 101 because they are directed to the same abstract idea of presenting and settling an invoice, and they fail to provide an inventive concept.

123. Claims 3, 7, 9, 10, 14, and 17 are directed to the same abstract idea of presenting and settling an invoice. For instance, the ’046 Patent’s specification does not suggest that the limitations of claims 3, 7, 9, 10, 14, and 17 were the focus of the claimed advance over the prior art. **GOOG-1001**, Title, Abstract, 1:15-20, 1:25-44, 2:3-18. Further, though the claims describe the general concepts of “security and authentication,” the claims lack any specific details regarding those concepts. The claims are silent as to how such security and authentication is performed, instead claiming those concepts in general terms, without limiting them to technical means for performing the functions.

124. Claims 3, 7, 9, 10, 14, and 17 fail to provide an inventive concept because they describe generic, existing concepts of security and authentication.

125. Specifically, claim 3 depends from claim 2 and recites: “wherein the POS device provides security and authentication to generate the electronic bill and transfer the data to the tag.” Claim 14 depends from claim 13 and recites: “wherein

the POS device is provided with security and authentication to generate the electronic invoice." Similarly, claims 9 and 17 recite: "wherein data exchange between the mobile device and the payment gateway is conducted in a secured channel established [between the mobile device and the payment gateway/therebetween]."[9] Claim 10 further recites: "wherein the mobile device includes a secure element providing security and confidentiality required to support secure data communication between the mobile device and the payment gateway."

126. These claims, however, do not recite any inventive details about *how* to provide these security features; they simply add "security," "authentication," "a secured channel," or a "secure element" as high-level concepts. But, the concept of adding security in financial transactions was already conventional; indeed, implementing security measures is reflective of best practices in any financial transaction over a network. And, to the extent the '046 Patent's specification provides allegedly inventive methods of securing mobile transactions, for example via personalization, those methods are not part of the claims. This does not provide an inventive concept.

[9] Claim 9 replaces "between the mobile device and the payment gateway" with "therebetween."

127. Claim 7 recites "transporting the payment request over a secured channel to the payment gateway." Again, this claim does not recite any inventive details about *how* to provide this security feature; it simply adds a "secured channel" as a high-level concept. To the extent the '046 Patent's specification provides allegedly inventive methods of securing mobile transactions, for example via personalization, those methods are not part of the claims. Moreover, implementing security measures is reflective of best practices in any financial transaction over a network. This does not provide an inventive concept.

128. Claim 7 further recites "wherein the payment gateway is configured to perform the monetary transaction per the payment request by deducting the total amount from the e-purse and generates the confirmation for the POS device." This additional limitation fails to provide an inventive concept because it describes a fundamental step in the payment transaction and a fundamental step in e-purse processing, i.e., "perform[ing] the monetary transaction per the payment request" by simply deducting the owed amount.

129. Moreover, by 2013, essentially all e-commerce systems included some level of security, including the specific security features recited in these claims. *See* **GOOG-1020** (Lin), 15:20-35 (teaching a mobile device using "one or more cryptographic protocols, such as a secure sockets layer (SSL) protocol or a transport layer security (TLS) protocol, for establishing secure communications

between the device 10 and an external device"); **GOOG-1005** (Moshal), ¶¶ 54-55 ("the POS terminal 104 can provide a payment QR code that encodes the merchant identification code 140"); **GOOG-1018** (discussing types of Mifare cards with varying degrees of security).

130. Accordingly, the additional limitations in claims 3, 7, 9, 10, 14, and 17, when considered alone and in an ordered combination with the claims from which they depend, describe nothing more than the fundamental, well-known concept of adding security. Thus, they fail to provide an inventive concept sufficient to transform the claimed abstract idea of presenting and settling an invoice into a patent-eligible invention.

H. Claims 4 and 8

131. Claims 4 and 8 are also invalid under § 101 because they are directed to the same abstract idea of presenting and settling an invoice, and they fail to provide an inventive concept.

132. Claim 4 depends from claim 1 and recites: "wherein said displaying the electronic invoice on the display of the mobile device comprises: allowing the user to verify the amount in the electronic invoice and make a change to the amount when needed; and paying the total amount with the e-purse." Claim 8 recites:

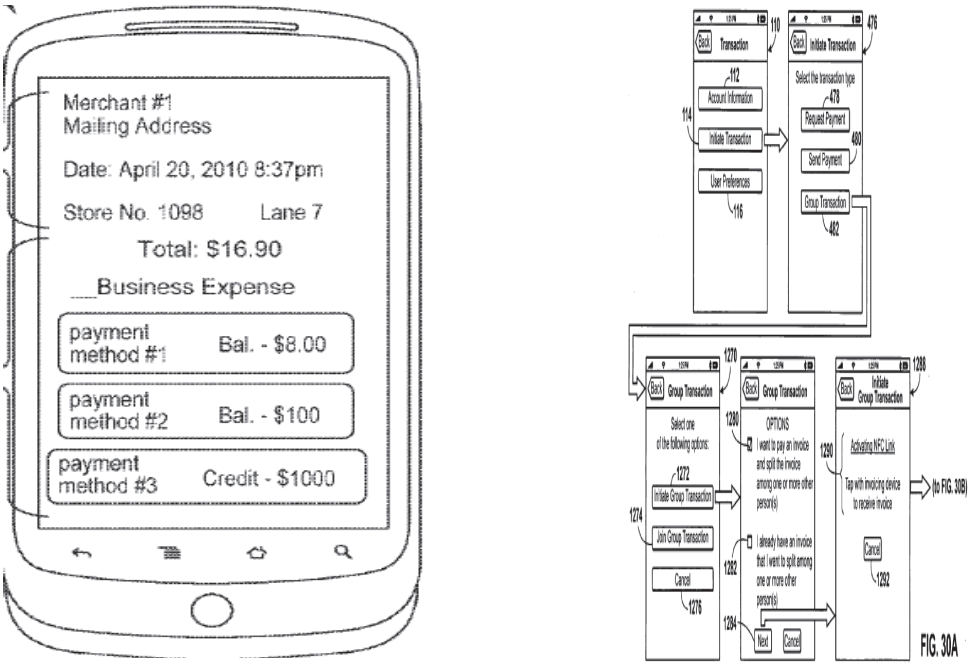
> wherein said displaying the electronic invoice on the display of the mobile device comprises: allowing the user to modify the amount in the electronic invoice when needed; paying the total amount with an electronic payment provided by an installed module in the mobile device, wherein the installed module in the mobile device is configured to generate the payment request including the data pertaining to the electronic invoice to the payment gateway for processing.

133. Claims 4 and 8 are directed to the same abstract idea of presenting and settling an invoice. For instance, the '046 Patent's specification does not suggest that the limitations of claims 4 and 8 were the focus of the claimed advance over the prior art. **GOOG-1001**, Title, Abstract, 1:15-20, 1:25-44, 2:3-18.

134. Further, the claims describe conventional steps in the payment process—verifying the invoice amount, adjusting the amount as needed (e.g., to add a tip), and paying the amount. **GOOG-1005** (Moshal), ¶ 55 ("the user can review the bill details displayed on page 800 and amend the displayed data, if necessary"); **GOOG-1005** (Moshal), ¶ 58 ("provide[s] the user with an option to add a service charge to the amount due"), **GOOG-1005** (Moshal), ¶¶ 42, 59, Figs. 7, 8 (option to "Pay Bill with eWallet"). These steps themselves are fundamental business practices that routinely occur as part of the payment process. And the use of the "installed module" in claim 8 also does not change the "directed to" analysis because this was a standard component of NFC-enabled devices, and applications

are typically the mechanism by which mobile devices initiate transactions such as payment requests. **GOOG-1020** (Lin), Fig. 30A; *see also* **GOOG-1007** (Dessert), 5:14-16 ("The payment application 113 may also allow the PCD 100 to collect information from a machine-readable tag 124"), **GOOG-1007** (Dessert), 7:34-47.

135. Claims 4 and 8 fail to provide an inventive concept. As to the first aspect of claim 4, which is repeated from claim 1, obtaining and displaying data are basic computer functions. The prior art further illustrates this was a conventional e-commerce activity, as illustrated by the prior art figures below.



GOOG-1020 (Lin), Fig. 30B (cropped); **GOOG-1007** (Dessert), Fig. 2G; **GOOG-1016** (Brendell), [0032], [0038] (teaching a mobile device displaying a total bill amount captured from a tag).

136. Claims 4 and 8 recite nothing more than applying longstanding commercial practices using generic computer components and technology. **GOOG-1013** (Narayanan), [0030] (mobile device receiving amount of transaction); **GOOG-1005** (Moshal), ¶¶ 55, 58 ("the user can review the bill details displayed on page 800 and amend the displayed data, if necessary"). The claims describe conventional steps in the payment process—verifying the invoice amount, adjusting the amount as needed (e.g., to add a tip), and paying the amount using a generic e-purse. **GOOG-1005** (Moshal), ¶ 55 ("the user can review the bill details displayed on page 800 and amend the displayed data, if necessary"); **GOOG-1005** (Moshal), ¶ 58 ("provide[s] the user with an option to add a service charge to the amount due"), **GOOG-1005** (Moshal), ¶¶ 42, 59, Figs. 7, 8 (option to "Pay Bill with eWallet"). These steps themselves are fundamental business practices that routinely occur as part of the payment process, and the e-purse is a generic and well-known e-commerce component. Further, the use of the "installed module" in claim 8 also does not change the "directed to" analysis because this was a standard component of NFC-enabled devices, and applications are typically the mechanism by which mobile devices initiate transactions such as payment requests. **GOOG-1020** (Lin), Fig. 30A; *see also* **GOOG-1007** (Dessert), 5:14-16 ("The payment application 113 may also allow the PCD 100 to collect information from a machine-readable tag 124"), **GOOG-1007** (Dessert), 7:34-47.

137. Accordingly, when considered alone and in an ordered combination with the claims from which it depends, claims 4 and 8 merely describe the basic steps in the process of presenting and settling an invoice, performed using generic and conventional devices. Thus, they fail to provide an inventive concept sufficient to transform the claimed abstract idea of presenting and settling an invoice into a patent-eligible invention.

I. Claims 6 and 15

138. Claims 6 and 15 are also invalid under § 101 because they are directed to the same abstract idea of presenting and settling an invoice, and they fail to provide an inventive concept.

139. Claim 6 depends from claim 5 and recites: "wherein the data further includes security information about the merchant associated with the POS device, the security information includes an account and bank information of the registered merchant, an identifier of the tag or the POS device." Likewise, claim 15 depends from claim 14 and recites: "wherein the data includes security information of the merchant associated with the POS device, the security information includes an account and bank information, an identifier of the tag or the POS device."

140. Claims 6 and 15 are directed to the same abstract idea of presenting and settling an invoice. For instance, the '046 Patent's specification does not suggest that the limitations of claims 6 and 15 were the focus of the claimed

advance over the prior art. **GOOG-1001**, Title, Abstract, 1:15-20, 1:25-44, 2:3-18. Moreover, these claims merely describe the content of data, specifically, "security information" that includes "account and bank information" of the merchant and "an identifier of the tag or the POS device." Further, such data represents a well-understood, routine, conventional piece of any payment transaction, further reflecting that this is the focus of these claims. **GOOG-1021**, ¶¶ 33-35, 68.

141. Claims 6 and 15 fail to supply an inventive concept. Merely identifying the content of data, especially where such data reflects fundamental and routine aspects of a payment transaction, fails to provide an inventive concept. Further, such data represents a well-understood, routine, conventional piece of any payment transaction. **GOOG-1021**, ¶¶ 33-35, 68. And there is no indication from the specification that the patented invention included unconventional data or processing such data in an unconventional way.

142. Accordingly, these claims, when considered alone and in an ordered combination with the claims from which they depend, describe the content of data used in the basic steps in the process of presenting and settling an invoice. Thus, they fail to provide an inventive concept sufficient to transform the claimed abstract idea of presenting and settling an invoice into a patent-eligible invention.

J. Claims 11 and 16

143. Claims 11 and 16 are also invalid under § 101 because they are directed to the same abstract idea of presenting and settling an invoice, and they fail to provide an inventive concept.

144. Claim 11 depends from claim 9 and recites: "wherein said displaying a confirmation in the mobile device that the balance in the e-purse has been reduced by the total amount comprises: sending a notification of successful payment to the merchant of the POS device." Claim 16 depends from claim 15 and recites: "wherein the message received in the POS device shows how much has been received from the user of the mobile device."

145. Claims 11 and 16 are directed to the same abstract idea of presenting and settling an invoice. For instance, the '046 Patent's specification does not suggest that the limitations of claims 11 and 16 were the focus of the claimed advance over the prior art. **GOOG-1001**, Title, Abstract, 1:15-20, 1:25-44, 2:3-18. Moreover, these claims merely describe the transmission of data ("sending a notification") and the content of data the content of data ("notification of successful payment" and "the message … shows how much has been received"). Further, such data represents well-understood, routine, and conventional aspects of any payment transaction, further reflecting that this is the focus of these claims. **GOOG-1021**, ¶ 68.

146. Claims 11 and 16 fail to provide an inventive concept. Merely identifying the content of data, especially where such data reflects fundamental and routine aspects of a payment transaction, fails to provide an inventive concept. And transmitting data, without more, cannot supply an inventive concept. Finally, there is no indication from the specification that the patented invention included unconventional data or processing such data in an unconventional way.

147. Displaying a confirmation of a successful transaction was already standard in e-commerce. **GOOG-1022** (Nonaka), [0361] (teaching displaying an updated balance on the mobile device after the payment amount is deducted); **GOOG-1020** (Lin), Fig. 30 (illustrating a mobile device displaying confirmation of a successful transaction of a specific amount).

148. Accordingly, when considered alone and in an ordered combination with the claims from which it depends, claims 11 and 16 describe the transmission of data, as well as the content of data used in basic steps in the process of presenting and settling an invoice. Thus, they fail to provide an inventive concept sufficient to transform the claimed abstract idea of presenting and settling an invoice into a patent-eligible invention.

IX. Challenge #2: Claims 1-17 are invalid for failing to satisfy the written description requirement of 35 U.S.C § 112.

149. It is my opinion that claims 1–17 are unpatentable for failing to satisfy the written description requirement of 35 U.S.C. § 112 because they contain limitations added during prosecution that are not disclosed in the originally filed application of the ’046 Patent.

A. Independent Claim 1

1. The specification does not describe sending a payment request to a payment gateway only when an e-purse balance is sufficient.

150. Applicants amended claim 1 to recite an “electronic purse (e-purse) maintained locally in the mobile device” and related functionality (“the E-purse Amendment”). **GOOG-1002**, pp. 153-154. In particular, the E-purse Amendment added the steps of “verifying the total amount with a balance in the e-purse,” and either (i) “displaying a denial of the payment request when the balance is less than the total amount” or (ii) sending the payment request from the mobile device to the payment gateway, but only where “the balance is sufficient to honor the payment request.” **GOOG-1002**, pp. 153-154. Prior to the E-purse Amendment, which is reproduced below, claim 1 did not recite the step of sending a payment request to a payment gateway *only* when the e-purse balance was sufficient to pay the total amount. **GOOG-1002**, p. 153. Instead, claim 1 previously recited sending the

payment request to the payment gateway in all instances. This is shown in the excerpt of the prosecution history below:

1. (*Currently amended*) A method for mobile payment, the method comprising:

• • •

generating a payment request in the mobile device in response to the electronic invoice after the user has chosen an electronic purse (e-purse) maintained locally in the mobile device; ~~a paying instrument, wherein the payment request includes the total amount and the settlement information;~~

displaying the electronic invoice on the display of the mobile device for the user to verify the payment request ~~along with the chosen paying instrument;~~

verifying the total amount with a balance in the e-purse, wherein said verifying the total amount with a balance in the e-purse is performed within the mobile device without sending the payment request to a payment gateway;

displaying a denial of the payment request when the balance is less than the total amount;

sending the payment request from the mobile device to ~~a~~ the payment gateway, wherein the balance is sufficient to honor the payment request, the payment gateway sends a message directly to the POS device that a monetary transaction per the payment request sent from the mobile device has been successfully completed ~~in the payment gateway with the POS device when an amount equivalent to the total amount is deducted from an account associated with the user~~; and

~~recording~~ displaying a confirmation in the mobile device that the balance in the e-purse has been reduced by the total amount ~~monetary transaction per the payment request has been successfully completed with respect to the electronic invoice~~.

GOOG-1002, pp. 153–54 (annotated).

151. In the associated remarks, the applicants explained that the E-purse Amendment created a payment method in which transmission of the payment request from the mobile device to the payment gateway is contingent upon a local balance verification:

> [T]he e-purse is a local application but managed remotely by a server. When the e-purse is used to settle a charge, the balance of the e-purse can be used to determine if the e-purse is sufficient to perform the transaction without verifying with the server. ***When the e-purse is sufficient to perform the transaction, the server is responsible for the settlement.***

GOOG-1002, p. 160. Accordingly, as confirmed by the applicants, amended claim 1 requires the specific payment sequence of (i) comparing, within the mobile device, the total amount with a balance in the e-purse, and then either (ii) displaying a denial if the balance is insufficient, or (iii) sending the payment request from the mobile device to the payment gateway if the balance is sufficient. **GOOG-1002**, p. 160.

152. A POSITA would have understood, however, that this concept is not disclosed in the '046 Patent's specification. Instead, the specification describes e-purse embodiments in which a payment request is either *always* sent from the mobile device to a payment gateway (e.g., Fig. 1B) or *never* sent from the mobile device to a payment gateway (e.g., Fig. 6D). **GOOG-1001**, Figs. 1A, 6D.

153. When the applicants explained the E-purse Amendment in the accompanying remarks, they pointed to several portions of the as-filed application that were allegedly supportive: paragraphs [0033] (7:46–53 in the '046 Patent), [0037] (8:25–30 in the '046 Patent), [0064] (13:6–31 in the '046 Patent), [0131] (20:13–51 in the '046 Patent), and Figures 2F and 6C:

> As described in Para [0033] and [0037], a customer may choose to settle the charge with an electronic wallet or purse (a.k.a., e-purse) already created in the mobile device. As further shown in FIG. 2F and FIG. 6C, and described in Para [0064 and [0131], the e-purse is a local application but managed remotely by a server. When the e-purse is used to settle a charge, the balance of the e-purse can be used to determine if the e-purse is sufficient to perform the transaction without verifying with the server. When the e-purse is sufficient to perform the transaction, the server is responsible for the settlement.

GOOG-1002, p. 160. A POSITA would have understood that none of these cited portions disclose the e-purse payment method recited in claim 1.

154. First, with respect to paragraphs [0033] and [0037], these paragraphs merely describe the ability of a customer to select an "e-purse" as the method of payment on the mobile device 110 described in association with the system of Figure 1A and payment method of Figure 1B:

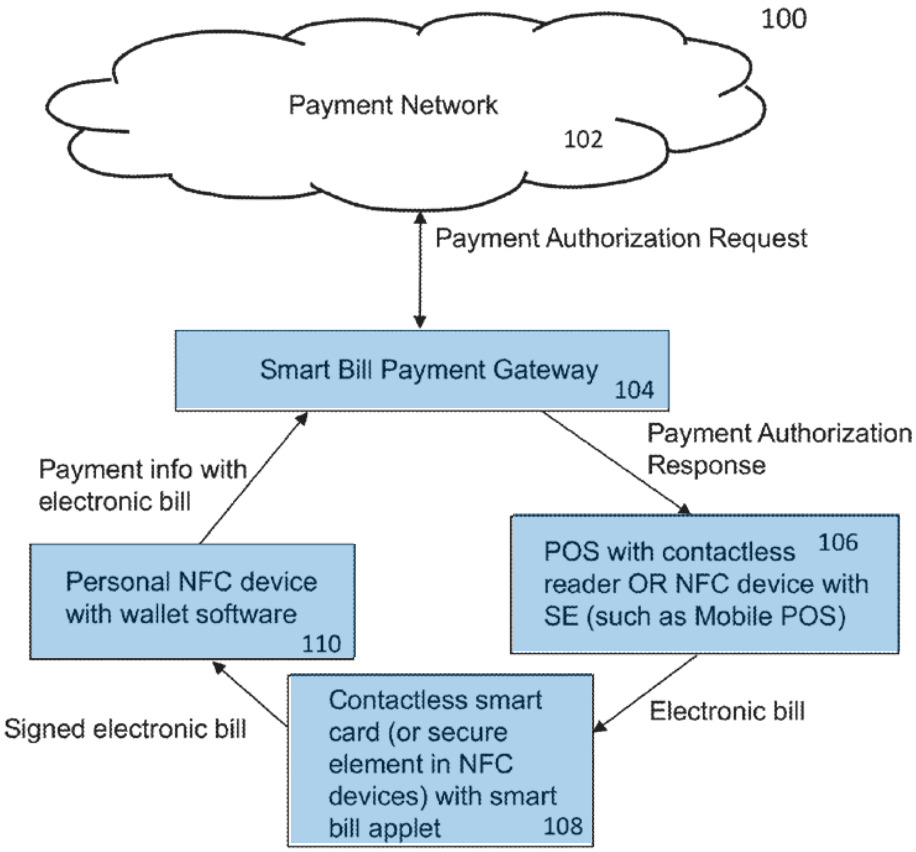
[0033] Upon seeing the displayed bill being displayed on a display screen, the customer may choose a method to settle the invoice. Depending on implementation, the customer may choose to settle the charge with an electronic wallet or purse (a.k.a., e-purse) already created in the mobile device, cash, a traditional credit or debit card, an electronic transfer/payment or others. The settlement with e-purse will be further detailed below.

GOOG-1002, p. 718 (**GOOG-1001**, 7:46–53).

[0037] As indicated above, in one embodiment, the device 110 of FIG. 1A is configured to function as an electronic purse or e-purse that may be used to directly settle a charge being displayed on a display screen thereof. The following description details how the e-purse works in a mobile payment ecosystem.

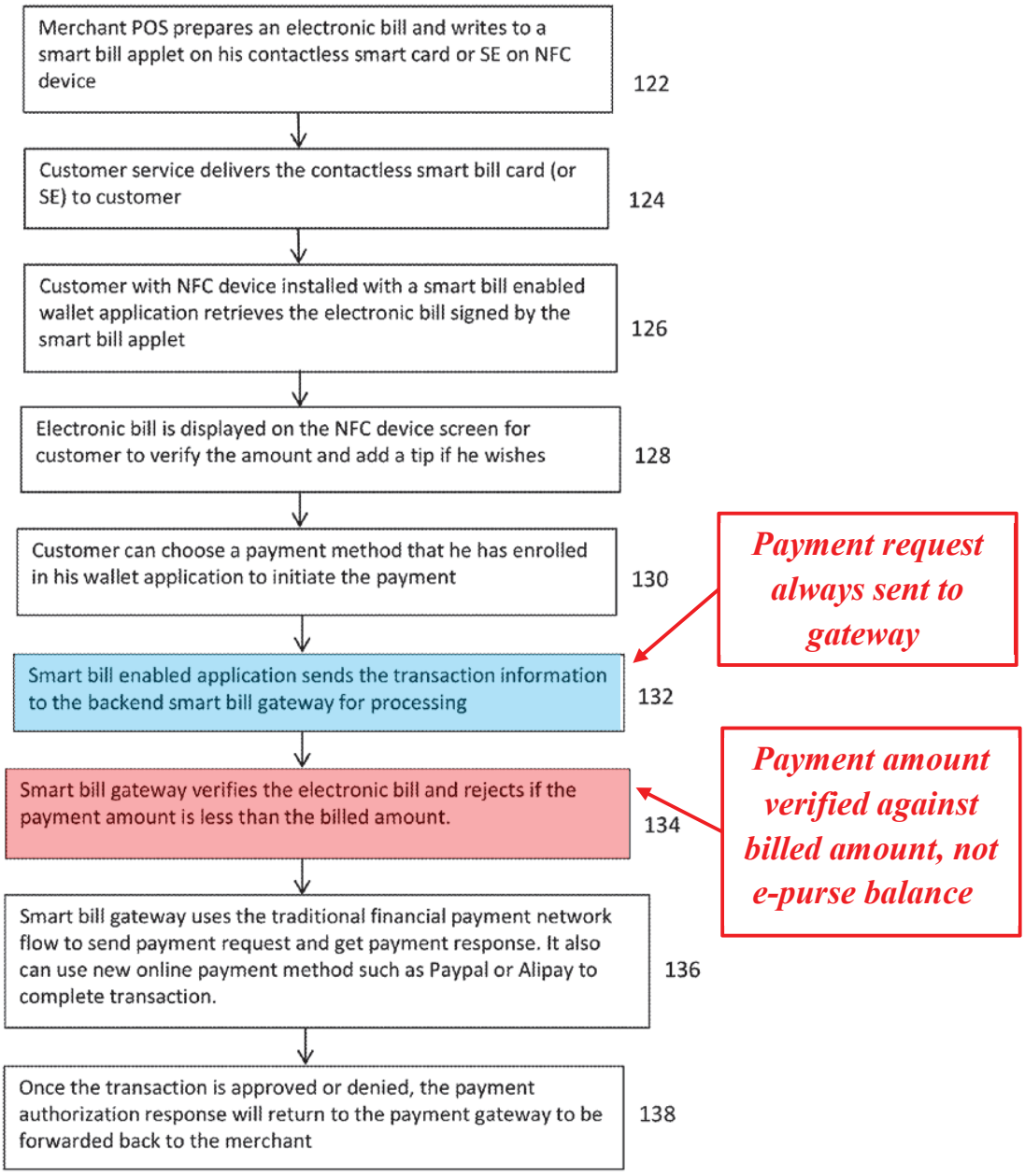
GOOG-1002, p. 719 (**GOOG-1001**, 8:25–30).

155. Moreover, although the system and method of Figures 1A and 1B disclose subject matter somewhat similar to that of claim 1, they are fundamentally different than claim 1 with respect to transmission of the payment request. The system of Figure 1A contains similar elements to those recited in claim 1—a POS device 106 that generates an electronic invoice, a contactless card 108 that carries the electronic invoice, a mobile device 110 that receives the invoice, and a payment gateway 104 that receives a payment request from the mobile device:



GOOG-1001, Fig. 1A (annotated). Figure 1B illustrates a "process 120 of settling a payment" that utilizes the elements of Figure 1A. **GOOG-1001**, 7:4-9. But as shown in Figure 1B, reproduced below, while this process begins with steps similar to those recited in claim 1, it diverges after the customer adds a tip and selects the payment method (steps 128 and 130). In particular, the '046 Patent explains that "once the total amount is entered by the consumer, at 132, the application (i.e., the mobile device) sends a payment request including the data pertaining to the electronic bill to the server 104 for processing." **GOOG-1001**, 7:62-65. In other words, in the payment process of Figure 1B shown below, the

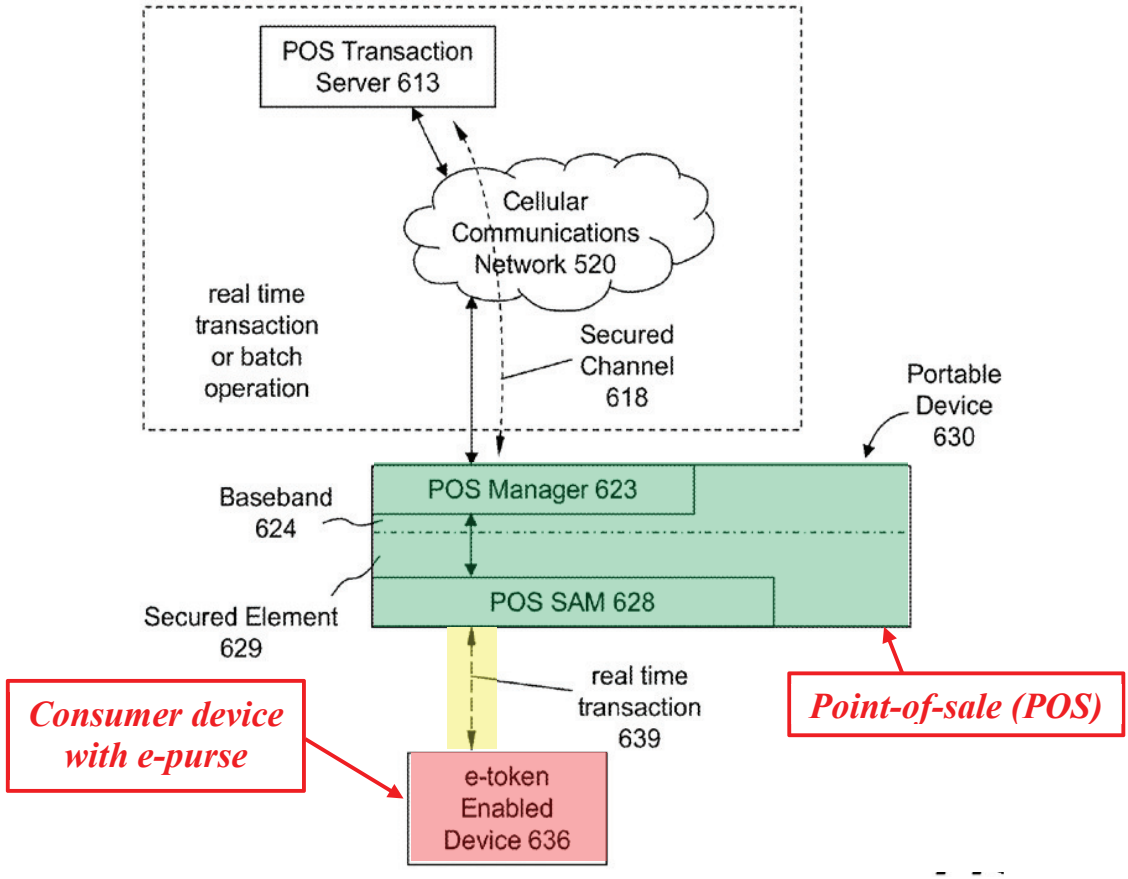
mobile device *always* sends the payment request to the payment gateway because it lacks any sort of verifying step on the mobile device itself. **GOOG-1001**, Fig. 1B. The only verifying step of Figure 1B (step 134) is performed by the payment gateway, after the payment request is sent—not by the mobile device, before the payment request is sent, as is required by claim 1. Moreover, in the verifying step of Figure 1B (step 134), the billed amount is verified against the "payment amount" rather than the "balance in the e-purse," as required by claim 1. **GOOG-1001**, 8:3-5 ("Upon receiving the payment request, the server 104 is configured to verify if the amount entered by the consumer is sufficient to cover the charge in the bill at 134").



GOOG-1001, Fig. 1B (annotated). Thus, the process of Figure 1B (which always sends the payment request to the gateway) fails to disclose the alleged invention recited in claim 1 (which recites that the payment request is sent to the payment

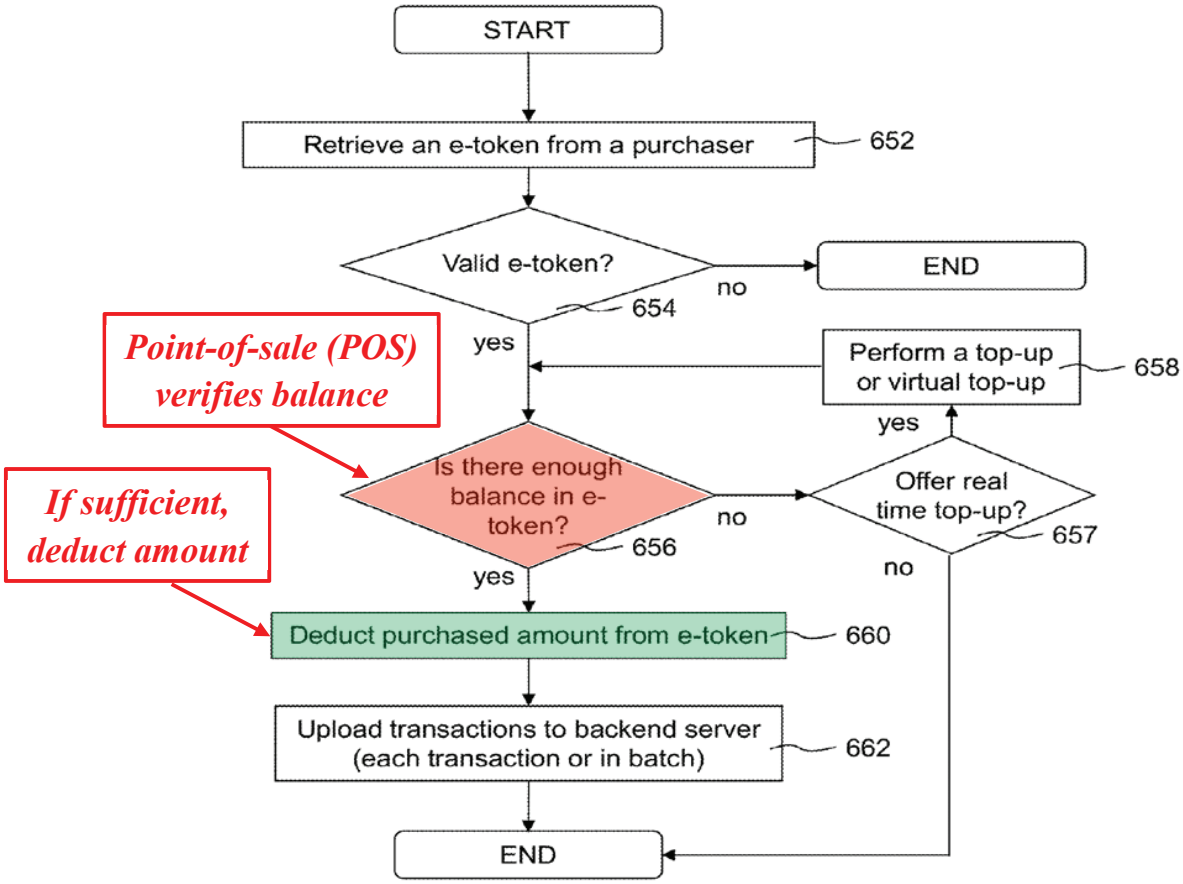
gateway contingent on verifying the total amount against the balance on the mobile device). **GOOG-1001**, Fig. 1B, 7:62-65, 8:3-16.

156. Applicants' reliance on paragraph [0131] and Figure 6C of the as-filed application is equally unhelpful, as the embodiment described does not include a payment gateway, much less a contingent transmission of a payment request from a mobile device to a payment gateway. **GOOG-1001**, Fig. 6C; **GOOG-1002**, pp. 738–39. Specifically, paragraph [0131] and Figure 6C describe a payment process utilizing the elements illustrated in the system of Figure 6A—a system in which the consumer's e-purse device (device 636) communicates only with the point-of-sale (POS) (portable device 620)—not a payment gateway:



GOOG-1001, Fig. 6A (annotated); **GOOG-1002**, pp. 738–39. A payment gateway is not needed or present in the system of Figure 6A because the real time transaction 639 is "conducted ***between the mobile POS enabled portable device 630 and an e-token enabled device 636***." **GOOG-1001**, 19:6-10. Moreover, although Figure 6C depicts a step 656 in which it is determined "whether there is enough balance in the retrieved e-token to cover the cost of the current transaction," such determination is performed by the POS manager, not the consumer's e-purse device, as recited in claim 1. **GOOG-1002**, pp. 738–39 [0131]

(explaining that the process 650 is "a process performed by the POS manager 623 of FIG. 6A"). Moreover, if the balance is sufficient, the POS manager directly "debits the purchase amount from the e-token of the e-token enabled device 636 at 660"—thereby completing the transaction, which is later uploaded—as shown in Figure 6C below. **GOOG-1002**, pp. 738–39, [0131].



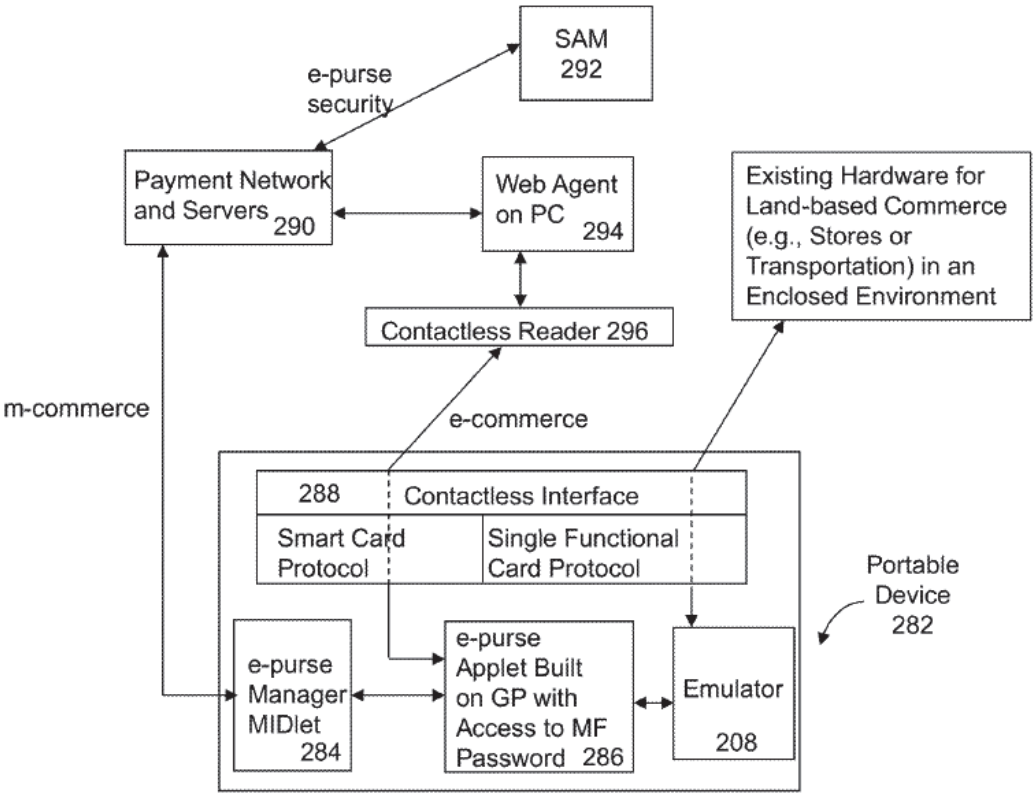
GOOG-1001, Fig. 6C (annotated). Accordingly, paragraph [0131] and Figure 6C fail to disclose the concepts in claim 1 of (i) verifying the sufficiency of the balance on a consumer's e-purse device, and (ii) transmitting a payment request

from the e-purse device to a payment gateway only when the e-purse is sufficient to pay the total amount. **GOOG-1001**, Fig. 6C; **GOOG-1002**, pp. 738–39.

157. Although not cited by applicants, the related process 670 shown in Fig. 6D is similarly deficient in supporting claim 1 because it also relies upon the system in Figure 6A. **GOOG-1001**, 21:25-26 ("The process 670 (e.g., a process performed by the POS manager 623 of FIG. 6A)…"); **GOOG-1001**, 21:20-24. Figure 6A does not include a payment gateway, and the customer's e-purse device communicates only with the POS device 630. **GOOG-1001**, Fig. 6A. Though Figure 6D includes a step that determines whether there is enough balance in the e-token enabled device (step 674), this cannot support claim 1. **GOOG-1001**, Fig. 6D. This aspect of Figure 6D does not determine whether a payment request will be sent to the *payment gateway*, given that the embodiment in Figures 6A-6D fails to disclose a payment gateway altogether. GOOG-1001, Fig. 6A; **GOOG-1001**, 18:65-22:2 (not discussing a payment gateway). Nor would a POSITA have assumed that such a payment gateway would be part of the embodiment in Figures 6A-6D because a payment gateway is not necessary for that embodiment. Moreover, Figure 6D fails to disclose determining the sufficiency of a balance against the claimed "total amount" (i.e., the invoice amount plus an additional amount from the user) because process 670 does not contemplate a user entering an

additional amount. As such, without disclosure of a payment gateway, Figure 6D necessarily cannot disclose the alleged invention in claim 1.

158. The applicants lastly relied upon paragraph [0064] (13:6-31 in the '046 Patent) and corresponding Figure 2F to support the E-purse Amendment. GOOG-1002, p. 160. These portions of the as-filed specification, however, also fail to provide the written description required under § 112. In particular, Figure 2F and paragraph [0064] merely describe a system 280 for e-commerce and m-commerce transactions, without disclosing specific steps involved in such transactions:



GOOG-1001, Fig. 2F; GOOG-1002, p. 727. For example, although paragraph [0064] references "communications between an e-purse applet 286 and one or more payment network and servers 290 to conduct transactions therebetween" it does not disclose that a payment request is sent from the payment server only when a balance in the e-purse is verified to be sufficient for a total amount of a purchase, as recited in claim 1. GOOG-1002, p. 727.

159. The remaining embodiments in the '046 Patent beyond those cited by the applicants are equally unhelpful. Figures 3A-3C describe a system and method directed to "e-purse personalization (or provisioning) by an authorized person." **GOOG-1001**, 13:41-15:21. This embodiment lacks any disclosure of steps related to making a payment with an e-purse and, thus, fails to support the "method of mobile payment" recited in claim 1. Further, Figures 4A-4C generally describe a system and method for "financing or funding an e-purse." **GOOG-1001**, 15:22-16:29. This embodiment also lacks any disclosure of e-purse payment steps and thus fails to support the verification step of claim 1. Finally, Figs. 5A-5C generally describe a system and related steps for "enabling a portable device for e-commerce and m-commerce functionalities," such as downloading the e-purse applet to a consumer's device and personalizing it. **GOOG-1001**, 16:30-18:64. This embodiment similarly fails to support claim 1 and its verification step because it

stops short of disclosing any actual e-commerce or m-commerce transactions—or the steps required to carry them out.

160. Accordingly, a POSITA would have understood that the as-filed specification does not disclose the concept in claim 1 of sending a payment request from a consumer's mobile device to a payment gateway only after determining that an e-purse balance is sufficient.

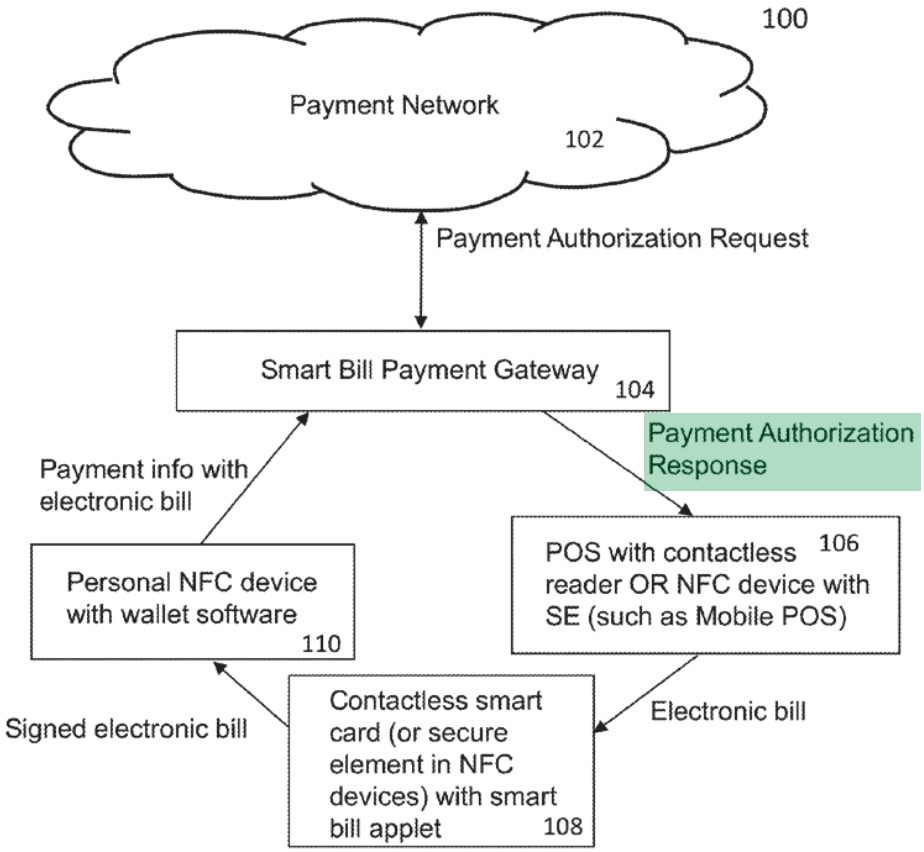
2. The specification does not describe "displaying a confirmation in the mobile device that the balance in the e-purse has been reduced by the total amount."

161. As part of the E-purse Amendment immediately before allowance, the Applicants narrowed the final "confirmation" step in claim 1 to require more than a simple confirmation that the payment request was successfully completed. **GOOG-1002**, p. 154. Specifically, the amendment narrowed the claim to require "displaying a confirmation in the mobile device that the balance in the e-purse has been reduced by the total amount":

~~recording~~ displaying a confirmation in the mobile device that the balance in the e-purse has been reduced by the total amount ~~monetary transaction per the payment request has been successfully completed with respect to the electronic invoice~~.

GOOG-1002, p. 154. The as-filed specification does not disclose or describe the display, by any device, of a confirmation with the specific information required by the claim.

162. In more detail, neither embodiment in which an e-purse is used to make a payment (Figures 1A-B and Figures 6A-D) discloses displaying a confirmation that the balance in the e-purse has been reduced. **GOOG-1001**, Figs. 1A-B, 6A-D. With respect to Figures 1A-1B, the specification lacks disclosure of displaying anything on the mobile device after payment is completed. The disclosure is limited to the payment gateway sending a payment authorization response to the merchant, as shown in Fig. 1A:



GOOG-1001, Fig. 1A (annotated); **GOOG-1001**, 8:22-24 ("Once the transaction is complete or denied, the server 104 sends a notice to the merchant (e.g., the restaurant).").

163. The embodiment of Figures 6A-6D similarly fails to disclose displaying anything on the mobile device after a payment has been completed. The process 650 illustrated in Figure 6C does not include a display step at all. **GOOG-1001**, Fig. 6C. And while the process 670 of Figure 6D includes a display step 686, as shown below, the specification is clear that the "POS Manager" performs the

steps of process 670, not the mobile device. **GOOG-1001**, 21:25-26 ("The process 670 (e.g., a process performed by the POS manager 623 of FIG. 6A)…").

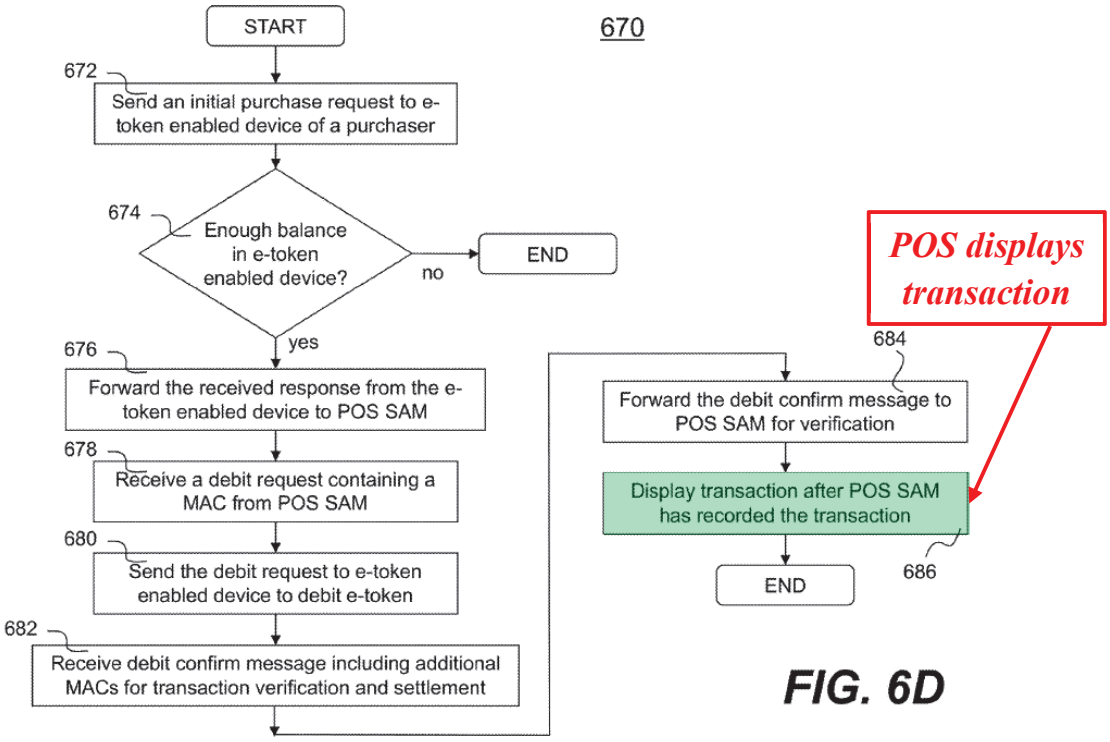


FIG. 6D

GOOG-1001, Fig. 6D (annotated). Moreover, as mentioned above, process 670 does not contemplate a user entering an additional amount, which means it necessarily cannot display a confirmation involving a "total amount." In any event, a POSITA would not have understood a generic disclosure of displaying a "transaction" as disclosing the claimed display of a confirmation "that the balance in the e-purse has been reduced by the total amount." **GOOG-1001**, claim 1.

164. Accordingly, the as-filed specification does not disclose the concept in claim 1 of "displaying a confirmation in the mobile device that the balance in the

e-purse has been reduced by the total amount." Because this concept was added to claim 1 after the application was filed, the inventors of the '046 Patent did not possess the alleged invention of claim 1 as of the '046 Patent's filing date. Claim 1 therefore does not comply with the requirements of 35 U.S.C. § 112(a).

B. Independent Claim 12

165. The applicants also added subject matter to claim 12 during prosecution that is not disclosed or described in the specification—including subject matter cited as the reason for allowance. **GOOG-1002**, p. 156. As such, when claim 12 issued, it recited a method for mobile payment that the inventors did not possess when they filed the application that led to the '046 Patent.

3. The specification does not describe sending a payment request to a payment gateway only if an e-purse balance is sufficient.

166. Claim 12, like claim 1, was amended in the last Office Action Response prior to allowance to include e-purse functionality. **GOOG-1002**, p. 156. The functionality added to claim 12 was similar to the functionality added to claim 1, in that the payment request is sent from the mobile device to the payment gateway only when the amount of the electronic invoice is less than a balance of an electronic purse (e-purse) maintained locally in the mobile device:

12. (*Currently amended*) A method for mobile payment, the method comprising:

generating a set of data in a point of sale (POS) device, the data including an electronic invoice and settlement information with a merchant associated with the POS device;

embedding the data directly to a tag;

presenting the tag to ~~the~~ a mobile device;

causing the mobile device to capture the data from the tag, wherein the mobile device executes an installed application therein to retrieve an amount in the electronic invoice from the data and generate a payment request in response to the captured data, the payment request is denied in the mobile device when the amount is more than a balance of an electronic purse (e-purse) maintained locally in the mobile device, the payment request is ~~being~~ sent to a payment gateway when the amount is less than a balance of an electronic purse (e-purse) maintained locally in the mobile device ~~includes a total amount combining an additional amount added by a user of the mobile device and the amount expressed in the electronic invoice~~; and

receiving a message in the POS device directly from the payment gateway that the electronic invoice has been settled ~~but for the total amount more than the amount expressed in the electronic invoice~~, wherein the payment gateway is configured to cause the balance in the e-purse reduced by the amount ~~send the message directly to the POS device when an amount equivalent to the total amount is deducted from an account associated with the user of the mobile device~~.

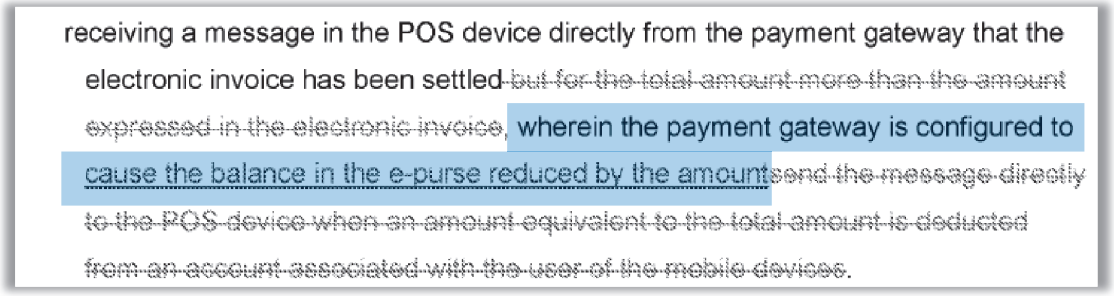
GOOG-1002, p. 156. Claim 12 issued with these amendments. **GOOG-1002**, pp. 7–21. In the reasons for allowance, the Examiner did not differentiate between claims 1 and 12, noting only that the similar limitation in claim 1 of "sending the payment request from the mobile device to the payment gateway, wherein the

balance is sufficient to honor the payment request" was not found in the prior art. **GOOG-1002**, p. 19.

167. For the same reasons as discussed above with respect to claim 1, the concept in claim 12 of a contingent transmission of the payment request from the mobile device to a payment gateway lacks written description support in the as-filed application.

4. The specification does not describe a payment gateway configured to cause the balance in the e-purse to be reduced.

168. When the applicants added e-purse functionality to claim 12, they amended the last limitation to recite: "wherein the payment gateway is configured to cause the balance in the e-purse reduced by the amount." **GOOG-1002**, p. 156. Prior to the amendment, the payment gateway's role post-payment was limited to sending a message to the POS device:


receiving a message in the POS device directly from the payment gateway that the electronic invoice has been settled ~~but for the total amount more than the amount expressed in the electronic invoice~~, wherein the payment gateway is configured to cause the balance in the e-purse reduced by the amount~~send the message directly to the POS device when an amount equivalent to the total amount is deducted from an account associated with the user of the mobile devices~~.

GOOG-1002, p. 156. This amendment injected subject matter into claim 12 that the inventors did not possess at the time of filing. Specifically, the idea that the

payment gateway—rather than some other element—causes the e-purse balance to be reduced is not disclosed in the as-filed specification.

169. Neither of the two embodiments in the ’046 Patent that describe e-purse payments— Figures 1A-1B and Figures 6A-6D—support the concept of the payment gateway reducing the e-purse balance. Only the former embodiment even discloses a payment gateway (i.e., element 104 in Figure 1A), but such disclosure is devoid of any suggestion that the payment gateway 104 is configured to reduce the balance in the e-purse on mobile device 110, as shown below:

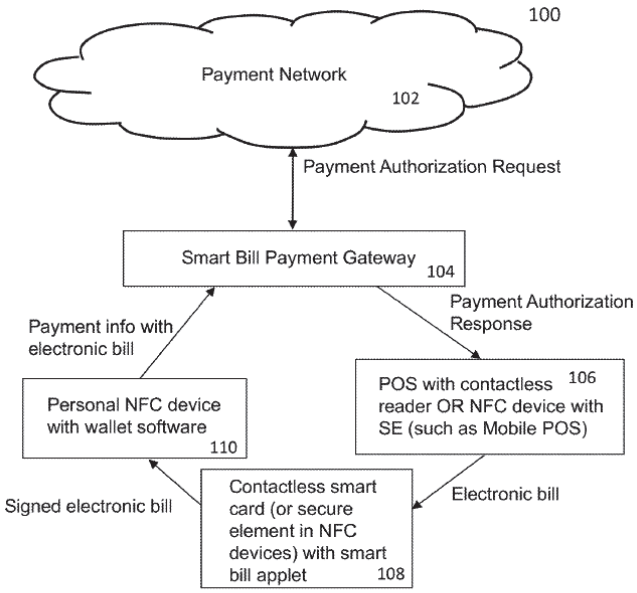


FIG. 1A

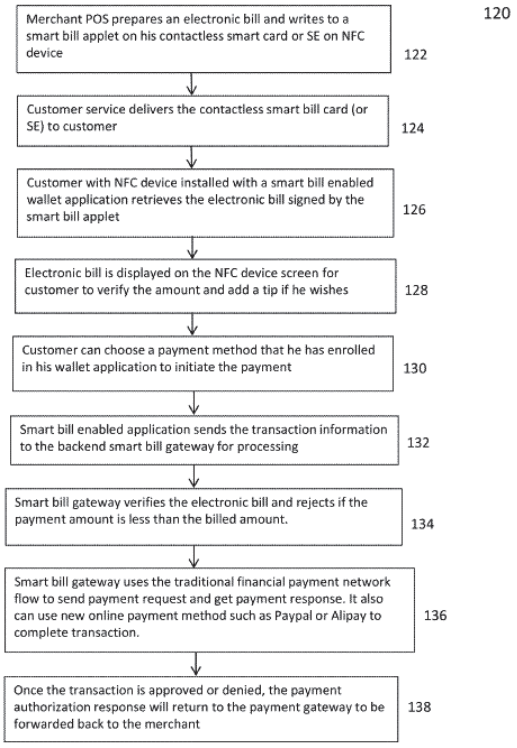


FIG. 1B

GOOG-1001, Figs. 1A and 1B. Although steps 132-138 in Figure 1B describe the actions of the payment gateway during a purchase transaction, they disclose only that the payment gateway receives a payment request (132), verifies the amount against a balance (134), forwards the payment request to a payment network (136), and forwards an authorization response to the merchant (138). **GOOG-1001**, Fig. 1B, 7:54–8:24. There is no disclosure of a payment gateway sending any sort of communication to the mobile device, much less reducing the balance in the mobile device e-purse. **GOOG-1001**, Fig. 1B, 7:54–8:24. Indeed, the embodiment of Figures 1A-1B is completely silent with respect to a balance maintained in the customer's mobile device e-purse. **GOOG-1001**, Figs. 1A-1B. An e-purse is mentioned only to the extent that it is a payment option on the mobile device. **GOOG-1001**, 7:48-52 ("Depending on implementation, the customer may choose to settle the charge with an electronic wallet or purse (a.k.a., e-purse) already created in the mobile device, cash, a traditional credit or debit card, an electronic transfer/payment or others.").

170. As to the other embodiment describing e-purse payments, Figures 6A–6D, even if the embodiment included a payment gateway (which it does not), it would still lack support for the balance-reduction amendment in claim 12. Specifically, as described in association with step 660 with Figure 6C, it is the POS manager 632 that "deducts or debits the purchase amount from the e-token of the

e-token enabled device 636 at 660." **GOOG-1001**, 20:41-44, 20:13-14 (explaining that the process 650 is "performed by the POS Manager"). And, as described in association with step 680 in Figure 6D, it is the e-purse applet itself that debits the e-token: "Send the debit request to e-token enabled device to debit e-token." **GOOG-1001**, Fig. 6D, Step 680; **GOOG-1001**, 21:51-55 ("The debit request contains a Message Authentication Code (MAC) for the applet (i.e., e-purse applet) to verify the upcoming debit operation, which is performed in response to the debit request sent at 680.").

171. To the extent Patent Owner alleges that the disclosure in as-filed claim 7 of the payment gateway deducting the amount from an "account owned by the user" somehow supports the current recitation of the payment gateway deducting the amount from the "e-purse" (*see* **GOOG-1002**, p. 155), the '046 Patent's specification is clear that an e-purse is distinct from a user's "account," which is consistently described as a "bank account." **GOOG-1001**, 15:33-35 ("The user desires to fund the e-purse from an account associated with a bank."); **GOOG-1001**, 15:51-53 ("the process 400 moves to 412 where a corresponding account at a bank is verified"), **GOOG-1001**, 16:10-11 ("a request to the financing bank 442 with which the user 432 is assumed to maintain an account"), **GOOG-1001**, 20:59-61 ("For example, an online account is offered by a commercial entity

(e.g., business, bank, etc.). Once the sponsor has funded the e-token to the online account…"). Such disclosure therefore cannot support this limitation.

172. Accordingly, the as-filed specification does not disclose a payment gateway "configured to cause the balance in the e-purse reduced by the amount," as recited in claim 12. Because this concept was added to claim 12 after the '046 Patent application was filed, the inventors did not possess the alleged invention of claim 12 as of the '046 Patent's filing date. Claim 12 therefore does not comply with the requirements of 35 U.S.C. § 112(a).

C. Dependent Claim 7

173. In addition to incorporating the unsupported features of claim 1, claim 7 does not comply with the requirements of § 112(a) for at least one additional reason.

174. When the applicants amended independent 12 to require the payment gateway to reduce the balance in the e-purse by the transaction amount, they also amended dependent claim 7 to include similar language: "the payment gateway is configured to perform the monetary transaction per the payment request by deducting the total amount from the e-purse." **GOOG-1002**, p. 155. Prior to the amendment, the payment gateway was configured only to deduct the total amount from an "account owned by the user":

7. (*Currently amended*) The method as recited in claim 6, wherein said sending the payment request from the mobile device to ~~a~~ the payment gateway comprises:

transporting the payment request over a secured channel to the payment gateway, wherein the payment gateway is configured to perform the monetary transaction per the payment request by deducting ~~an~~ the total amount from ~~an~~ the e-purse ~~account owned by the user~~ and generates an electronic notification for sending to the POS device.

GOOG-1002, p. 155.

175. For the same reasons as discussed above with respect to claim 12, the concept in claim 7 of a payment gateway deducting the total amount from the e-purse lacks written description support in the as-filed application. *See supra* Section VIII.A.2.b.

176. Accordingly, the as-filed specification does not disclose a payment gateway configured to deduct the total amount from the e-purse, as recited in claim 7. Because this concept was added to claim 7 after the '046 Patent application was filed, the inventors did not possess the alleged invention of claim 7 as of the '046 Patent's filing date. Claim 7 therefore does not comply with the requirements of 35 U.S.C. § 112(a).

D. Dependent Claims 2–17

177. Claims 2–11 depend from independent claim 1, and claims 13–17 depend from independent claim 12. I understand that, through this dependency

relationship, these claims incorporate the above-discussed features of claims 1 and 12 which are not supported by the as-filed disclosure of the '046 Patent. Therefore, claims 2–6 and 8–17 do not comply with the requirements of 35 U.S.C. § 112(a) for at least the reasons discussed above with respect to independent claims 1 and 12.

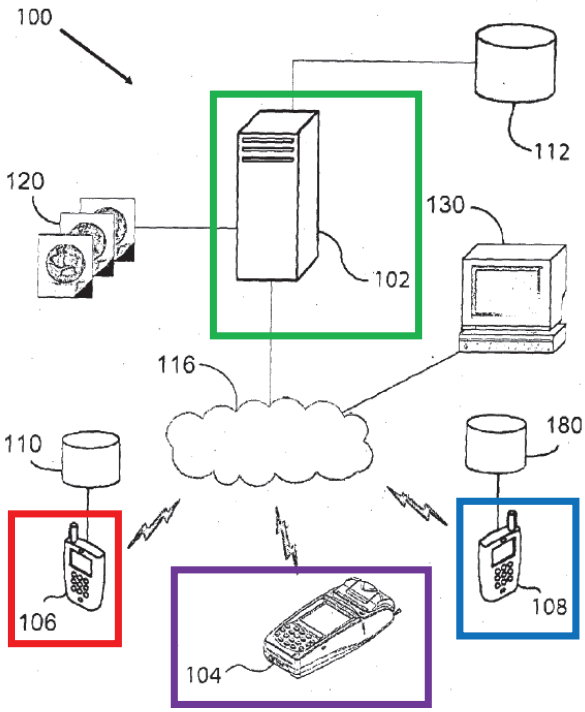
X. Challenge #3: Claims 1-5 and 12-14 are obvious over Moshal in view of Jogu and Dessert

178. For the reasons set forth below, it is my opinion that the subject matter of claims 1-5 and 12-14 would have been obvious to a POSITA in light of the disclosures of the Moshal (**GOOG-1005**), Jogu (**GOOG-1006**), and Dessert (**GOOG-1007**) references. The following describes how Moshal, Jogu, and Dessert render obvious each and every element of claims 1-5 and 12-14 of the '046 Patent. Before I analyze each limitation of the claims in comparison to the prior art, I provide an overview of the general teachings of Moshal, Jogu, and Dessert.

A. Overview of Moshal

179. Like the '046 Patent, Moshal is directed to a bill payment system and method in which a customer uses a payment instrument such as an e-wallet on his or her mobile device to pay a bill. **GOOG-1005**, Abstract, ¶ 42 (customer can use an e-wallet on a mobile device as a payment instrument). With reference to Figure 1 below, Moshal discloses that a **mobile device** ("code scanner") 106, which may be

a smartphone (**GOOG-1005**, ¶ 38), scans a tag (payment QR code) provided by a **POS device** 104 to obtain merchant information and invoice information to pay for a transaction. **GOOG-1005**, ¶¶ 38, 54, 55. The mobile device transmits a payment request to a **payment gateway** (application server) 102 upon the customer's verification of the invoice and selection of a payment instrument on the **mobile device**, and the payment gateway notifies a **merchant terminal** 108 and the **mobile device** whether a requested transaction is successful or unsuccessful. **GOOG-1005**, ¶¶ 38, 55-57.



GOOG-1005, Fig. 1 (annotated)

180. With reference to Figure 7 below, Moshal discloses that a scanner application of the mobile device (code scanner) scans a tag (QR code) (step 708) provided by the POS terminal (step 700), and decodes the tag to obtain all the merchant and invoice information contained in the tag (step 710). **GOOG-1005**, ¶¶ 54-55. The scanner application of the mobile device then displays the invoice, including all the bill details (step 712) for the customer to (i) review and amend the bill as necessary (e.g., add a tip) (step 714), (ii) select a payment instrument such as an e-wallet (step 716), and (iii) accept the bill for payment (step 718). **GOOG-1005**, ¶ 55. Then, after the user accepts the bill for payment, the mobile device transmits a payment request to the payment gateway (application server) (step 720). **GOOG-1005**, ¶ 55. Like the '046 Patent, Moshal discloses that the payment gateway determines whether payment is successful or unsuccessful and notifies the mobile device of this determination (step 728 or step 732), and the payment gateway notifies the merchant terminal when payment is successful (step 734). **GOOG-1005**, ¶¶ 56-57.

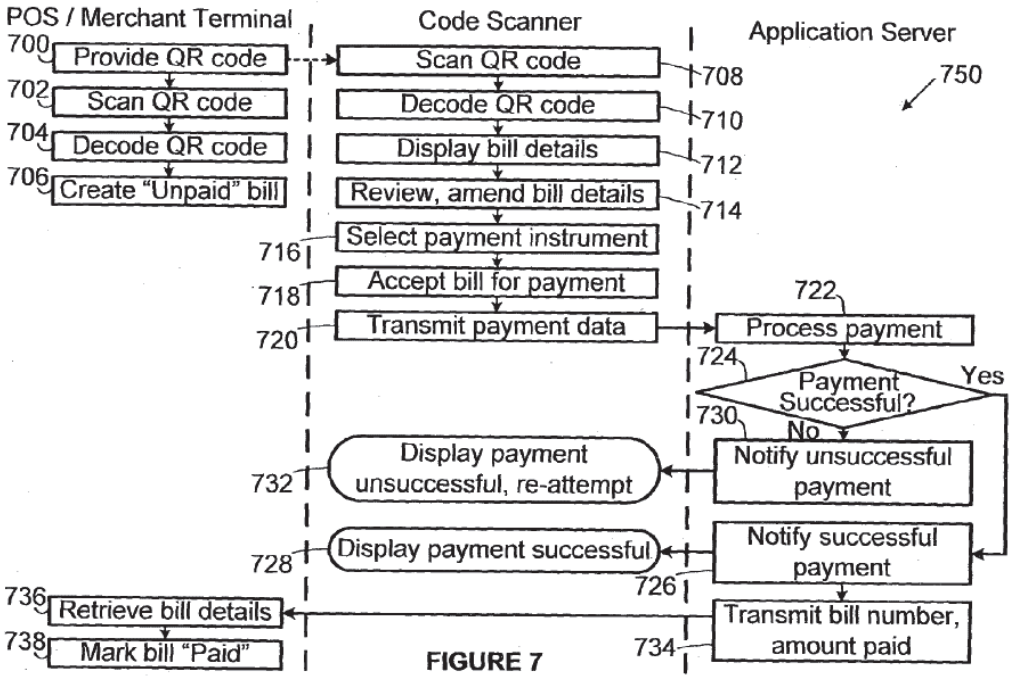
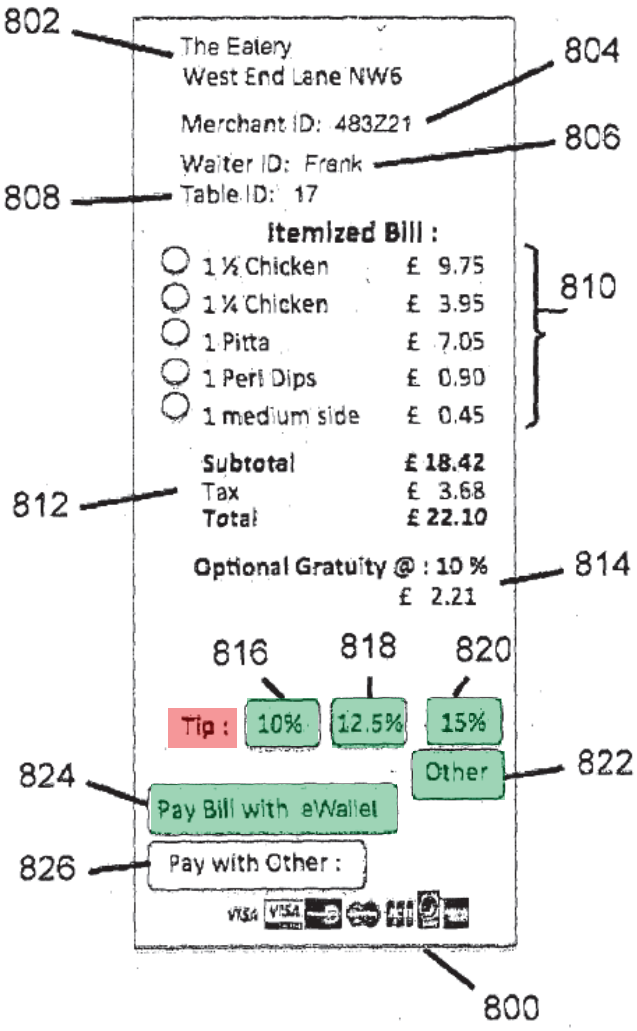


FIGURE 7

GOOG-1005, Fig. 7

181. With reference to Figure 8 below, Moshal discloses that the mobile device user may select an e-wallet (e-purse as claimed in the '046 Patent) to pay the amount (including optional tip) for an invoice 800 displayed on the mobile device by selecting this payment option (icon 824 on displayed invoice 800). **GOOG-1005**, ¶ 59 ("**Icon 824 can be used to select an e-wallet with which to pay**, while icon 826 can be used to select a debit card or a credit card with which to pay the bill.") (emphasis added).



GOOG-1005, Fig. 8 (annotated)

B. Overview of Jogu[10]

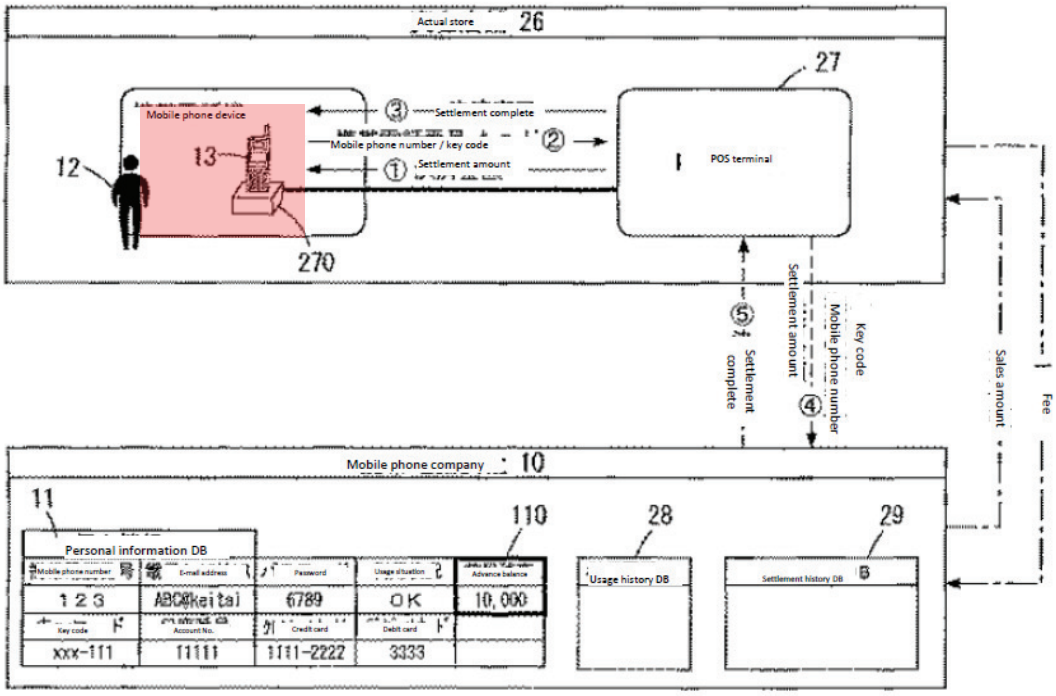
182. Like the '046 Patent, Jogu discloses a mobile payment system and method in which a customer uses an e-wallet application on a mobile device to

[10] In this Declaration, I will sometimes provide enlarged excerpts of Jogu's drawings due to the size of the font in Jogu's drawings. When I provide an

conduct a transaction. **GOOG-1006**, 3 ("[T]he user can make a payment by using the mobile phone like a wallet."). Figure 6 of Jogu below shows use of the **mobile device** 13 at a brick-and-mortar store 26 to conduct a transaction with a **POS terminal** 27. **GOOG-1006**, 6 ("FIG. 6 is a schematic diagram showing a method of making a payment using a mobile phone at a brick-and-mortar store. As shown in FIG. 6, at a brick-and-mortar store, the user 12 sets the mobile phone 13 in the reading device 270 connected to the POS terminal 27."). If payment is successful, a **payment gateway** (mobile phone server) 10 notifies the **POS terminal** 27 of completion of the payment. **GOOG-1006**, 6 ("the mobile phone company 10 updates the prepaid balance by subtracting the payment amount from the prepaid balance of the virtual account 110, and notifies the POS terminal 27 of the completion of the payment.").

enlarged excerpt of any of Jogu's drawings, I will also provide the full drawing for completeness.

FIG. 6

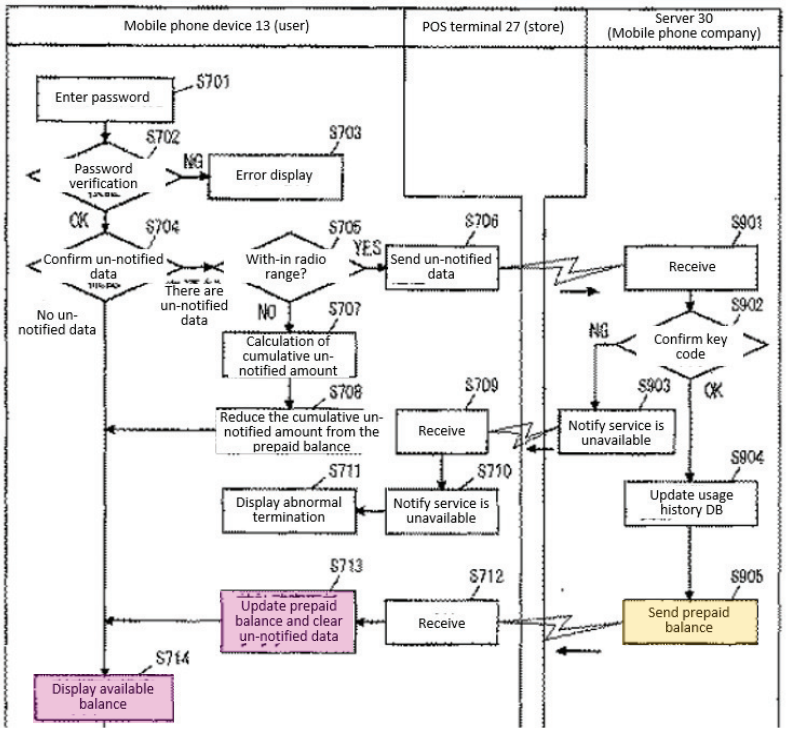


GOOG-1006, Fig. 6 (annotated)

183. Like the ’046 Patent, Jogu discloses that a balance is maintained locally on the mobile device. **GOOG-1006**, 4 (“**The mobile phone stores the balance** of the transmitted virtual account. **The user uses this mobile phone instead of a wallet to make a payment at a virtual store or at a brick-and-mortar store on the Internet**.”) (emphasis added), 6 (“The mobile phone 3 compares the balance stored inside with the payment amount, and if payment is not possible, sends an error message to the POS terminal 27. On the other hand, if payment is possible, the mobile phone 13 transmits the mobile phone number and the key code to the POS terminal 27.”).

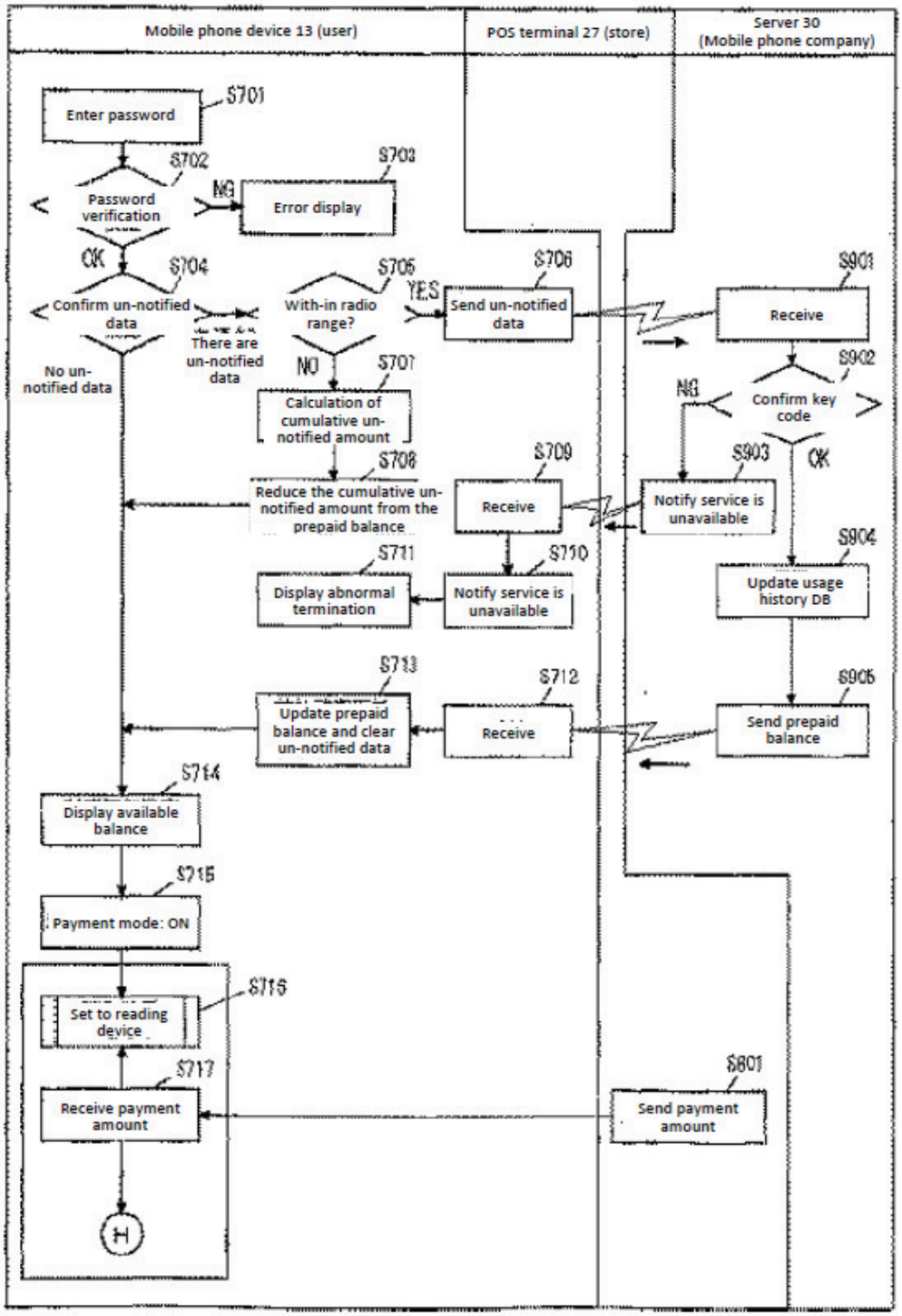
184. With reference to Figure 21 below, Jogu discloses that the mobile device informs the user of the current balance before the user conducts a transaction (step 714 in Fig. 21). **GOOG-1006**, 14 ("[T]he data processing unit 103 displays the currently available balance as shown in screen D 16 shown in FIG. 23 (S714)."). The current balance on the mobile device is updated by the payment gateway 30, which informs the mobile device of the current balance (step 905 in Fig. 21). **GOOG-1006**, 13 ("[T]he transmission / reception unit 135 [of the mobile device] receives the prepaid balance transmitted from the server 30 of the mobile phone company 10 in step S905 above (S712).").

FIG. 21



GOOG-1006, Fig. 21 (annotated excerpt)

FIG. 21



GOOG-1006, Fig. 21

185. Further, like the '046 Patent, Jogu discloses that when the mobile device initiates a transaction, the mobile device first performs a local balance check without sending a payment request to the payment gateway 10. As shown in the excerpts of Figures 22 and 23 below, Jogu discloses the following operations performed in the mobile device:

> (1) the mobile device determines whether the balance maintained locally on the mobile device is sufficient for a transaction (step S718 in Fig. 22; screen D18 displayed on mobile device in Fig. 23);
>
> (2) if the balance is insufficient, the transaction is denied by the mobile device (S719 in Fig. 22; screen D19 displayed on mobile device in Fig. 23); and
>
> (3) if the balance is sufficient, the mobile device initiates a payment request by transmitting the mobile phone number and a payment code to the POS terminal (S720 in Fig. 22; screen D20 displayed on mobile device in Fig. 23). **GOOG-1006**, 14.

FIG. 22

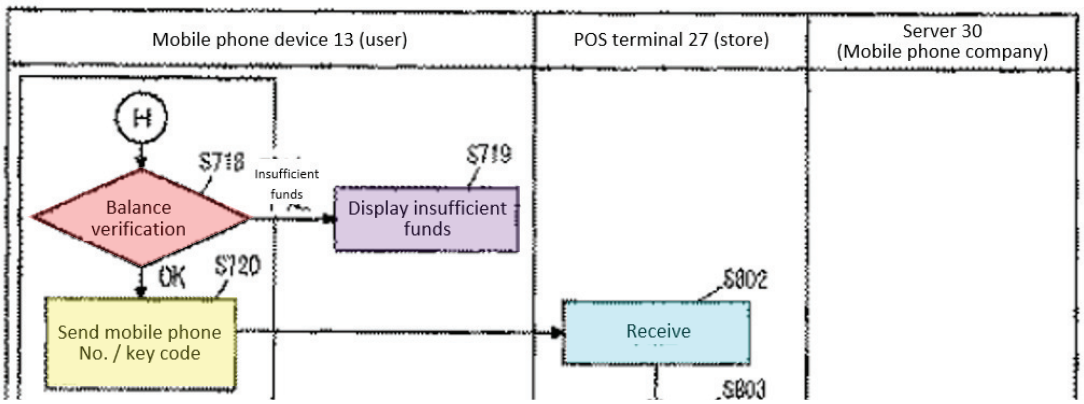


Fig. 23 (excerpt)

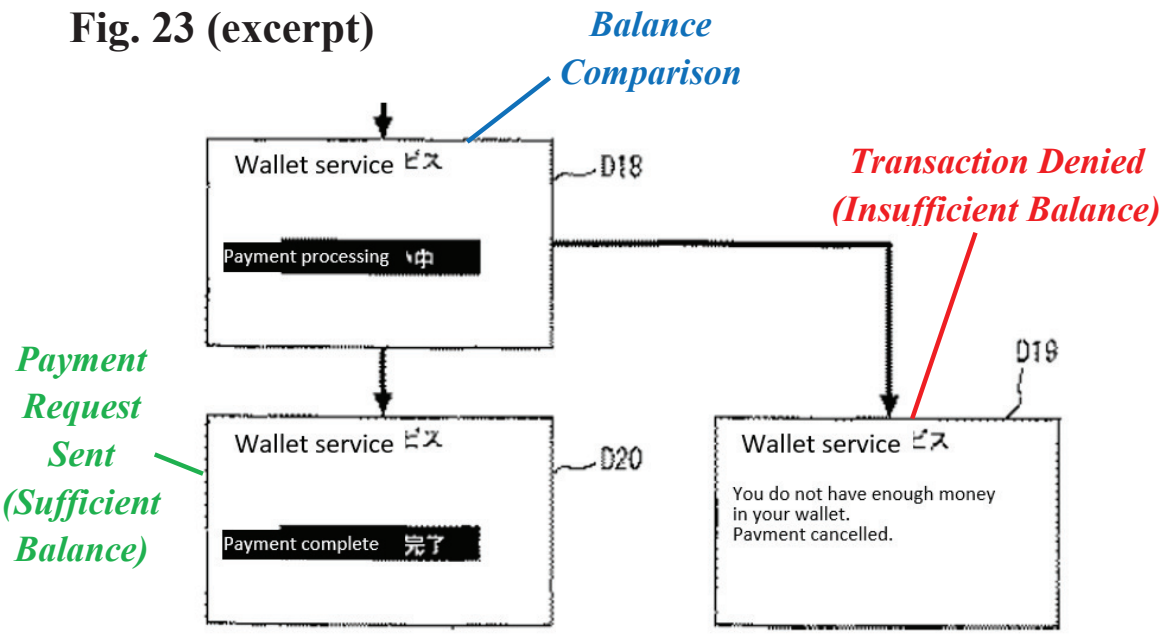
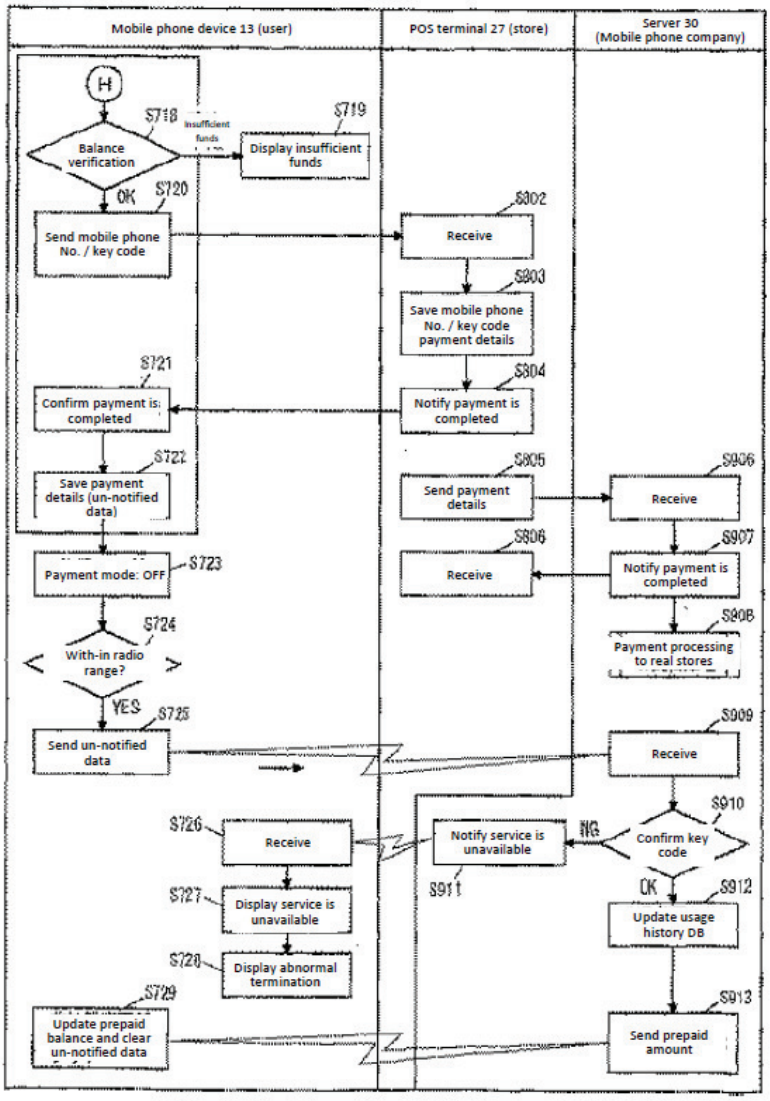
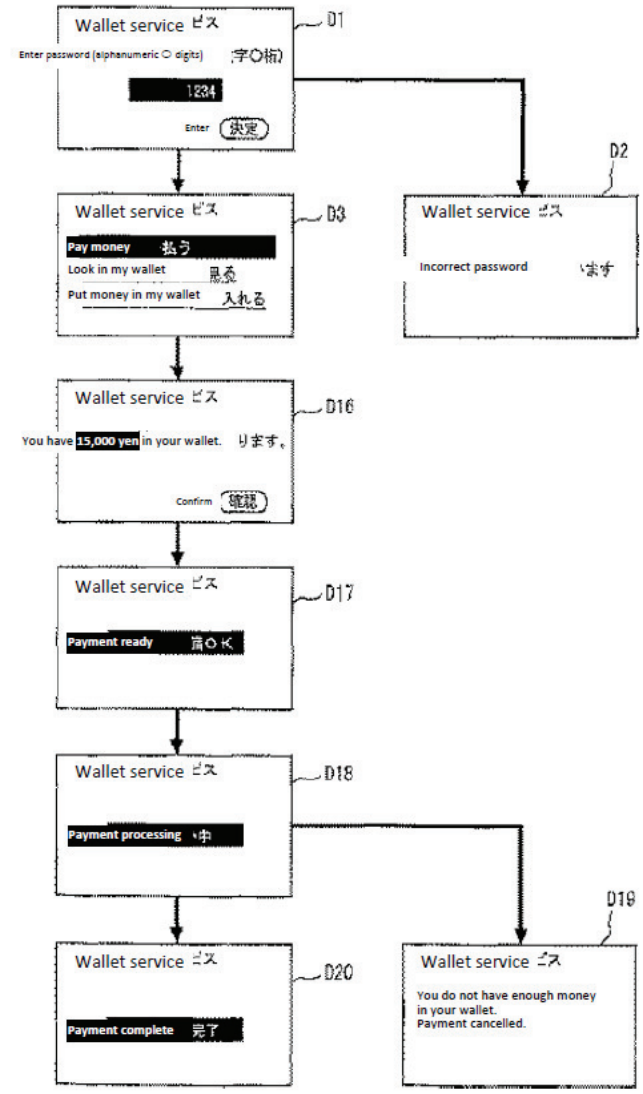


FIG. 22



GOOG-1006, Fig. 22

FIG. 23



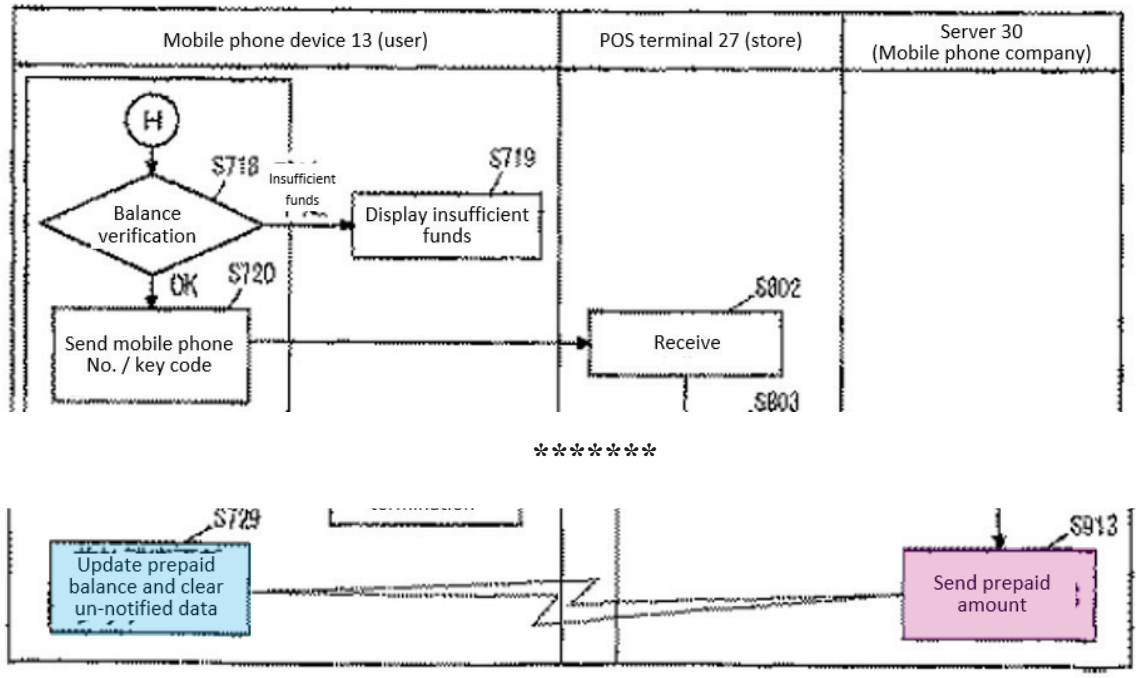
GOOG-1006, Fig. 23

186. In addition, like the '046 Patent, Jogu discloses that the balance on the mobile device is reduced by the payment gateway (mobile phone company server) 30 after a successful transaction. As shown in the excerpt of Figure 22 below,[11]

[11] The full version of Jogu's Fig. 22 is reproduced above.

after a payment is successfully made with the balance on the mobile device, the payment gateway 30 sends the updated balance to the mobile device (step 913), causing the balance to be reduced on the mobile device (step S729 in Fig. 22). **GOOG-1006**, 14-15.

FIG. 22

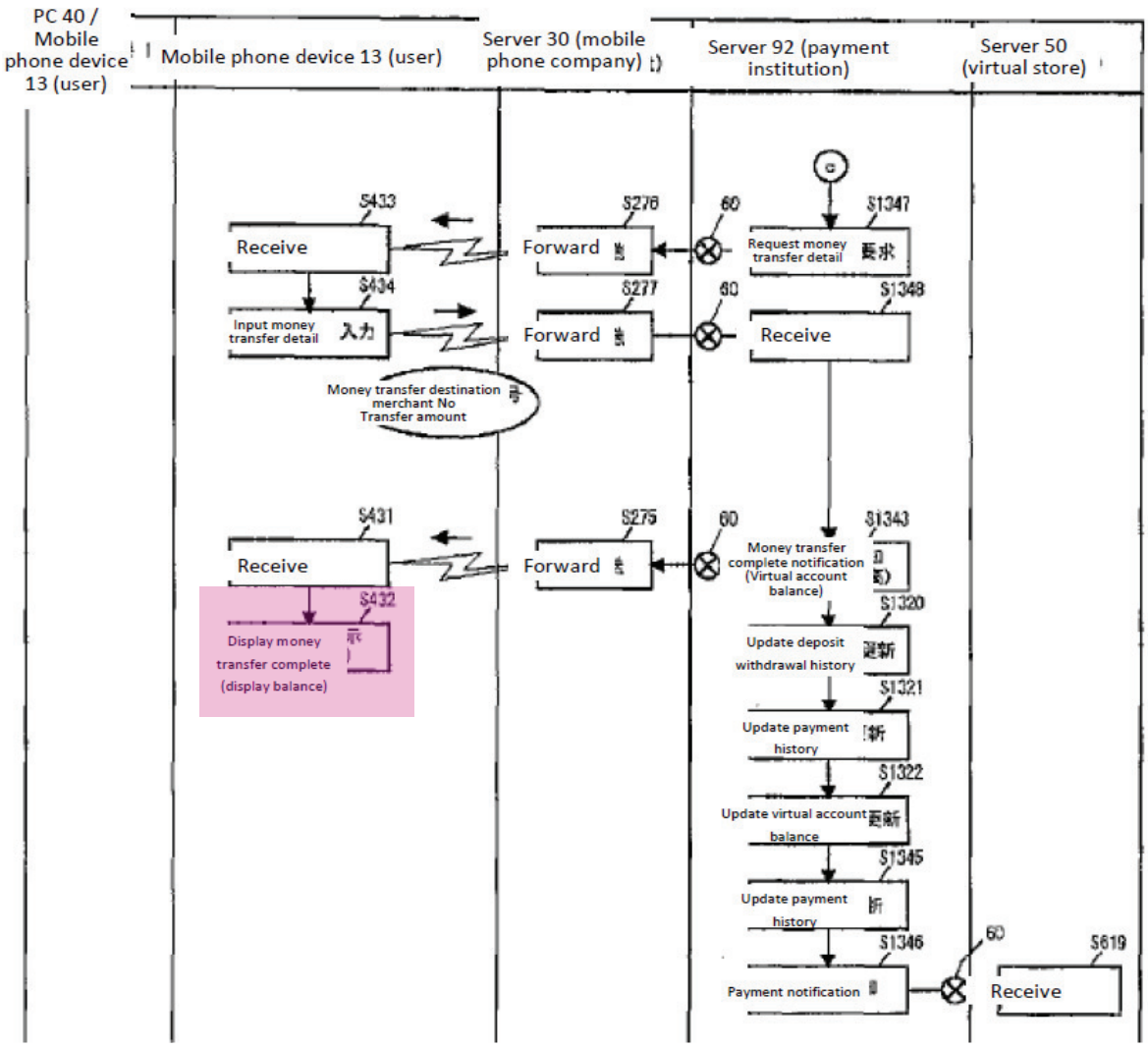


GOOG-1006, Fig. 22 (annotated excerpt)

187. As another example, with reference to Figure 73 below, Jogu discloses that the mobile device, upon being notified of an updated balance by the payment gateway 30, displays confirmation of a successful transaction, and the updated balance (step S432). **GOOG-1006**, 34 ("[T]he data processing unit 131

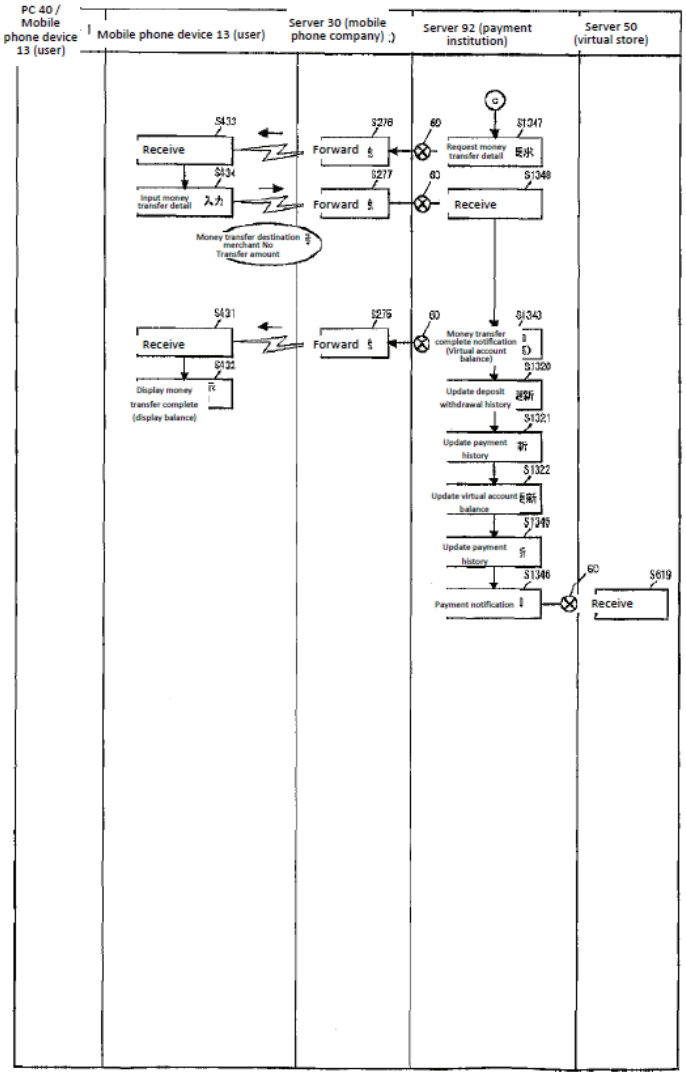
displays the remittance completion on the display device 137 together with the virtual account balance after the remittance (S432).").

FIG. 73



GOOG-1006, Fig. 73 (annotated excerpt)

FIG. 73



GOOG-1006, Fig. 73

C. Overview of Dessert

Like the '046 Patent, Dessert is directed to a bill payment system and method in which a customer uses a payment instrument such as an e-wallet (e.g., e-wallet module 723F in Fig. 7A) on the customer's mobile device to conduct a transaction when the mobile device scans tags containing information about a

desired product or service. With reference to Figure 1 below, the mobile device (portable computing device (PCD) 100) utilizes a personalized shopping/payment application 113 to scan machine-readable tags 124 located within the premises of a merchant and/or coupled to individual products for sale. **GOOG-1007**, 4:67-5:3 (application 13 stored on mobile device), 5:4-16 (mobile device uses application 113 to scan machine-readable tags 124), 6:1-14 (tags provided in merchant premises and/or on individual products).

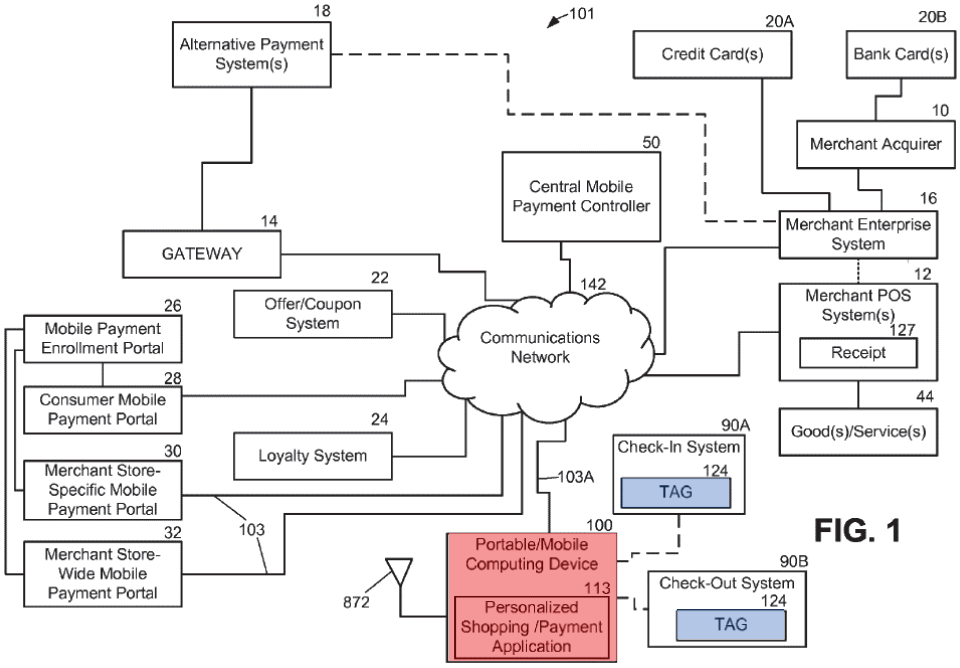


FIG. 1

GOOG-1007, Fig. 1 (annotated)

188. Dessert discloses that it was well known to use tags 124 that are to be scanned by a camera of the mobile device 100, or tags 124 that are to be read using RFID or near field communication (NFC).

> **The machine-readable tag 124 may comprise a machine-readable code 222 which may be scanned with a camera 848 (See FIG. 8) of the PCD [mobile device] 100.** A personalized shopping/payment application 113 running on the PCD 100 may be able to process the scanned machine-readable code 222. The machine-readable code 222 may comprise either a one dimensional or two-dimensional barcode. **Further, other machine-readable codes are included within the scope of the invention and may include contactless technologies, such as near-field communications (NFC), WiFi, acoustic, which may or may not be linked to a secure-element, and RFID cards as understood by one of ordinary skill in the art**. For these contactless technologies, the tag 124 may comprise an antenna 224 coupled to an integrated-circuit chip (not illustrated).

GOOG-1007, 6:20-34 (emphasis added).

D. Motivation to Modify Moshal with Jogu and Dessert

189. As described above in Sections X.A to X.C, Moshal discloses an e-wallet that is maintained locally on the user's mobile device, selectable by the user to conduct a transaction with the mobile phone, and used by the mobile device to submit a payment request to a payment gateway. **GOOG-1005**, ¶¶ 52-59. Moshal does not explicitly disclose the implementation details of its e-wallet because such details were already well known in the art, as I describe in this Declaration. Jogu, for example, discloses many of these e-wallet implementation details already known to POSITAs. Dessert further illustrates that it was well known to conduct

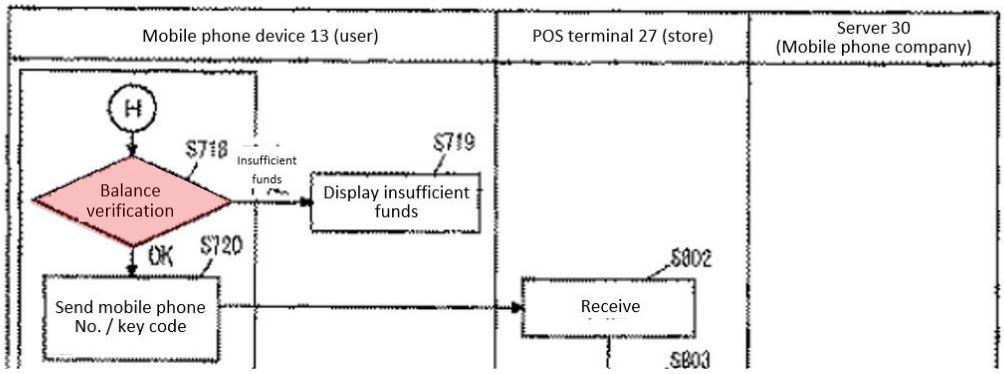
wireless transactions with a mobile device by interchangeably using either scannable tags or NFC/RFID tags. **GOOG-1007**, 6:20-34.

190. Moshal, Jogu, and Dessert are each analogous art to the '046 Patent because they are each in the same field of endeavor as the '046 Patent (method and system for mobile payments), and they are each pertinent to a particular problem allegedly solved by the '046 Patent ("using a mobile device to quickly settle the payment at a point of sale (POS)"). GOOG-1001, 1:40-44.

1. A POSITA would have been motivated to modify Moshal to include a local balance verification, as taught by Jogu.

191. As noted above, Moshal does not explicitly disclose some of the implementation details of its e-wallet because such features were well known in the art. Jogu discloses that one such known e-wallet technique is local balance verification. **GOOG-1006**, Fig. 22 (S718) (annotated excerpt below). A POSITA would have been motivated to utilize Jogu's local e-wallet balance verification technique in Moshal's e-wallet for the following reasons.

FIG. 22



GOOG-1006, Fig. 22 (annotated)

192. In more detail, Jogu teaches that its e-wallet maintains a balance on the mobile device that may be used for brick-and-mortar store purchases. **GOOG-1006**, 4 ("**The mobile phone stores the balance** of the transmitted virtual account. **The user uses this mobile phone instead of a wallet to make a payment** at a virtual store or at a brick-and-mortar store on the Internet.") (emphasis added).

193. As described above in Section X.B, Jogu discloses that, before a payment request is transmitted, the mobile device verifies whether the amount of the transaction is more than the balance maintained on the mobile device (step S718 in Fig. 22). **GOOG-1006**, 14. This verification occurs locally on the mobile device without sending a payment request to the payment gateway. *Id*. If the balance is insufficient to pay for the transaction, the transaction is denied (step

S719 in Fig. 22, screen D19 displayed on the mosbile device). **GOOG-1006**, 14-15.

FIG. 22

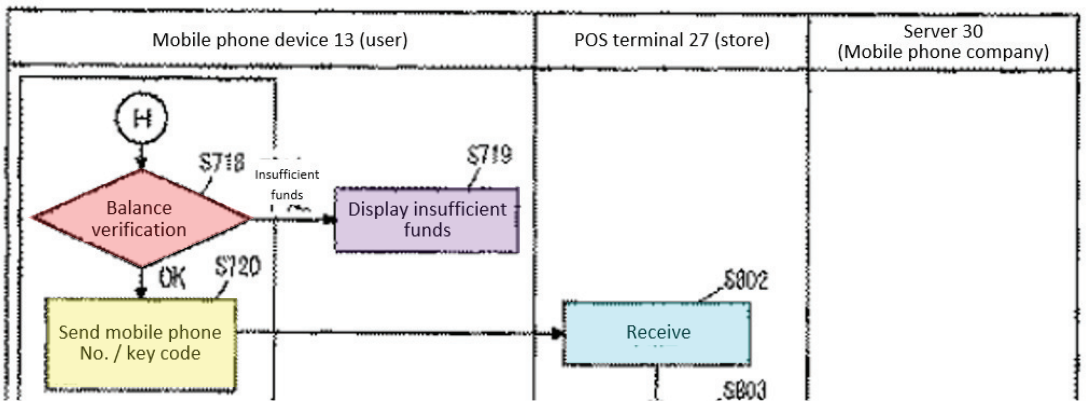
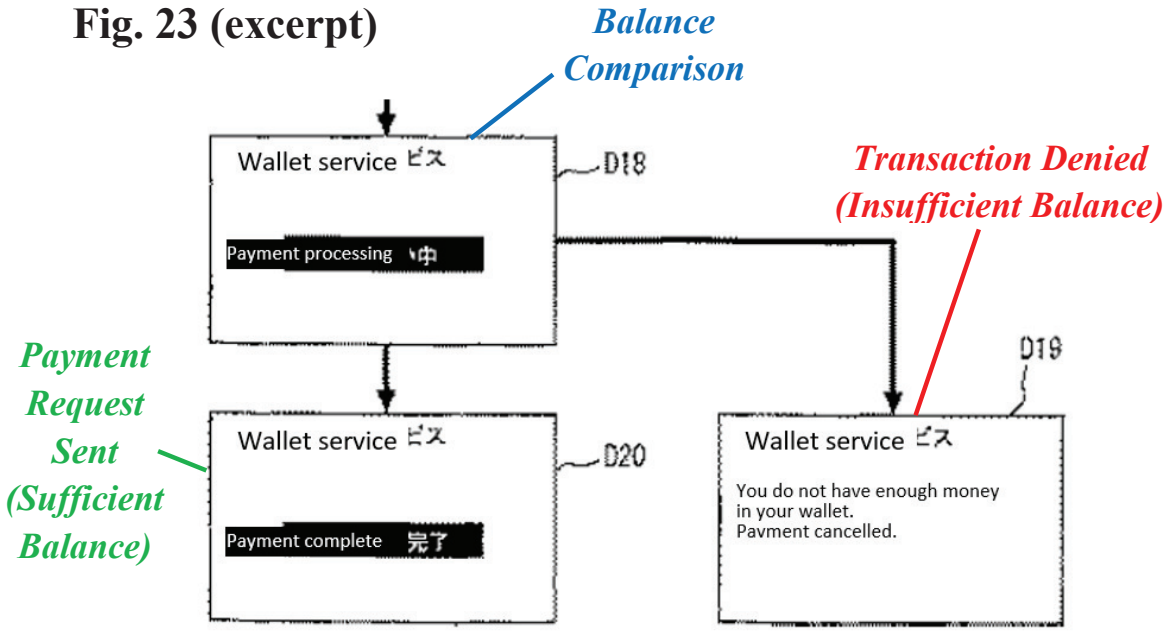


Fig. 23 (excerpt)



GOOG-1006, Figs. 22 and 23 (annotated excerpts)

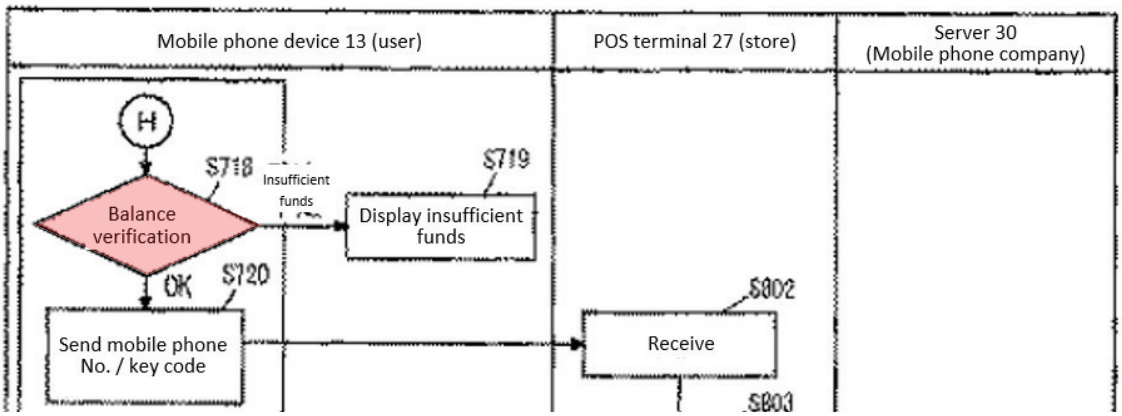
> [T]he payment mode of the mobile phone 13 is turned on, and the data processing unit 131 displays the screen D 17 shown in FIG. 23 on the display device 137 (S715). Subsequently, the user 12 sets the mobile phone 13 in the reader 270 (S716). As a result, the data processing unit 131 displays the screen D 18 shown in FIG. 23 on the display device 137. At this time, in the POS terminal 27 of the brick-and-mortar store, the data processing unit 271 transmits the payment amount to the mobile phone 13 through the reading device 28 (S801). In the mobile phone 13, the data processing unit 131 receives the payment amount transmitted from the POS terminal 27 (S717). Then, **the data processing unit 131 [of the mobile device] determines whether or not the received payment amount is within the current balance (S718). When the payment amount exceeds the balance, the data processing unit 131 displays the screen D1 9 shown in FIG. 23 on the display device 137 and notifies the user 12 of the insufficient balance (S719)**. When the payment amount is within the balance, the data processing unit 131 transmits the telephone number of the mobile phone 13 and the key code pre-registered in hardware in the RO M 133 to the POS terminal 27 through the reader 28 (S720).

GOOG-1006, 14 (emphasis added).

194. A POSITA would have been motivated to modify Moshal to utilize the conventional e-wallet techniques taught by Jogu in the operation of Moshal's e-wallet. Modifying Moshal so that the mobile device conducts a local balance verification before transmitting a payment request to a payment gateway or a

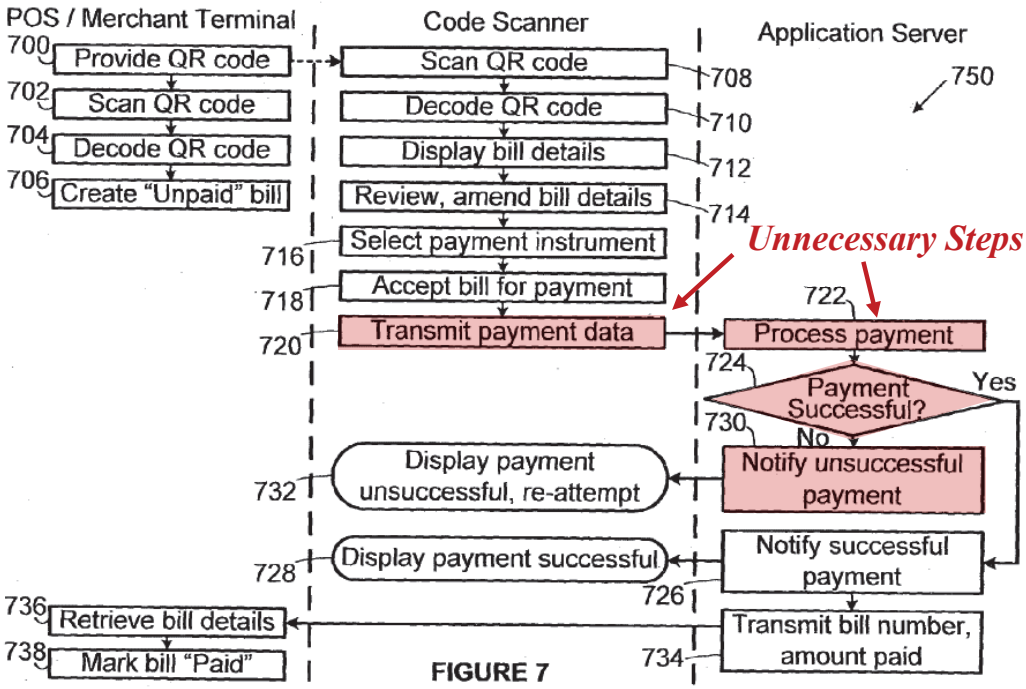
merchant terminal, as taught by Jogu, would save time and frustration for the user if he or she has insufficient funds to conduct a transaction. For example, as disclosed by Jogu (step S718 in Fig. 22 ("Balance Verification")), it was known for a user's mobile device to first check the balance of a payment option in an e-wallet before a payment request is transmitted from the mobile device. **GOOG-1006**, 14 ("At this time, in the POS terminal 27 of the brick-and-mortar store, the data processing unit 271 transmits the payment amount to the mobile phone 13 through the reading device 28 (S801). In the mobile phone 13, the data processing unit 131 receives the payment amount transmitted from the POS terminal 27 (S717). Then, the data processing unit 131 determines whether or not the received payment amount is within the current balance (S718).")

FIG. 22



GOOG-1006, Fig. 22 (annotated excerpt)

195. Checking to see whether the e-purse has sufficient funds to pay for a transaction, as taught by Jogu, prevents unnecessary communications between the user's mobile device and the POS terminal or payment gateway, and could alleviate potential frustration for the user if his or her payment request was denied due to an insufficient balance. For example, modifying Moshal to perform Jogu's local-balance-verification feature in Moshal's mobile device before step 720 (transmit payment request) would make steps 720, 722, 724 and 730 unnecessary when the mobile device determines that the balance is insufficient for the amount on the invoice, as shown in annotated Figure 7 below.



GOOG-1005, Fig. 7 (annotated)

196. Accordingly, it would have been obvious to incorporate the well-known balance-check feature of Jogu in Moshal's e-wallet to beneficially inform the user of the mobile device if he or she has sufficient funds to pay for a requested transaction. For example, as described with reference to Figs. 10C and 10D below, Dessert discloses that a user is informed on the display of his or her mobile device of the current balance of the user's account(s), to inform the user whether the balance of his or her account is sufficient to pay for a requested transaction. **GOOG-1007**, 39:29-49.

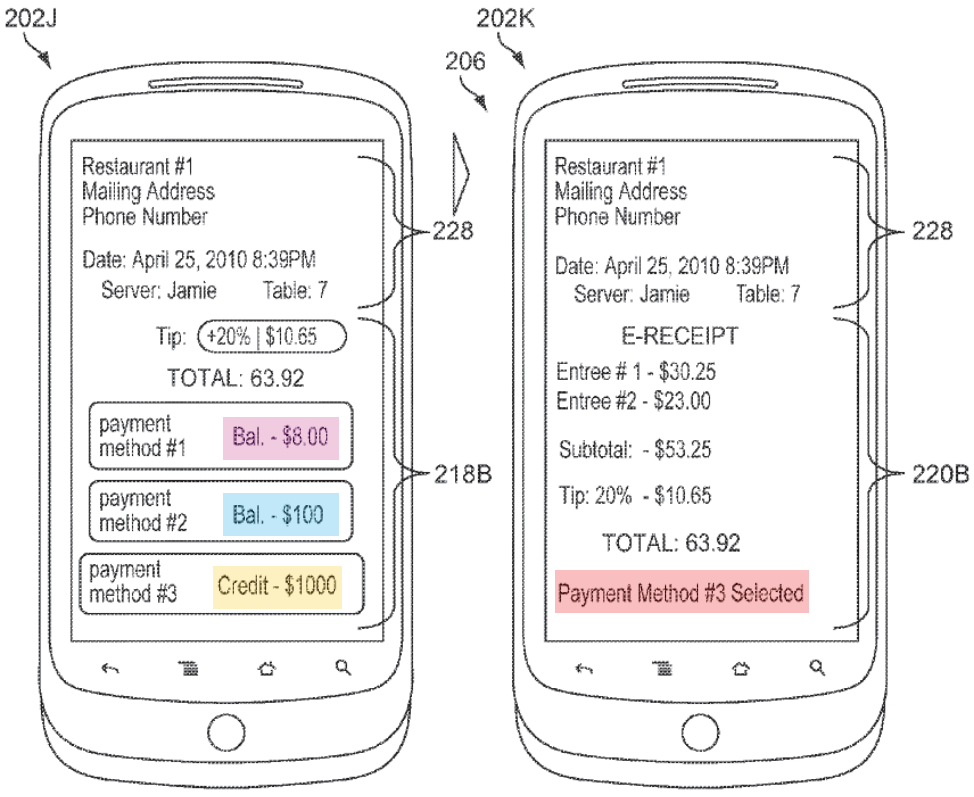


FIG. 10C FIG. 10D

GOOG-1007, Figs. 10C and 10D (annotated)

197. In Figure 10C of Dessert above, the mobile device user is informed of the current balance of each account (payment options 218B) in comparison to the transaction amount ($63.92), before the user selects one of the payment options to pay for the transaction. As shown in Figure 10C above, payment method #1 has a balance of $8.00, payment method #2 has a balance of $100, and payment method #3 has a credit balance of $1000. Then, after the user has paid for the transaction, the user is informed of the transaction being completed in Figure 10D, with confirmation of the payment option selected ("Payment Method #3 Selected").

> FIG. 10C is a diagram of a screen 202J that shows merchant information 228 relevant to a transaction and payment options 218B for a purchase along with a plurality of payment options that may be selected by an operator of the PCD 100. The payment options 218B comprising the plurality of payment options that may be selected by the operator is very similar to the payment options 218A described above in connection with FIG. 2G. As noted previously, one or more payment options may be selected by the operator with this screen 202J. **The payment options may also provide or display any remaining balances available with credit card accounts as well as balances available for debit accounts so that the operator will know if there are sufficient funds in respect of accounts to pay for the final bill**. Also with this screen 202J, a drop-down menu 229 may be provided for display and selection of an appropriate amount of tip corresponding to the service provided at the merchant such for the service provided by a waiter at a restaurant. FIG. 10D is a diagram of a screen 202K that shows electronic receipt 220B that may be provided upon completion of a transaction with a merchant, such as a restaurant.

GOOG-1007, 39:29-49 (emphasis added).

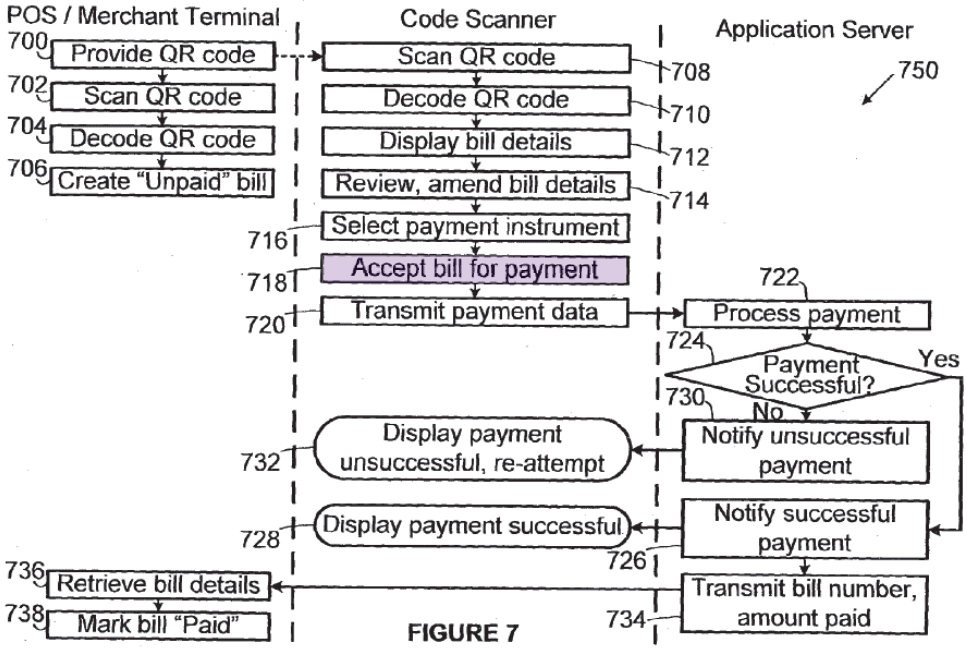
198. Thus, it was a known and desirable feature in the art to inform the user of the mobile device if he or she has sufficient funds to pay for a requested transaction, as shown by Dessert. For example, as described with reference to Figs. 10C and 10D below, Dessert discloses that a user is informed on the display of his or her mobile device of the current balance of the user's account(s), to inform the user whether the balance of his or her account is sufficient to pay for a requested transaction. Therefore, it would have been obvious to incorporate the well-known balance-check feature of Jogu (step S718 in Fig. 22 ("Balance Verification")) in Moshal's e-wallet to beneficially inform the user of the mobile device if he or she has sufficient funds to pay for a requested transaction.

199. Modifying Moshal to check the balance of Moshal's e-wallet (pay with e-wallet icon 824 in Fig. 8) before the mobile device transmits a payment request (step 720 in Fig. 7 of Moshal) involves the combination of prior art elements (an e-wallet with a updatable balance, as taught by Jogu, with Moshal's e-wallet payment options that are managed on a user's mobile device) according to known methods (checking the balance before payment, as taught by Jogu) to yield predictable results (checking the balance before payment, as taught by Jogu). Further, this obvious modification involves the use of a known technique (an e-wallet with a balance that is checked before a payment request is made) to improve similar methods (Moshal's method of contactless payment with a mobile device) in

the same way. In addition, Jogu's teaching of an e-wallet with a balance provides a teaching, suggestion, and motivation in support of the obvious modification and combination, because Jogu teaches a mobile device performing a local balance verification before transmitting a payment request (step S718 in Fig. 22 ("Balance Verification")), and thereby provides a motivation to implement an e-wallet in this way. Accordingly, for at least these reasons, a POSITA would have been motivated to modify Moshal to check the balance of Moshal's e-wallet (pay with e-wallet icon 824 in Fig. 8) before the mobile device transmits a payment request, as taught by Jogu.

200. In addition, a POSITA would have had a reasonable expectation of success in making this modification because Jogu teaches how to perform this local balance verification. **GOOG-1006**, Fig. 22 (step S718), p. 14 ("[T]he data processing unit 131 [of the mobile device] determines whether or not the received payment amount is within the current balance (S718)."). Further, with reference to Figure 7 below, Moshal discloses that a verification step accepting the bill for payment is performed (by the user) (step 718) before a payment request is transmitted from the mobile device to the payment gateway (step 720). **GOOG-1005**, ¶ 55 ("At block 718 the user can accept the bill for payment."). Therefore, a POSITA would have had a reasonable expectation of success in implementing the local balance verification taught by Jogu before Moshal's mobile device transmits

a payment request to the payment gateway (step 720). **GOOG-1005**, ¶ 55 ("After reviewing and amending the data on page 800, the user can select, at block 716, a payment instrument to pay the bill. At block 718 the user can accept the bill for payment. The scanner app then transmits to the application server 102, at block 720, the merchant identification code, the bill identification number, the amount due and the details of a payment instrument to be used for payment....").



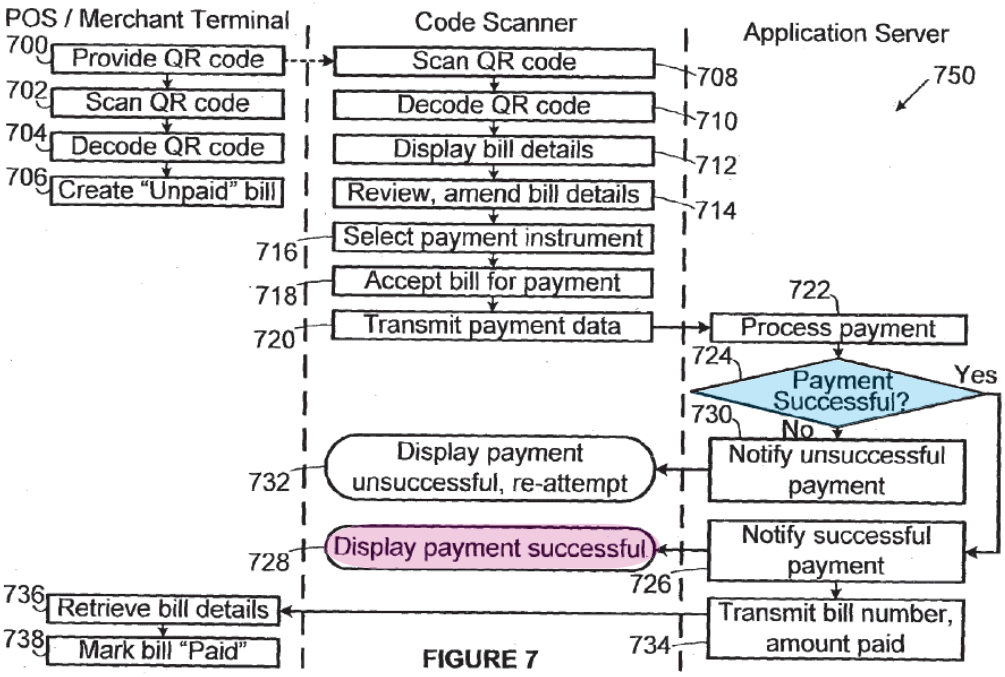
GOOG-1005, Fig. 7 (annotated)

2. A POSITA would have been motivated to modify Moshal so that the payment gateway reduces the e-wallet balance of the mobile device, and the mobile device displays the updated balance.

201. As described above in Section X.D.1, a POSITA would have been motivated to modify Moshal so that the mobile device's e-wallet has a balance, as taught by Jogu.

202. With reference to Figure 7 below, Moshal discloses that the payment gateway determines whether payment is successful (step 724), and the mobile device displays that the payment is successful (step 728) after being notified by the payment gateway (step 726). **GOOG-1005**, ¶ 56 ("At block 724, the application server 102 can determine whether the payment was successful. The payment processor transmits a payment status indicator, for example, either successful or unsuccessful. If the payment status is successful, the application server 102 notifies the scanner app 164, at block 726, that payment has been successful and the displayed page refreshes to indicate that the diner's bill has been paid (block 728)."). Moshal, however, does not expressly indicate what specific information is displayed when payment is successful. In view of Jogu's disclosure of conventional e-wallet techniques including maintaining a balance on a mobile device, a POSITA would have been motivated to modify Moshal so that the payment gateway reduces the balance upon a successful payment, as taught by Jogu (step S913 in Fig. 22: "data processing unit 301 transmits the latest prepaid

balance to the mobile phone 13 (S913)"), and the mobile device displays the updated (reduced) balance, as part of the notification of a successful payment, as also taught by Jogu (step S729 in Fig. 22, and step S432 in Fig. 73). GOOG-1006, 14 ("The data processing unit 301 [of the payment gateway] transmits the latest prepaid balance to the mobile phone 13 (S913). The mobile phone 13 receives the prepaid balance transmitted from the server 30 of the mobile phone company [payment gateway] 10, and the prepaid balance stored in ARM 132 is updated so that it becomes the same as the received prepaid balance, and the unreported data is cleared (S729)."), 34 ("In mobile phone 13, the transmission / reception unit 135 receives the remittance completion notification sent from the payment institution 90 via the mobile phone company 10 (S431), and further, the data processing unit 131 displays the remittance completion on the display device 137 together with the virtual account balance after the remittance (S432).").



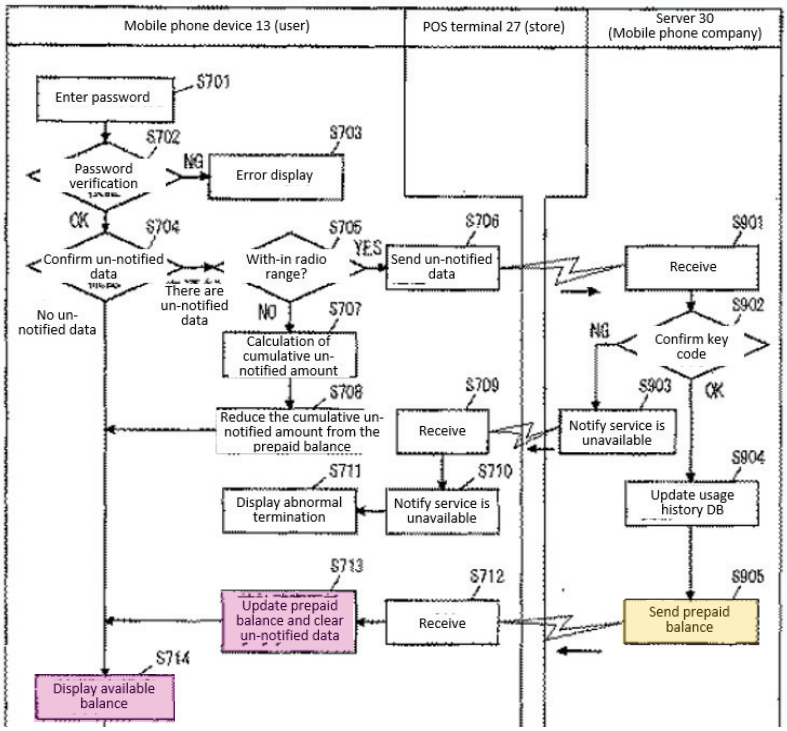
GOOG-1005, Fig. 7 (annotated)

203. As described above in Section X.B, Jogu discloses that (i) the current balance is displayed on the mobile device before a transaction is conducted (step S714 in Fig. 21), (ii) the payment gateway updates (reduces) the balance after a transaction is successfully conducted and notifies the mobile device (S913 in Fig. 22), and (iii) the mobile device displays the balance after it is updated by the remote gateway (step S729 in Fig. 22, step S432 in Fig. 73). **GOOG-1006**, 14, 34.

> If there are no unreported data in step S704 above, or alternatively, after step S708 or S713 above, the data processing unit 103 displays the currently available balance as shown in screen D 16 shown in FIG. 23 (S714).

GOOG-1006, 14.

FIG. 21

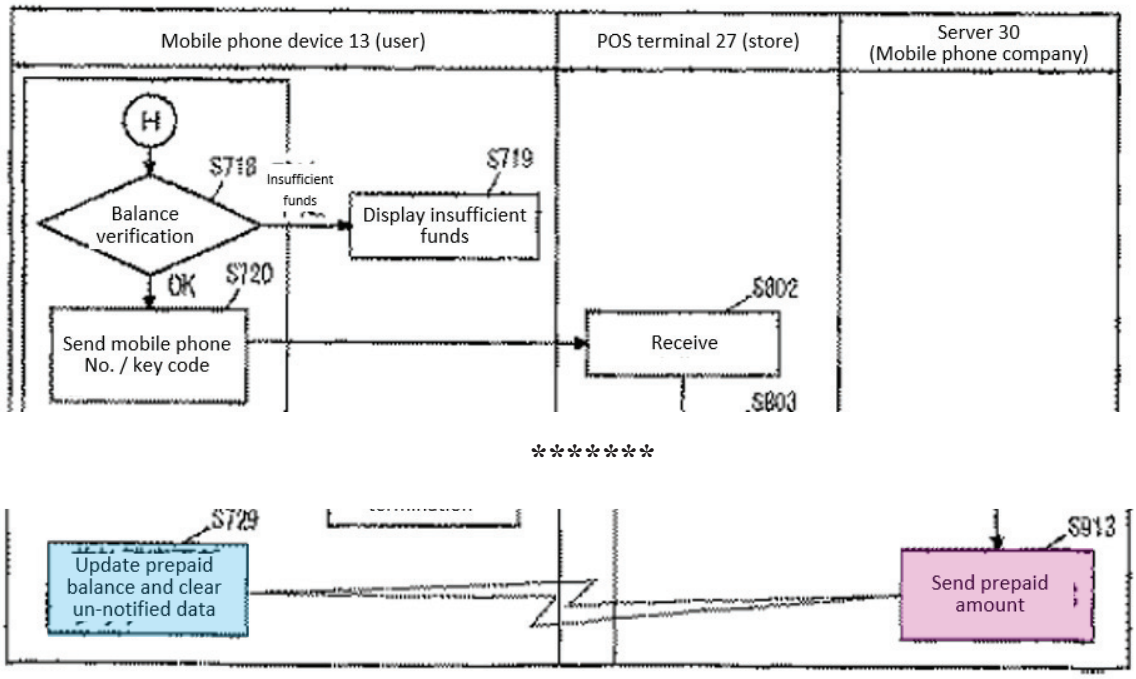


GOOG-1006, Fig. 21 (annotated excerpt)

If the key codes match in step S910 above, the data processing unit 301 updates the usage history database 28 based on the received unreported data, and updates the prepaid balance of the virtual account 110 (S912). Thereafter, the data processing unit 301 transmits the latest prepaid balance to the mobile phone 13 (S913).

GOOG-1006, 14.

FIG. 22

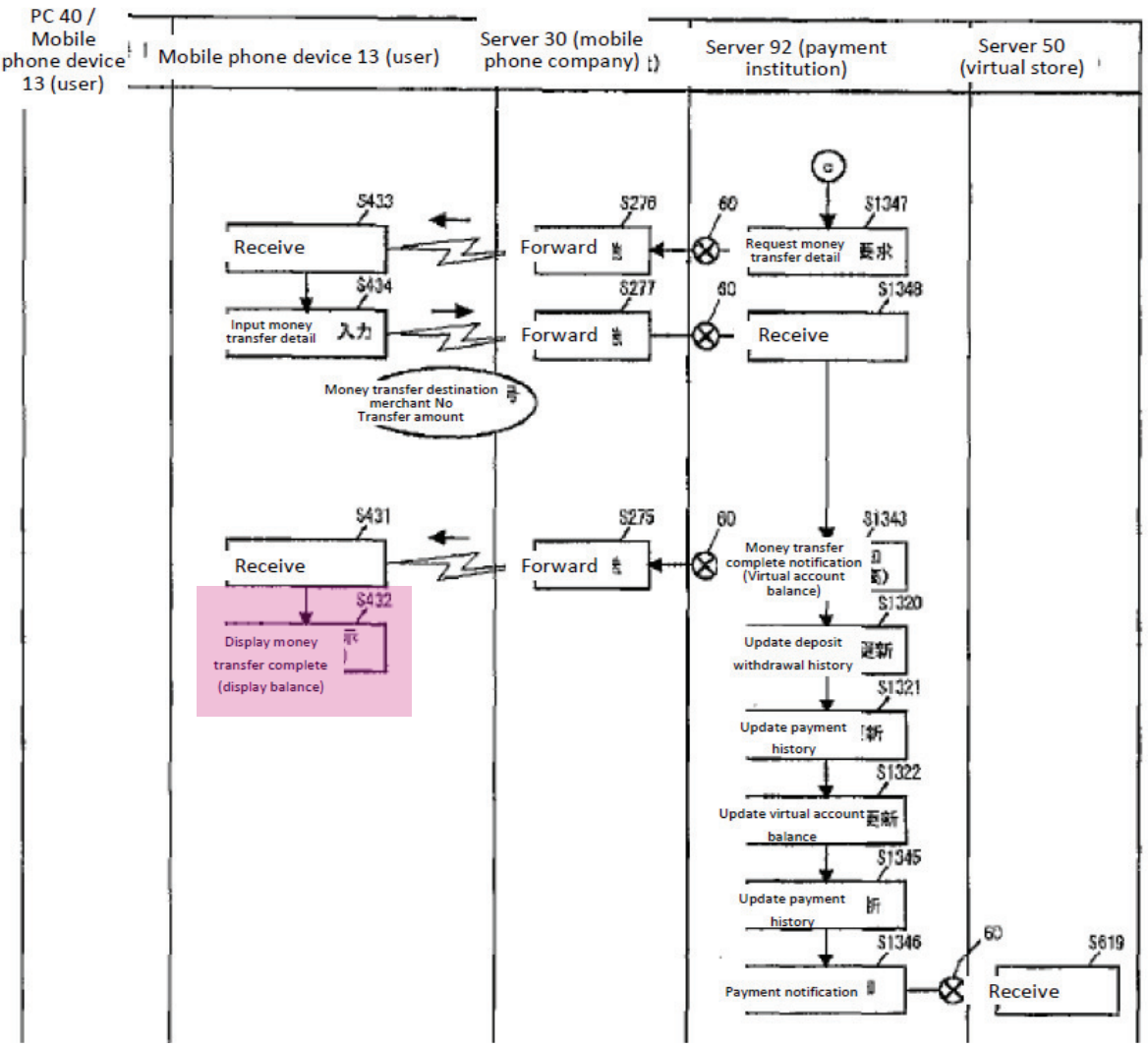


GOOG-1006, Fig. 22 (annotated excerpt)

In mobile phone 13, the transmission / reception unit 135 receives the remittance completion notification sent from the payment institution 90 via the mobile phone company 10 (S431), and further, the data processing unit 131 displays the remittance completion on the display device 137 together with the virtual account balance after the remittance (S432).

GOOG-1006, 34.

FIG. 73

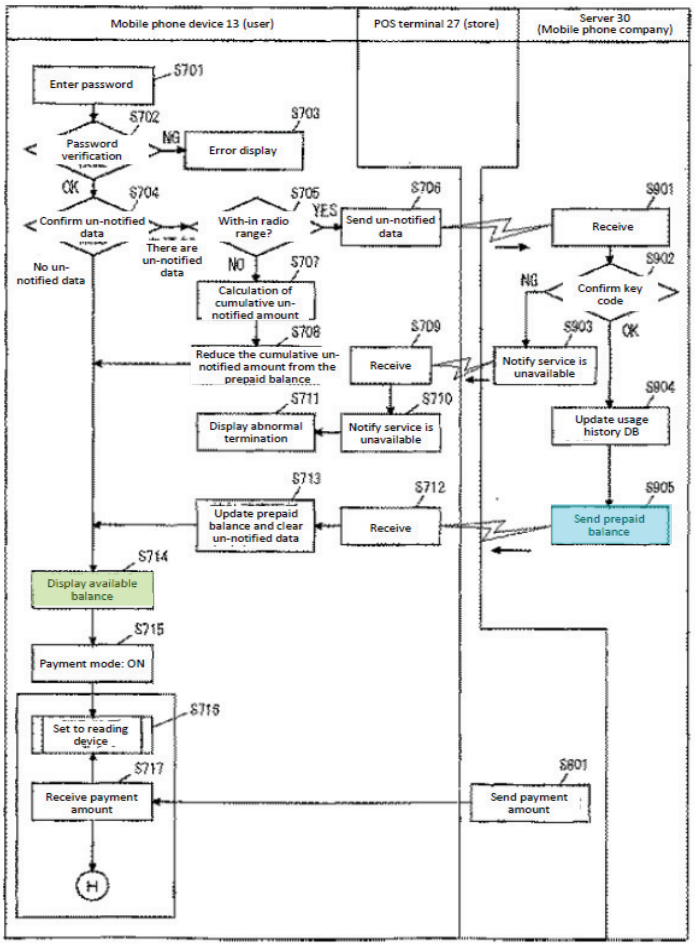


GOOG-1006, Fig. 73 (annotated excerpt)

204. A POSITA would have been motivated to utilize the conventional e-wallet techniques taught by Jogu in association with the e-wallet of Moshal, for the reasons presented above in Section X.D.1. As part of this, a POSITA would have been motivated to modify Moshal such that the payment gateway (application server) reduces a balance in Moshal's e-wallet when a successful transaction is

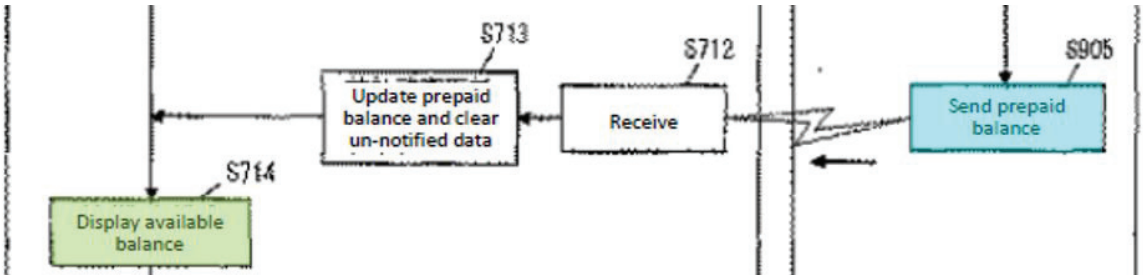
made, as taught by Jogu. **GOOG-1006**, 14, steps S913 and S729 in Fig. 22. Doing so provides a number of advantages that would be recognized by a POSITA. First, providing an accurate balance on the mobile device provides more information to the user of the mobile device to conduct transactions within the user's desired spending limits. With reference to Figure 21 below, Jogu discloses that the current balance is displayed on the mobile device (S714) upon being notified of the current balance by the payment gateway (S905). **GOOG-1006**, 14-15.

FIG. 21



GOOG-1006, Fig. 21 (annotated)

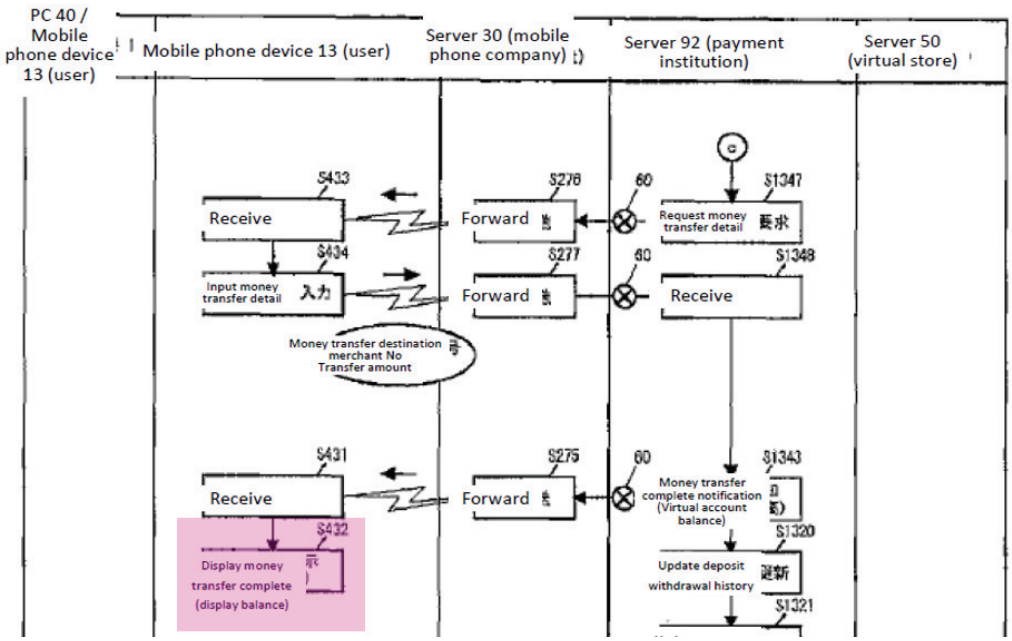
Below is an enlarged version of the pertinent portion of Fig. 21:



GOOG-1006, Fig. 21 (enlarged, annotated excerpt)

205. Further, with reference to Figure 73 below, Jogu discloses that after the payment gateway updates the balance of a mobile device following a successful transaction, and notifies the mobile device of the updated balance, the mobile device displays both (1) a confirmation of the successful transaction and (2) the updated balance (step S432). **GOOG-1006**, 34 ("[T]he data processing unit 131 displays the remittance completion on the display device 137 together with the virtual account balance after the remittance (S432).").

F I G. 7 3



GOOG-1006, Fig. 73 (annotated excerpt)

206. As another example, Dessert discloses that the current balances for several accounts are displayed on the user's mobile device to assist the user in determining which account to use to pay for a transaction. In particular, with

reference to Fig. 10C below, Dessert discloses that available balances for payment method #1 and payment method #2 are displayed on screen 202J of the mobile device in association with the bill received by the mobile device. **GOOG-1007**, 39:29-42 ("FIG. 10C is a diagram of a screen 202J that shows merchant information 228 relevant to a transaction and payment options 218B for a purchase along with a plurality of payment options that may be selected by an operator of the PCD 100…**The payment options may also provide or display any remaining balances available with credit card accounts as well as balances available for debit accounts so that the operator will know if there are sufficient funds in respect of accounts to pay for the final bill**.") (emphasis added).

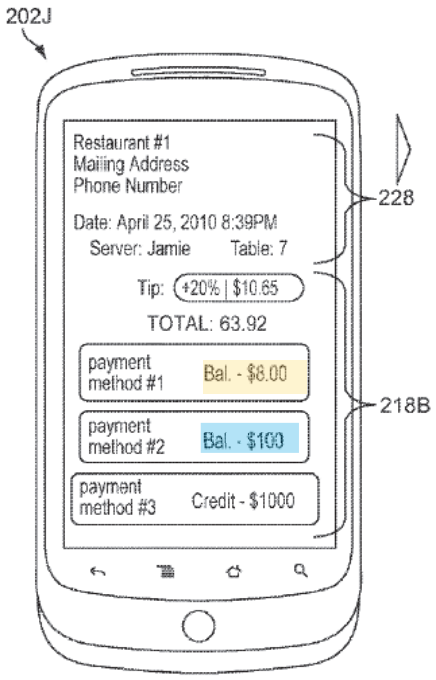


FIG. 10C

GOOG-1007, Fig. 10C (annotated)

207. In view of Jogu's disclosure that the current balance on the mobile phone is reduced by the payment gateway (S913 in Fig. 22) in response to a successful transaction, and the well-known feature of displaying the current balance on a mobile phone, as disclosed by Jogu (step S432 in Fig. 73) and Dessert ("Bal." in Fig. 10C), a POSITA would have been motivated to modify Moshal to display a confirmation in the mobile device that the balance in the e-purse of the mobile device has been reduced by the total amount of the conducted transaction.

208. Displaying such a confirmation would advantageously inform the user of the mobile device that the transaction was successful, which Moshal teaches

(step 728 in Fig. 7), and would also inform the user of the current balance (after the successful transaction) so that the user knows whether the e-purse has a sufficient balance to conduct another transaction. This is an advantageous feature that is recognized in the prior art. For example, with reference to Figure 2 below, Aabye (**GOOG-1009**) discloses a contactless mobile payment system (**GOOG-1009**, ¶ 2) in which a mobile device 100 conducts a contactless transaction with a POS device 22, and a payment gateway 134, 138 authorizes the transaction when the balance of the mobile device user's account is sufficient to pay for the transaction. **GOOG-1009**, ¶¶ 35, 37, 43-44. Aabye discloses that the user receives notification of a current balance on the user's mobile device after a transaction is conducted. **GOOG-1009**, ¶¶ 51 ("The data provided over the cellular network to the payment [mobile] device may include, for example, data used to complete the records for a transaction. **Such records might be used to update the data stored in the device to reflect the final amount of a transaction**, provide identification data for a transaction, provide a receipt or warranty information for a transaction, **update the balance of an account as a result of the completion of the transaction**, etc.), 52-53 (describing example where mobile device user is informed of updated balance after a transaction, where the "the Issuer is able to **update the transaction records stored in the phone so that the data in the phone's memory** (e.g., the secure memory region of the contactless element or another suitable data storage region of

the phone) **reflects the actual transaction information**. This capability can be very important in situations where the balance of an account (as reflected by the data stored in the phone) is used to determine whether a later transaction is authorized.") (emphases added).

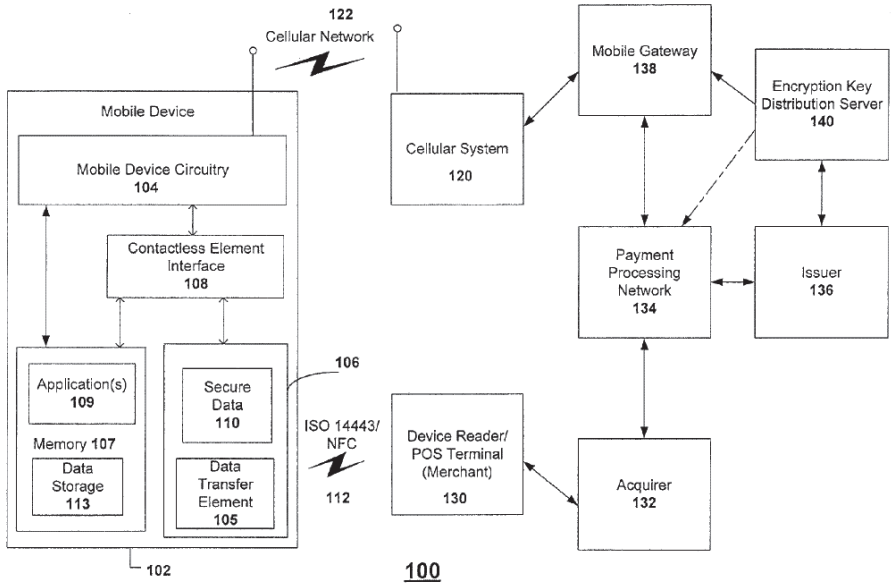


Figure 2

GOOG-1009, Fig. 2

209. In view of Jogu's disclosure that the current balance on the mobile phone is reduced by the payment gateway (S913 in Fig. 22) in response to a successful transaction, and the well-known feature of displaying the current balance on a mobile phone, as disclosed by Jogu (step S432 in Fig. 73), Dessert ("Bal." in Fig. 10C) and Aabye (**GOOG-1009**, ¶¶ 51-53), a POSITA would have been motivated to modify Moshal to display a confirmation in the mobile device

that the balance in the e-purse of the mobile device has been reduced by the total amount of the conducted transaction. Accordingly, a POSITA would have been motivated to modify Moshal to display confirmation in the mobile device that the balance in the e-purse has been reduced by the total amount, as disclosed by Jogu and Dessert, because doing so not only provides confirmation to the mobile device user that the transaction was successfully completed, but it also advises the mobile device user how much remains in the user's balance so that the user can make more informed decisions about conducting future transactions with his or her mobile device. See, e.g., **GOOG-1007**, 39:29-42 (mobile device informed of current balance so that user "will know if there are sufficient funds in respect of accounts to pay for the final bill"); **GOOG-1009**, ¶¶ 51-53 (mobile device informed of current balance after conducting a transaction).

210. Modifying Moshal to update (reduce) the balance maintained in the mobile device after the completion of a successful transaction involves the combination of prior art elements (an e-wallet with a updatable balance, as taught by Jogu, with Moshal's e-wallet payment options that are managed on a user's mobile device) according to known methods (updating the balance after payment, as taught by Jogu) to yield predictable results (checking the balance before payment, as taught by Jogu). Further, this obvious modification involves the use of a known technique (an e-wallet with a balance that is updated after a transaction

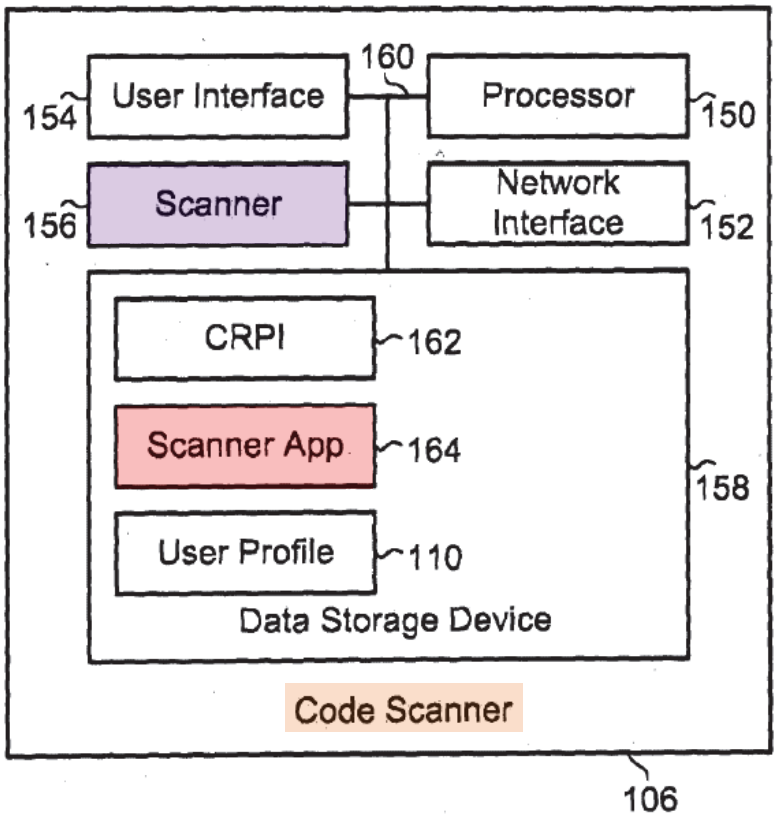
with the e-wallet is conducted) to improve similar methods (Moshal's method of contactless payment with an e-wallet on a mobile device) in the same way. In addition, Jogu teaches a payment server updating the balance maintained on the mobile device, and thereby provides a motivation to implement an e-wallet with an updatable balance in this way. Accordingly, a POSITA would have been motivated to modify Moshal to update (reduce) the balance in the mobile device after the completion of a successful transaction.

211. A POSITA would have had a reasonable expectation of success in making this modification because Jogu teaches how to perform this balance update after a transaction is conducted. **GOOG-1006**, 14, steps S913 and S729 in Fig. 22.

3. A POSITA would have been motivated to modify Moshal to utilize different types of conventional, machine-readable tags.

212. As described above in Section X.D.1, Moshal discloses that the mobile device (code scanner) 106 scans a tag provided by a POS device to obtain merchant information and invoice information to pay for a transaction. **GOOG-1005**, ¶¶ 38, 54, 55. A POSITA would have been motivated to modify Moshal to utilize any type of conventional, machine-readable tags, including QR codes, RFID tags, or NFC tags. These types of machine-readable tags were known to be interchangeable and functionally equivalent, as disclosed by Dessert, for example.

213. With reference to Figure 4 below, Moshal discloses that the mobile device 106 includes a scanner 156 and a scanner app 164, which is installed in the data storage 158 of the mobile device and executed on the mobile device. **GOOG-1005**, ¶ 41.



GOOG-1005, Fig. 4 (annotated)

214. With reference to Figure 3 below, Moshal discloses that the mobile device uses the scanner 156 and the scanner app 154 to scan QR (Quick Response) codes 999, which "can be encoded as a payment QR code," to conduct a

transaction (e.g., pay a restaurant bill at the end of a meal). **GOOG-1005**, ¶¶ 47, 48, 54-55.

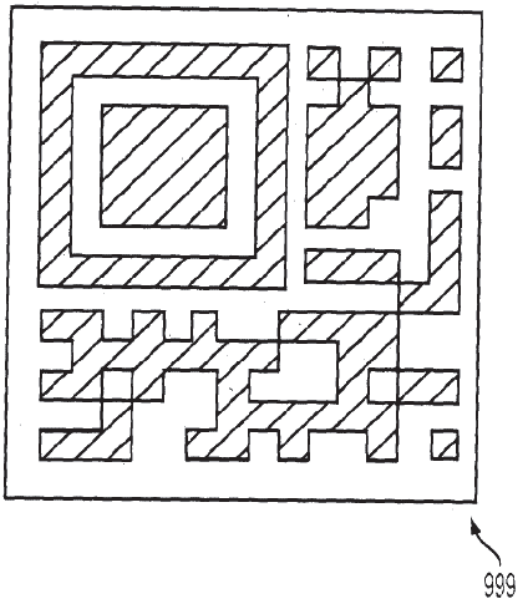


FIGURE 3

GOOG-1005, Fig. 3

215. Moshal discloses that the mobile devices uses the scanner 156 and scanner app 154 to scan tags that include QR codes. **GOOG-1005**, ¶¶ 47, 48, 54-55. A POSITA would have understood that a QR code is a "tag" that can be read (scanned), as taught by Moshal. For instance, Moshal discloses that the QR code illustrated in Figure 3 is "can be encoded as a payment QR code," (**GOOG-1005**, 47), the scanner app of the mobile device scans (reads) the QR code and "decodes the scanned payment QR code to recover the encoded data that it contains." **GOOG-1005**, ¶ 55.

216. It was well known in the art to read other types of tags that, like the QR tags utilized in Moshal, contain encoded information to be read for use in conducting contactless transactions. For example, in the mobile payment context, Dessert refers to QR tags interchangeably with both RFID tags and NFC tags.[12] With reference to Figure 1 below, Dessert discloses that a mobile device (PCD) 100 with a personalized shopping/payment application 113 installed thereon scans machine-readable tags 124 that are provided on the premises of a merchant or coupled to individual products within a merchant's premises. **GOOG-1007**, 5:4-16, 6:1-14.

[12] RFID is an abbreviation for radio-frequency identification, and NFC is an abbreviation for near-field communication. NFC is a branch of High-Frequency (HF) RFID, and both operate at the 13.56 MHz frequency.

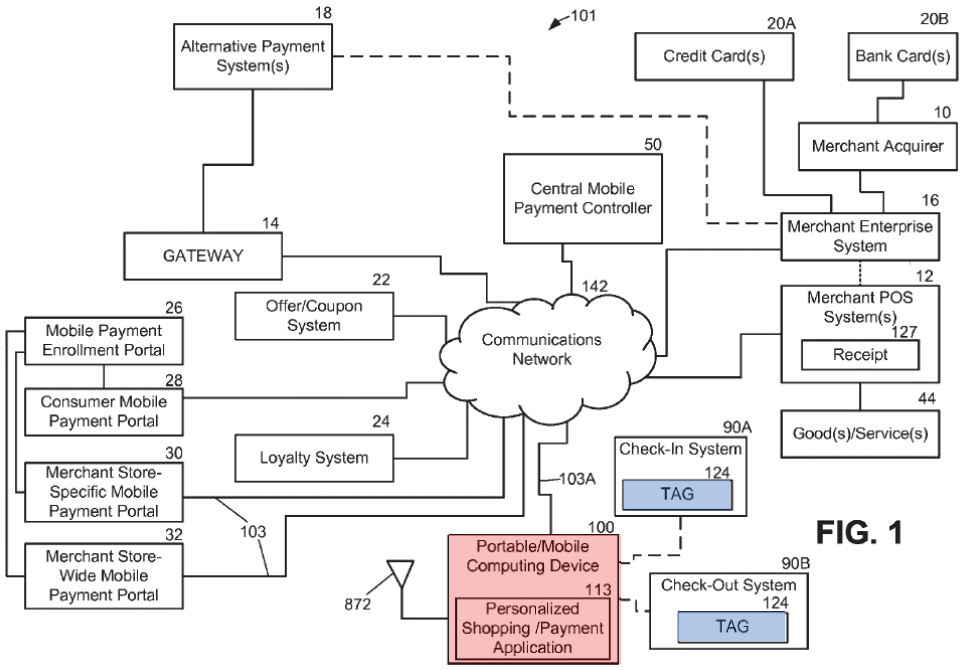


FIG. 1

GOOG-1007, Fig. 1 (annotated)

217. Dessert discloses that the tags 124 may be physical tags that are to be scanned by a scanner of the PCD 100, or physical tags to be read using RFID or NFC:

> **The machine-readable tag 124 may comprise a machine-readable code 222 which may be scanned with a camera 848 (See FIG. 8) of the PCD 100**. A personalized shopping/payment application 113 running on the PCD 100 may be able to process the scanned machine-readable code 222. The machine-readable code 222 may comprise either a one dimensional or two-dimensional barcode. **Further, other machine-readable codes are included within the scope of the invention and may include contactless technologies, such as near-**

> **field communications (NFC), WiFi, acoustic, which may or may not be linked to a secure-element, and RFID cards as understood by one of ordinary skill in the art**.").

GOOG-1007, 6:20-34 (emphases added).

> When the PCD consumer is ready to purchase the products and/or services in the virtual shopping cart or shopping basket, the PCD consumer may proceed to check-out where the products and/or services may be scanned with a product scanner 132 (See FIG. 4). Prior to or in parallel to the operation of scanning products with the product scanner 132, the operator of the PCD 100 may retrieve the unique terminal identifier and the merchant identifier associated with a tag 124 of a check-out system 90B which is affixed to the ECR 412 of the Merchant POS system 12. **The operator of the PCD 100 may retrieve the data from the tag 124 by scanning the tag 124 with the camera 848 or with a near-field-communication ("NFC") antenna 879**.

GOOG-1007, 7:8-20 (emphasis added).

> Other machine readable codes for retrieving the unique identifiers associated with the electronic cash register 126 and merchant are well within the scope of the invention such **as contact-less or wireless communication methods such as near-field communications (NFCs) used with smart cards and RF-ID cards as understood by one of ordinary skill in the art**.

GOOG-1007, 9:60-67 (emphasis added).

> As noted above, the machine-readable code 222 may comprise either a one dimensional or two-dimensional barcode. Further, **other machine-**

> **readable codes are included within the scope of the invention and may include contactless technologies, such as near-field communications (NFC) which may or may not be linked to a secure-element, and RFID cards as understood by one of ordinary skill in the art**. For these contactless technologies, the tag 124 may comprise an antenna 224 coupled to an integrated-circuit chip (not illustrated).

GOOG-1007, 11:65-12:7 (emphasis added).

218. Similarly, Park (**GOOG-1010**) discloses that QR tags, RFID tags, and NFC tags were known to be interchangeable and functionally equivalent for carrying information that can be read in a contactless manner.

> When a customer attempts to make payment using the portable terminal 110, the complex payment system using a portable terminal operates to execute an e-wallet program (hereinafter referred to as the "mobile wallet app") installed in the corresponding terminal, to request optimum payment conditions by **transmitting payment information read from a QR code or a wireless tag (an RF tag, an NFC tag, or the like)**, which is provided by the affiliated shop terminal 120, to the vendor server 130, to receive and display optimum payment conditions including a minimum payment amount received from the vendor server 130, and to request final payment from the vendor server 130 by transmitting the determined optimum payment conditions to the vendor server 130, thereby allowing payment to be made.

GOOG-1010, ¶ 52.

> Alternatively, since the customer executes the "mobile wallet app" to use it mostly in order to make payment, it is more preferred that when the "mobile wallet app" is executed, a screen that enables **the information to be read from the QR code or RF tag is automatically activated**.

GOOG-1010, ¶ 137 (emphasis added).

219. Thus, a POSITA would recognize that the scannable tags (QR code) of Moshal are functionally equivalent and interchangeable with tags that are to be read by other contactless technologies such as RFID or NFC. **GOOG-1007**, 6:20-34; **GOOG-1010**, ¶¶ 52, 137.

220. Therefore, a POSITA would have been motivated to modify Moshal so that the mobile device, utilizing the scanner app and scanner, would be configured to read any other conventional tags such as RFID tags or NFC tags, in view of the interchangeability of these conventional types of tags, as taught by Dessert and Park. **GOOG-1007**, 6:20-34, 7:17-20, 9:60-66, 11:65-12:7; **GOOG-1010**, ¶¶ 52, 137. Thus, a POSITA would have been motivated to modify the scanner app and scanner (referred to as the "modified scanner" below) on Moshal's mobile device to scan/read different types of conventional, machine-readable tags (referred to as a "modified tag" below) (e.g, QR codes, RFID tags, NFC tags), as disclosed by Dessert. **GOOG-1007**, 6:20-34, 7:17-20, 9:60-66, 11:65-12:7; **GOOG-1010**, ¶¶ 52, 137. Such a modification of utilizing functionally equivalent

conventional tags achieves the same result of encoding information in a readable format.

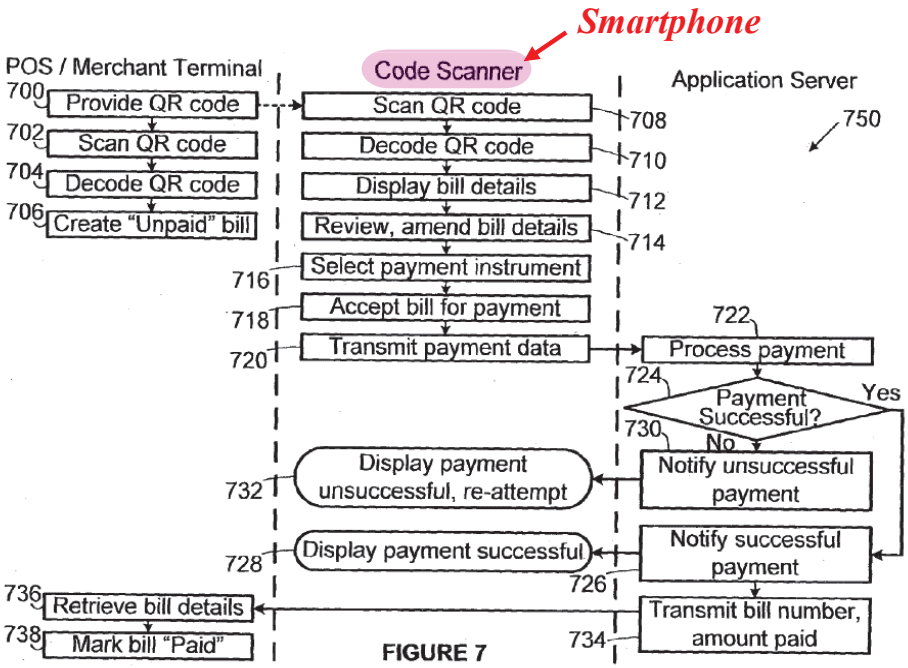
E. Analysis of Claims

221. It is my opinion that claims 1-5 and 12-14 are obvious over Moshal in view of Jogu and Dessert, for the reasons provided below.

1. Claim 1

a. [1.0] A method for mobile payment, the method comprising:

222. With reference to Figure 7 below, Moshal discloses a method "to carry out payment of a bill at a merchant establishment." **GOOG-1005**, ¶ 21. In Moshal's method, a user (*e.g.*, a "diner" at a restaurant) utilizes a "mobile smartphone handset" to carry out the payment. **GOOG-1005**, ¶¶ 38, 52-57. Moshal calls the smartphone a "code scanner 106." **GOOG-1005**, ¶ 38.



GOOG-1005, Fig. 7 (annotated)

223. Therefore, to the extent [1.0] is limiting, Moshal teaches [1.0].

b. [1.1.1] causing a mobile device to capture data directly from a tag physically presented thereto,

224. Limitation [1.1.1] is rendered obvious by Moshal and Dessert.

Moshal teaches a mobile device (code scanner) 106 that captures transaction data directly from a tag (QR code 999) (*see* Fig. 3 below) presented to the mobile device (*see* Fig. 7 below). Dessert teaches that it was known for mobile devices to capture data directly from conventional tags such as QR codes, RFID tags, and NFC tags, as described below.

225. As described above in Sections X.A and X.D.3, Moshal discloses that the mobile device 106 includes a scanner 156 and a scanner app 164 (see Fig. 4) to scan QR codes 999 (see Fig. 3) that are "encoded as a payment QR code." **GOOG-1005**, ¶¶ 41-42, 47-48.

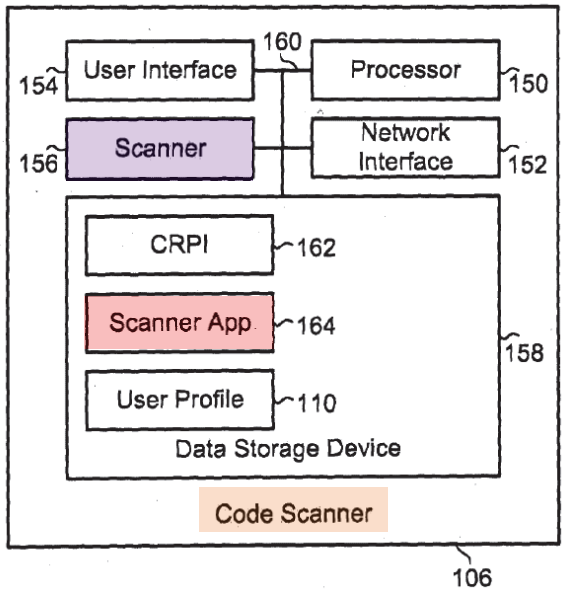


FIGURE 4

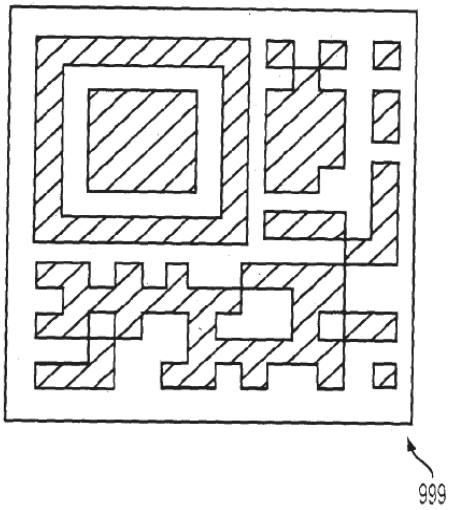


FIGURE 3

GOOG-1005, Fig. 4 (annotated), Fig. 3

Communication between the application server 102, the code scanner 106 and the merchant terminal 108 can be facilitated by using a server-hosted program (not shown), **a scanner application program (a 'scanner app') that is installed and executed on the code scanner 106**, and a merchant application program (a "merchant app") that is installed and executed on the merchant terminal 108. In another respect, communication between the application server 102 and code

scanner 106 can occur using network interface 152 (shown in FIG. 4) and network interface 176 (shown in FIG. 6).

GOOG-1005, ¶ 41 (emphasis added).

A user can download a copy of the scanner app from a download repository (for example, data storage device 178 in FIG. 4) **and install the scanner app on the code scanner 106. On, during, or after installation, the scanner app creates a user profile 110 on the code scanner 106 and prompts the user to manually provide personal attributes such as, the user's first name, the user's last name, an e-mail address, a physical address and particulars of one or more payment instruments such as credit cards, debit cards, e-wallets and the like**. In accordance with at least some example embodiments, the user profile 110 (for example, the data in the user profile 110) is stored locally on the code scanner 106 and is not passed to the application server 102.

GOOG-1005, ¶ 42 (emphasis added).

FIG. 3 illustrates an example **QR code 999. QR code 999 can be encoded as a payment QR code**.

GOOG-10045, ¶ 47 (emphasis added).

Next, FIG. 4 is a block diagram depicting an example embodiment of code scanner 106. As shown in FIG. 4, code scanner 106 includes (i) a processor 150, (ii) a network interface 152 for transmitting data to and receiving data from communication network 116, (iii) a user interface 154, (iv) **a scanner 156 configured to scan (for example, capture) QR codes**, and (v) a data storage device 158, all of which can be linked together via a system bus or other connection mechanism 160.

> Data storage device 158 includes computer-readable program instructions (CRPI) 162, the scanner app 164, and a user profile 110. CRPI 162 can include the scanner app 164. Data storage device 158 can comprise a non-transitory computer-readable storage medium readable by processor 150. Each computer-readable storage medium described herein can comprise volatile and/or non-volatile storage components, such as optical, magnetic, organic or other memory or disc storage, which can be integrated in whole or in part with a processor.

GOOG-1005, ¶ 48.

226. Moshal discloses that its system "can be used to register and pay a bill at a merchant business by the use of the code scanner [mobile device] 106." **GOOG-1005**, ¶ 52. As shown in Figure 7 below, which is a set of functions that "can be performed to pay the restaurant bill" (**GOOG-1005**, ¶ 52), the mobile device scans a tag (step 708) that is physically presented to the user of the mobile device (step 700) at the completion of a meal. **GOOG-1005**, ¶ 54 ("At block 700 the POS terminal 104 can provide a **payment QR code that encodes the merchant identification code 140 in the merchant profile 142, a bill identification code or number, and all the details contained in the bill**.") (emphasis added), ¶ 55 ("…**At block 708, the user can use the scanner app 164 and the scanner 156 to scan the payment QR code on the hardcopy of the bill.**").

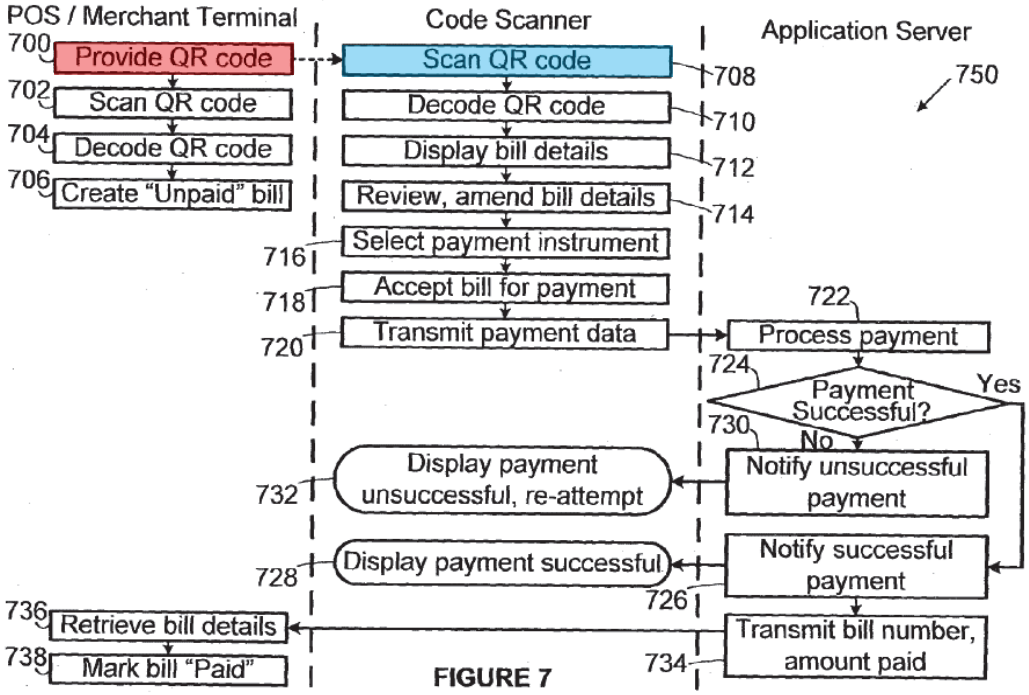


FIGURE 7

227. Thus, Moshal teaches that the mobile device is caused to capture data directly from a tag physically presented the mobile device. **GOOG-1005**, ¶¶ 55, 56.

228. As described above in Section X.D.3, to the extent that claim 1 is interpreted as requiring an unrecited feature of RFID tags or NFC tags, a POSITA would have been motivated to modify Moshal so that the mobile device, utilizing the modified scanner, would be configured to read any conventional tags such as QR tags, RFID tags or NFC tags, in view of the interchangeability of these conventional types of tags, as taught by Dessert. **GOOG-1007**, 6:20-34, 7:17-20, 9:60-66; *see also* Park (**GOOG-1010**), ¶¶, 52, 137 (describing interchangeable use

of QR tags, RFID tags, and NFC tags), as described above in Section X.D.3. Accordingly, a POSITA would have found it obvious and would have been motivated to utilize an RFID tag or NFC tag, as taught by Dessert, to store Moshal's invoice and merchant information so that it may be read by Moshal's modified scanner. Such a modification is functionally equivalent and achieves the same result of encoding information in a readable format. **GOOG-1007**, 6:20-34; **GOOG-1010**, ¶¶, 52, 137.

229. Dessert discloses that the tags 124 may be physical tags that are to be scanned by a scanner of the PCD 100, or physical tags to be read using RFID or NFC:

> **The machine-readable tag 124 may comprise a machine-readable code 222 which may be scanned with a camera 848 (See FIG. 8) of the PCD 100**. A personalized shopping/payment application 113 running on the PCD 100 may be able to process the scanned machine-readable code 222. The machine-readable code 222 may comprise either a one dimensional or two-dimensional barcode. **Further, other machine-readable codes are included within the scope of the invention and may include contactless technologies, such as near-field communications (NFC), WiFi, acoustic, which may or may not be linked to a secure-element, and RFID cards as understood by one of ordinary skill in the art**.").

GOOG-1007, 6:20-34 (emphases added).

230. Similarly, Park (**GOOG-1010**) discloses that QR tags, RFID tags, and NFC tags were known to be interchangeable and functionally equivalent for carrying information that can be read in a contactless manner.

> When a customer attempts to make payment using the portable terminal 110, the complex payment system using a portable terminal operates to execute an e-wallet program (hereinafter referred to as the "mobile wallet app") installed in the corresponding terminal, to request optimum payment conditions by **transmitting payment information read from a QR code or a wireless tag (an RF tag, an NFC tag, or the like)**, which is provided by the affiliated shop terminal 120, to the vendor server 130, to receive and display optimum payment conditions including a minimum payment amount received from the vendor server 130, and to request final payment from the vendor server 130 by transmitting the determined optimum payment conditions to the vendor server 130, thereby allowing payment to be made.

GOOG-1010, ¶ 52.

> Alternatively, since the customer executes the "mobile wallet app" to use it mostly in order to make payment, it is more preferred that when the "mobile wallet app" is executed, a screen that enables **the information to be read from the QR code or RF tag is automatically activated**.
>
> **GOOG-1010**, ¶ 137 (emphasis added).

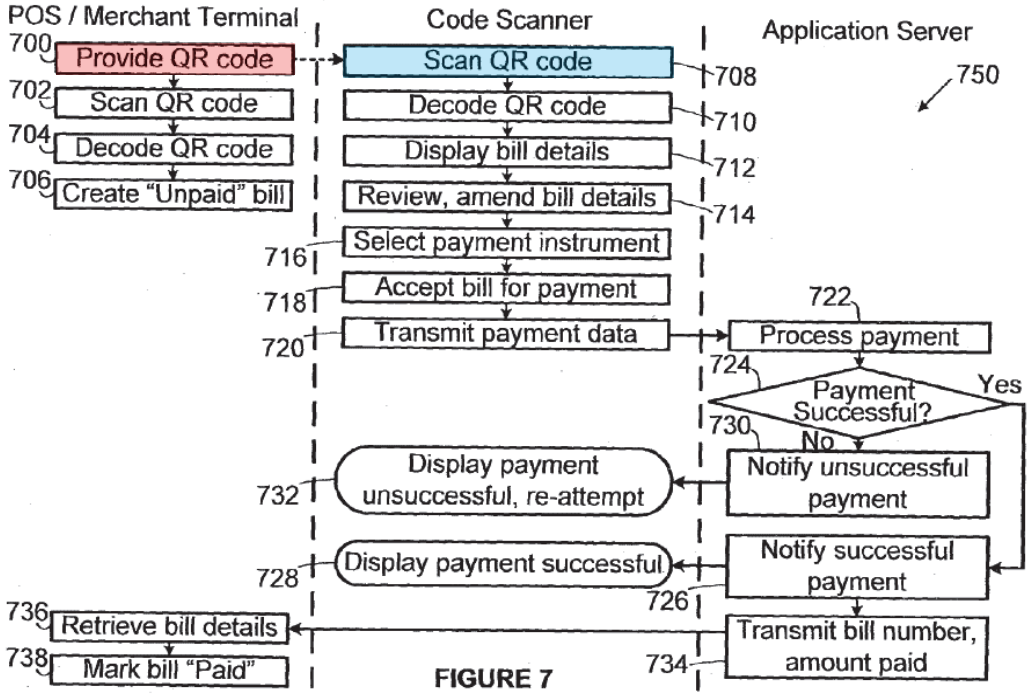
231. Accordingly, limitation [1.1.1] is rendered obvious by Moshal in view of Dessert.

c. [1.1.2] wherein the tag receives the data directly from a POS device and allows the mobile device to capture the data,

232. Limitation [1.1.2] is rendered obvious by Moshal and Dessert. Moshal teaches that the POS terminal produces the tag (QR code), and the tag is presented to the mobile device for the mobile device to scan and capture the data encoded in the tag, as described below. As discussed above in Section X.D.3, it would have been obvious to modify Moshal to utilize conventional types of contactless tags ("modified tag") such as QR codes, RFID tags, and NFC tags, as taught by Dessert.

233. With reference to Figure 7 below, Moshal discloses that the POS terminal 104 prepares and presents the tag (QR code) at step 700. **GOOG-1005**, ¶ 54 ("At block 700 the POS terminal 104 can provide a payment QR code…."), ¶ 55 ("The bill and the payment QR code can be provided, individually or in combination, to the diner. For example, the POS terminal 104 may print a hardcopy of the bill that contains the payment QR code, or may print the QR code separately to a hardcopy of the bill."). Further, the mobile device captures the data encoded on the tag by scanning the tag. **GOOG-1005**, ¶ 55 ("At block 708, the

user can use the scanner app 164 and the scanner 156 to scan the payment QR code on the hardcopy of the bill.").



GOOG-1005, Fig. 7 (annotated)

234. Thus, limitation [1.1.2] is obvious in view of the teachings of Moshal and Dessert.

d. [1.1.3] the data embedded in the tag includes an electronic invoice and settlement information with a merchant associated with the POS device;

235. Limitation [1.1.3] is rendered obvious by Moshal and Dessert. Moshal teaches that the data embedded in the modified tag (see Section X.D.3) includes (1) an electronic invoice (bill identification number and the bill details)

and (2) settlement information with a merchant (merchant identification code of merchant terminal 104) associated with the POS device 108.

236. Moshal discloses that the tag includes encoded data of "the merchant identification code, the bill identification number and the bill details." **GOOG-1005**, ¶¶ 54-55. Moshal also describes that the merchant identification code 140 is uniquely assigned to the merchant terminal. **GOOG-1005**, ¶ 45. With reference to Figure 7 below, Moshal discloses that

> [t]he scanner app then transmits to the application server 102, at block 720, the merchant identification code, the bill identification number, the amount due and the details of a payment instrument to be used for payment….Once the details of the selected payment instrument have been received at the [payment gateway] 102, the particulars of the financial transaction (for example, the bill amount, and merchant and payment details) are sent to a payment processor (not shown) for processing (at block 722).

GOOG-1005, ¶ 55.

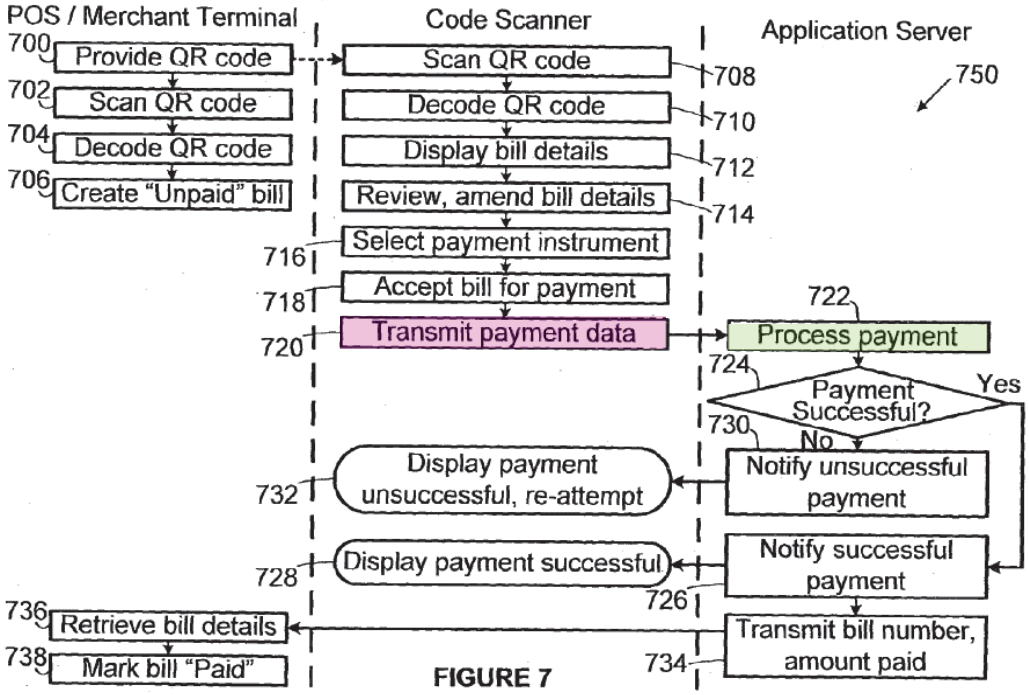


FIGURE 7

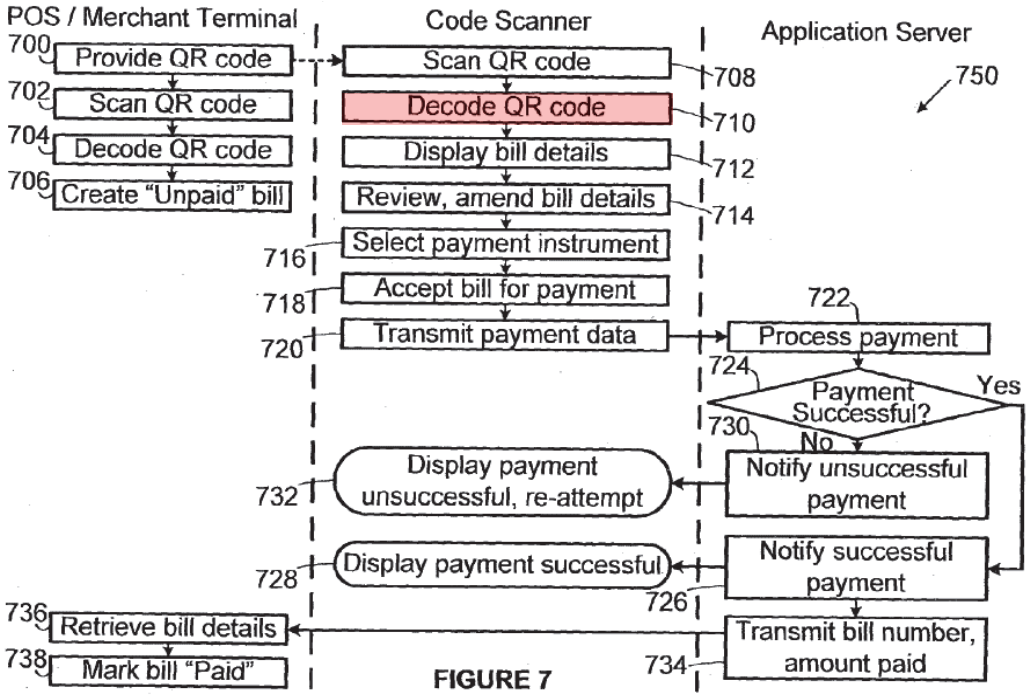
GOOG-1005, Fig. 7 (annotated)

237. Thus, limitation [1.1.3] is rendered obvious by Moshal and Dessert, because Moshal teaches that the data embedded in the modified tag includes (1) an electronic invoice ("bill identification number and the bill details") and (2) settlement information with a merchant (unique merchant identification code) associated with the POS device.

e. [1.2.1] extracting the electronic invoice from the captured data in the mobile device;

238. Moshal teaches [1.2.1] because the mobile device (code scanner) 106 extracts the electronic invoice from the data captured in the tag by decoding the tag. **GOOG-1005**, ¶ 55. With reference to Figure 7 below, Moshal discloses that

"[a]t block 710, the scanner app 164 decodes the scanned payment QR code to recover the encoded data that it contains namely, the merchant identification code, the bill identification number and the bill details." GOOG-1005, ¶ 55.



GOOG-1005, Fig. 7 (annotated)

239. Moshal thus discloses that the mobile device extracts the electronic invoice from the encoded data scanned from the tag.

f. [1.2.2] displaying the electronic invoice on a display of the mobile device to show an amount to be paid by a user of the mobile device,

240. Moshal teaches [1.2.2] because the mobile device displays the electronic invoice, including all the details on the invoice, including the amount to be paid, on a display of the mobile device.

241. With reference to Figure 7 below, Moshal discloses that after the mobile device decodes the tag, the mobile device displays the bill details (step 712). **GOOG-1005**, ¶ 55 ("At block 712, the scanner app 164 displays a page 800 on the user interface 154 with all the bill details.").

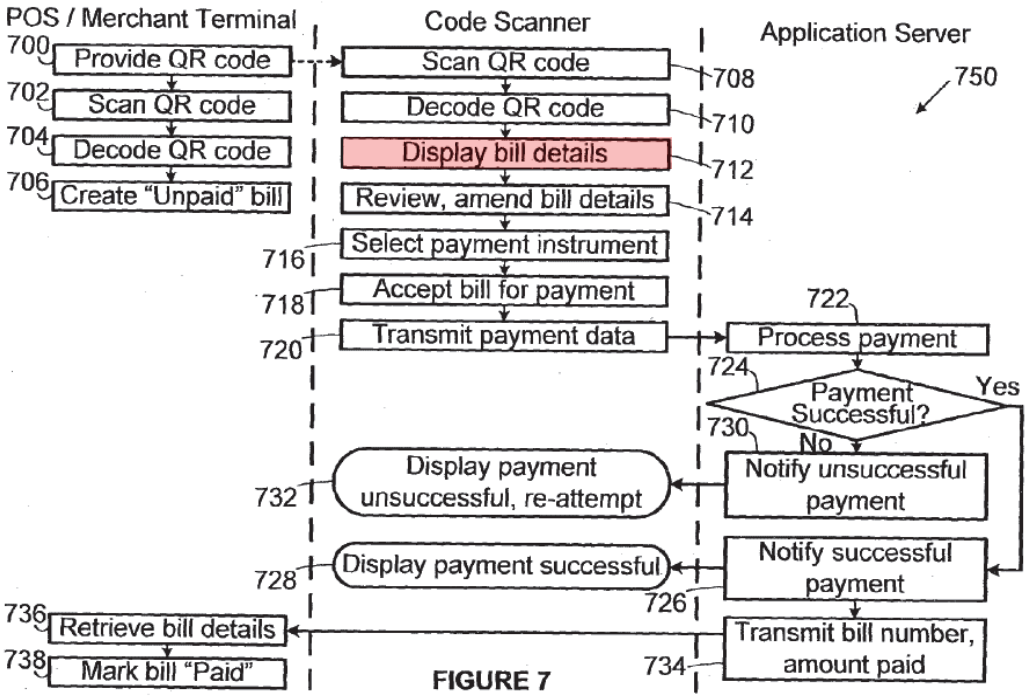
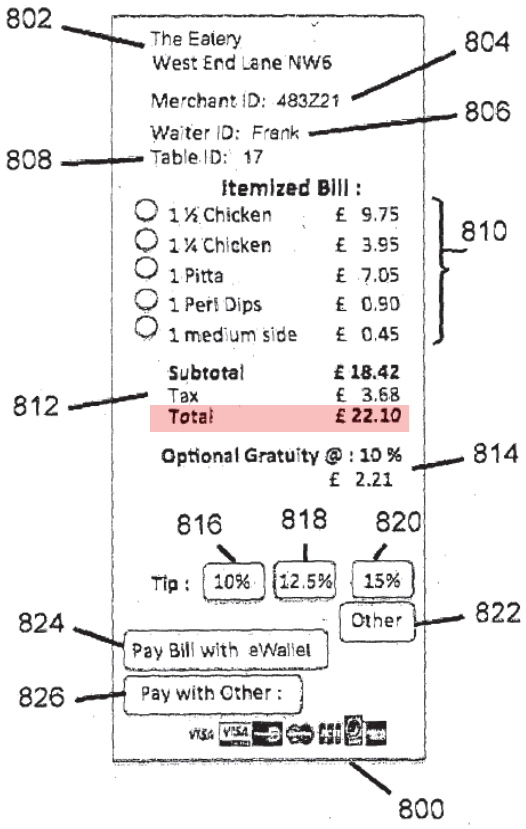


FIGURE 7

GOOG-1005, Fig. 7 (annotated)

242. As shown in Figure 8 below, Moshal discloses that the invoice 800 displayed by the mobile device shows an amount to be paid by the user of the mobile device. **GOOG-1005**, ¶ 58.



GOOG-1005, Fig. 8 (annotated)

As illustrated in FIG. 8, the bill details displayed on page 800 of the user interface 154 of the code scanner 102 consist of the name and address 802 of the restaurant, the merchant identification code 804, a waiter identity or code 806, a table number 808, and a description and cost 810 of each item consumed during the meal, and tax due 812. The bill details can also include a service charge 814 that is automatically added to the amount due. Page 800 also includes icons

> 816, 818, 820 and 822 that provide the user with an option to add a service charge to the amount due on the bill if not already included in the bill total, or to alter the amount of a service charge if already included. Icons 816, 818 and 820 relate to predefined service charge amounts as a percentage of the bill total, for example, 10%, 12.5% and 15% respectively, while icon 822 relates to a free-form entry field for service charge amounts that are different to the predefined service charge amounts.

GOOG-1005, ¶ 58.

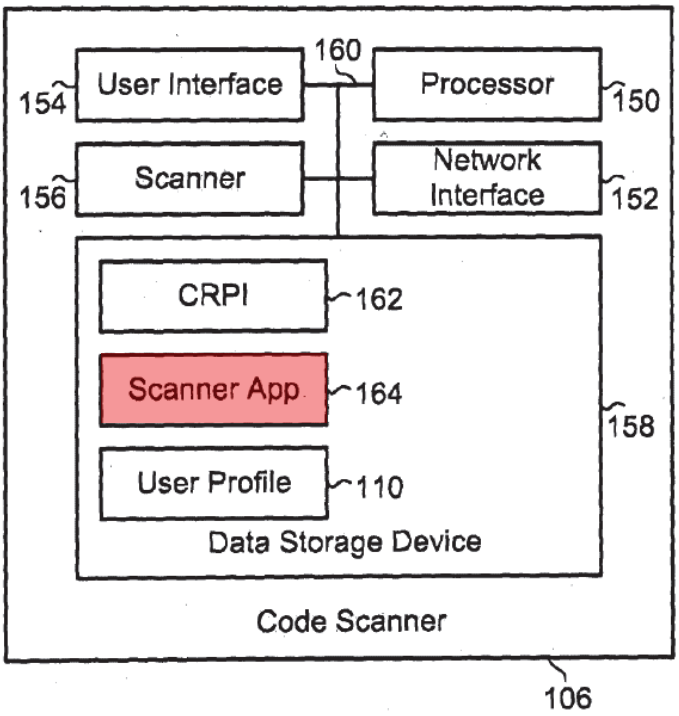
243. Thus, Moshal teaches [1.2.2] by displaying the invoice encoded in the tag, where the displayed invoice shows an amount to be paid by a user of the mobile device.

g. [1.2.3] wherein the mobile device is configured to execute an installed application therein to capture the data from the tag;

244. Limitation [1.2.3] is rendered obvious by Moshal and Dessert. Moshal teaches that the mobile device executes an installed application (scanner app 164) (modified scanner) to capture the data from the modified tag (*see* Section X.D.3 above).

245. With reference to Figure 4 below, Moshal discloses that at step 708 of Figure 7, the user of the mobile device "can use the scanner app 164 and the scanner 156 to scan the payment QR code on the hardcopy of the bill…." **GOOG-1005**, ¶ 55. Moshal discloses that the scanner app 164 is installed on the data

storage device 158 of the mobile device 106. **GOOG-1005**, ¶ 48. As described above with respect to [1.2.1], the mobile device extracts (decodes) the data encoded in the scanned tag. **GOOG-1005**, ¶ 55 ("At block 710, the scanner app 164 decodes the scanned payment QR code to recover the encoded data that it contains namely, the merchant identification code, the bill identification number and the bill details.").



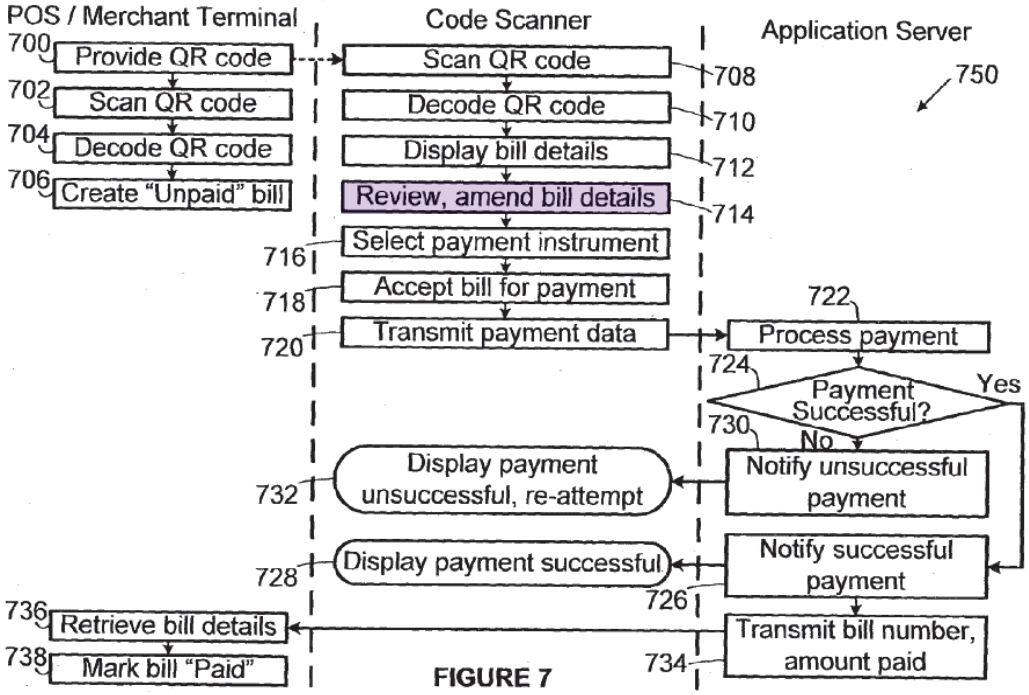
GOOG-1005, Fig. 4 (annotated)

246. Thus, Moshal and Dessert render obvious limitation [1.2.3].

h. [1.3] receiving an entry by the mobile device, the entry including the amount for the invoice and optionally an additional amount from the user;

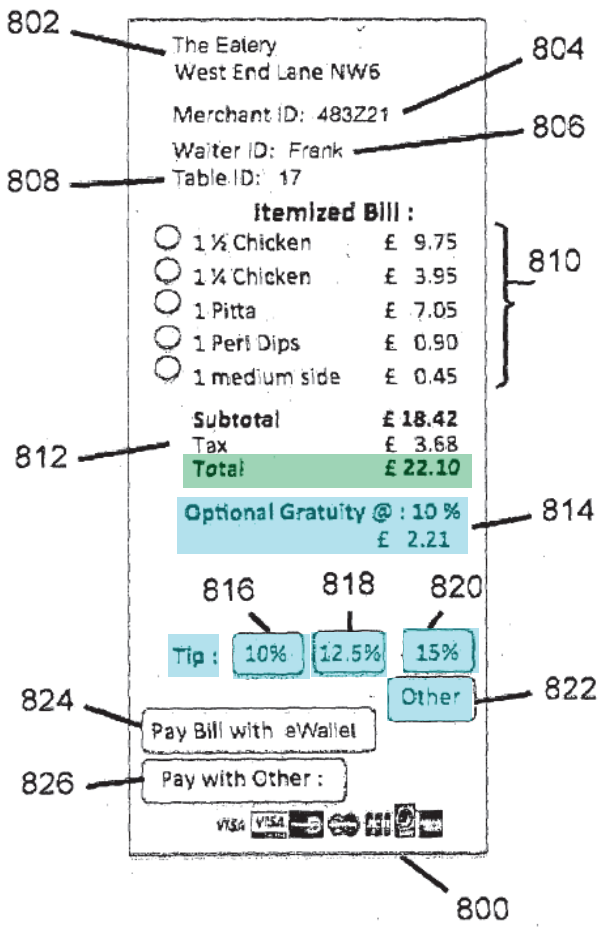
247. Moshal teaches [1.3], because Moshal discloses that its "user interface" receives "data pertaining to the amount due on the bill," including "data adding a tip to the bill." **GOOG-1005**, ¶¶ 175-180.

248. With reference to Figure 7 below, Moshal teaches that after the mobile device displays the invoice 800, including all the bill details, the scanner app allows the user to review the details of the bill, amend the details as appropriate, and add an optional tip. **GOOG-1005**, ¶ 55 ("At block 712, the scanner app 164 displays a page 800 on the user interface 154 with all the bill details, as illustrated in FIG. 8. At block 714 of FIG. 7 **the user can review the bill details displayed on page 800 and amend the displayed data, if necessary**.").



GOOG-1005, Fig. 7 (annotated)

249. With reference to Figure 8 below, the invoice 800 displayed on the mobile device includes several available options for the user to add an optional tip. In Figure 8 below, the "Total" amount (£ 22.10) indicated below the tax due (field 812) is the original invoice amount (i.e., before the tip is added). **GOOG-1005**, ¶ 58 (displayed invoice 800 includes icons 816, 818, 820 and 822 for the user to add an optional tip).



GOOG-1005, Fig. 7 (annotated)

250. As explained by clauses 36-38 below, Moshal teaches that the mobile device receives an entry including (1) the amount for the invoice and (2) optionally an additional amount from the user (combination of (1) and (2) is contained in clause 38).

Clause 36—The code scanner of clause 35,

wherein the user interface [of the mobile device] is configured to <u>receive the data pertaining to the amount due on the bill</u>.

Clause 37—The code scanner of any of clauses 35 through 36,

wherein **the user interface is configured to receive data modifying an amount due on the bill**.

Clause 38—The code scanner of any of clauses 35 through 37,

wherein **the user interface <u>is configured to receive data adding a tip to the bill</u>**.

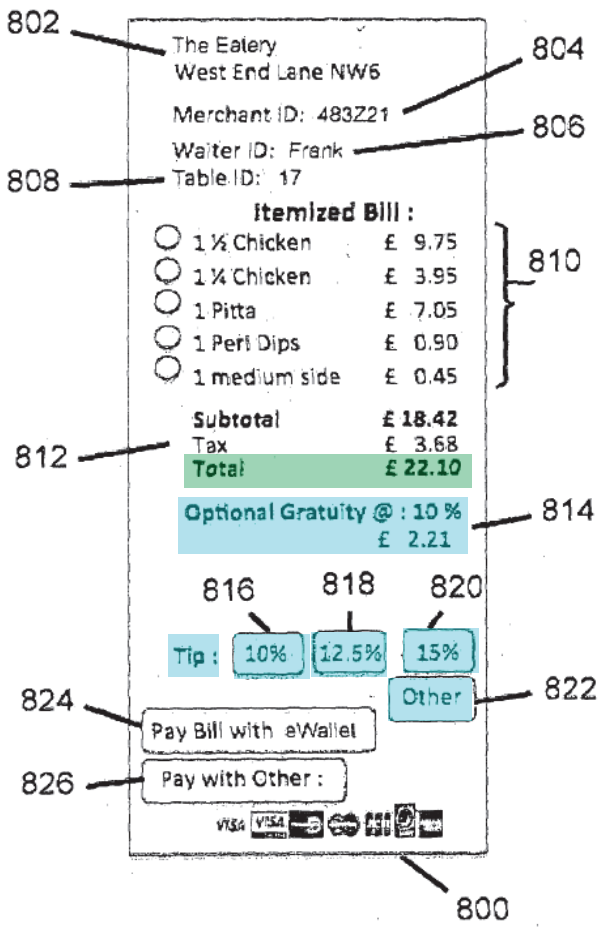
GOOG-1005, ¶¶ 175-180 (emphases added).

251. Thus, Moshal teaches [1.3].

i. [1.4] calculating a total amount by adding the additional amount to the amount in the electronic invoice;

252. Moshal teaches [1.4] by disclosing that a total amount is calculated by adding an additional amount (e.g., tip) to the original invoice amount. **GOOG-1005**, ¶¶ 55, 58.

253. As described above with respect to [1.3], the user may add an optional tip at step 714 and amend the displayed data, if necessary. Fig. 7, step 714, ¶ 55. With reference to Figure 8 below, Moshal discloses that the "**service charge 814 [] is automatically added to the amount due,**" and the user also is provided "with an option to **add a service charge to the amount due on the bill** if not already included in the bill total." **GOOG-1005**, ¶ 58.



GOOG-1005, Fig. 8 (annotated)

254. With reference to Figure 7 below, Moshal discloses that after the user has added a tip (step 714), selected a payment instrument (716), and accepted the bill for payment (including the added tip amount) (step 718), the mobile device then transmits payment data including the total amount to be paid (step 720) to the payment gateway. **GOOG-1005**, ¶ 55 ("After reviewing and amending the data on page 800, the user can select, at block 716, a payment instrument to pay the bill. At block 718 the user can accept the bill for payment. **The scanner app then**

transmits to the application server 102, at block 720, … the amount due and the details of a payment instrument to be used for payment…"). By transmitting the "the amount due," the mobile device transmits the **total amount** for the transaction, including the original invoice amount ("Total" in Fig. 8) plus the added gratuity (gratuity 814 in Fig. 8, or other gratuity amounts entered with icons 816, 818, 820 or 822 in Fig. 8).

255. Therefore, Moshal teaches calculating a total amount by adding the additional amount to the amount in the electronic invoice. Thus, Moshal teaches [1.4].

256. To the extent that Moshal does not explicitly disclose that the total amount is calculated by adding the additional amount (tip) to the original amount in the electronic invoice, this feature was well known in the art, as disclosed by Dessert. With reference to Figure 10C below, Dessert discloses that screen 202J displayed on the user's mobile device (PCD 100) includes (i) the total amount ($63.92) to be paid, which includes (ii) a 20% tip amount ($10.65). As shown in Figure 10D, the original invoice amount ("Subtotal") was $53.25, and a 20% tip of $53.25 amounts to $10.65, as shown in Figures 10C and 10D. Thus, Figures 10C and 10D show that the total amount was calculated by adding the additional amount (20% tip of $10.65) to the amount in the electronic invoice ($53.25). **GOOG-1007**, 39:29-46 ("…The electronic receipt 220B may list the food products

purchased, as well as the tip for service selected, **a total bill amount**, and the payment method which was selected for the transaction.").

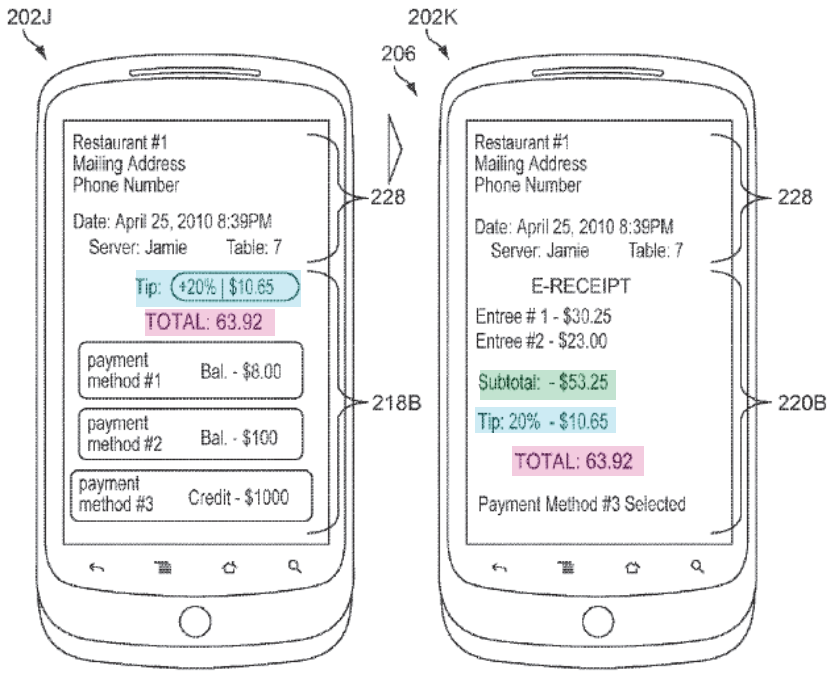


FIG. 10C FIG. 10D

GOOG-1007, Figs. 10C and 10D (annotated)

257. Accordingly, to the extent that Moshal does not explicitly disclose that the total amount is calculated by adding the additional amount (tip) to the original amount in the electronic invoice, a POSITA would have been motivated to modify Moshal to, as taught by Dessert, provide confirmation to the user of the mobile device that the total amount to be paid reflects the original invoice amount plus the added gratuity.

258. Thus, Moshal teaches [1.4]. Additionally, Moshal in view of Dessert renders obvious [1.4].

j. [1.5] generating a payment request in the mobile device in response to the electronic invoice after the user has chosen an electronic purse (e-purse) maintained locally in the mobile device;

259. Moshal discloses an e-wallet (e-purse as claimed in the '046 Patent) that is maintained locally in a user's mobile device and used to conduct transactions. As shown in Figure 8 below, an e-wallet is one of the payment options (icon 824 in Fig. 8) that a user may select to conduct a transaction. Moshal teaches the following sequence of operations: (1) a user sets up local payment options (including an e-wallet) on the mobile device when creating a user profile, (2) the user may select an e-wallet as a payment option (icon 824 in Fig. 8), and (3) after selection of a payment option, the mobile device generates and submits a payment request to the payment gateway (application server) 102, as illustrated below.

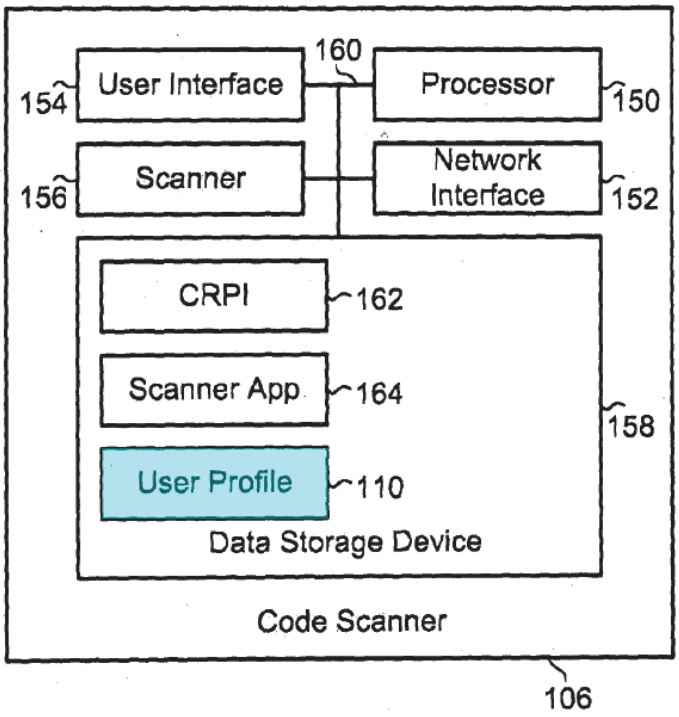
(1) User sets up local payment options (including e-wallet) on mobile device

260. **First**, Moshal discloses that when the user of mobile device (code scanner) 106 installs the scanner app and creates a user profile 110 (see Fig. 1), the user specifies various payment options for use in the scanner app, including credit

cards, debit cards, and **e-wallets**. The user profile 110 is maintained locally on the mobile device:

> A user can download a copy of the scanner app from a download repository (for example, data storage device 178 in FIG. 4) and install the scanner app on the code scanner 106. **On, during, or after installation, the scanner app creates a user profile 110 on the code scanner 106 and prompts the user to manually provide personal attributes such as,** the user's first name, the user's last name, an e-mail address, a physical address **and particulars of one or more payment instruments such as credit cards, debit cards, e-wallets and the like**. In accordance with at least some example embodiments, **the user profile 110 (for example, the data in the user profile 110) is stored locally on the code scanner 106 and is not passed to the application server 102**.

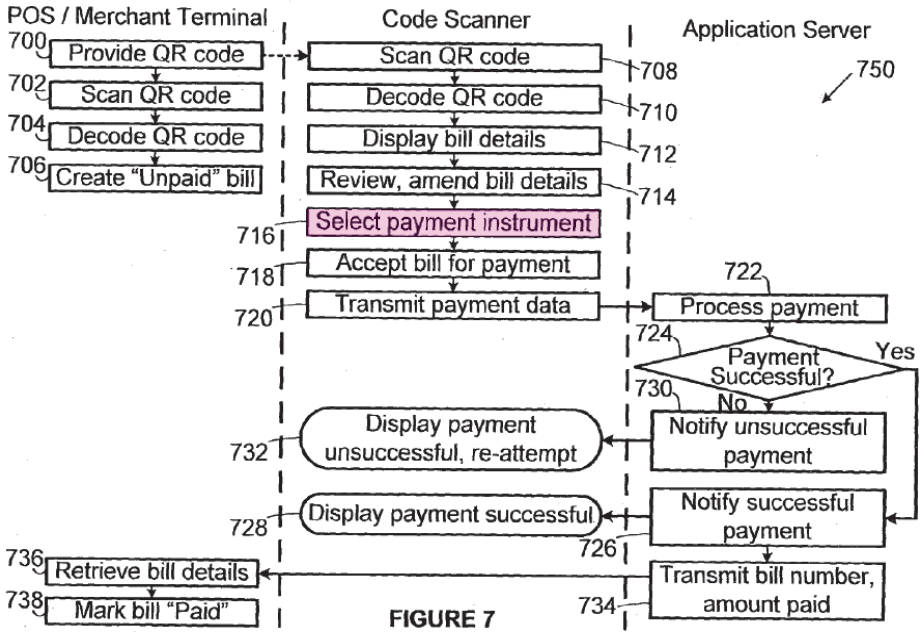
GOOG-1005, ¶ 142 (emphasis added).



GOOG-1005, Fig. 4 (annotated)

(2) User selects e-wallet as a payment option (icon 824 in Fig. 8)

261. With reference to Fig. 7 below, Moshal discloses that after the user reviews the bill displayed on the mobile device and makes any adjustments (e.g., adding tip) (step 714), the user then **selects one of the available payment options** (i.e., in the user profile 110) (step 716), accepts the bill for payment (step 718), and transmits a payment request (step 720) to the application server 102. **GOOG-1005**, ¶ 55.

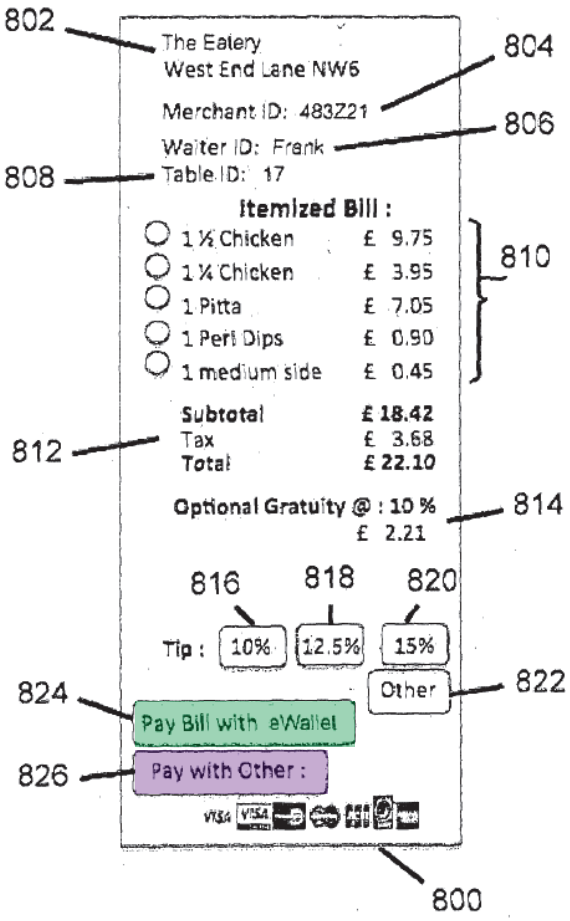


GOOG-1005, Fig. 7 (annotated)

262. Moshal teaches that an e-wallet is one of the payment options available to the user of the mobile device, and that an e-wallet is a different payment option from credit cards or debit cards. **GOOG-1005**, ¶ 42 ("On, during, or after installation, the scanner app creates a user profile 110 on the code scanner 106 and prompts the user to manually provide personal attributes such as, the user's first name, the user's last name, an e-mail address, a physical address and particulars of **one or more payment instruments such as credit cards, debit cards, <u>e-wallets</u> and the like**.").

263. Moshal thus teaches that an e-wallet is a different payment option than credit cards or debit cards. This is shown in Fig. 8 below, where "[i]con

824 can be used to select an e-wallet with which to pay, while icon 826 can be used to select a debit card or a credit card with which to pay the bill." **GOOG-1005**, ¶ 59.

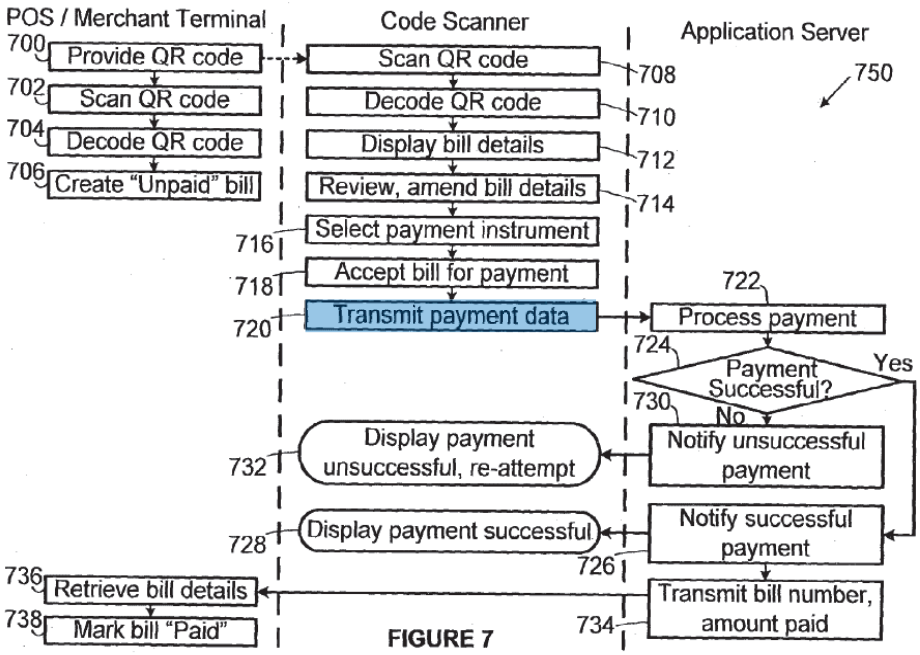


GOOG-1005, Fig. 8 (annotated)

(3) Generating and Sending Payment Request

264. With reference to Fig. 7 below, Moshal discloses that after the user has selected the payment option (e.g., e-wallet icon 824 in Fig. 8) in step 720, the mobile device then generates and transmits a payment request (payment data) to

the payment gateway (application server) 102. **GOOG-1005**, ¶ 55 ("The scanner app then transmits to the application server 102, at block 720, the merchant identification code, the bill identification number, the amount due and the details of a payment instrument to be used for payment….").



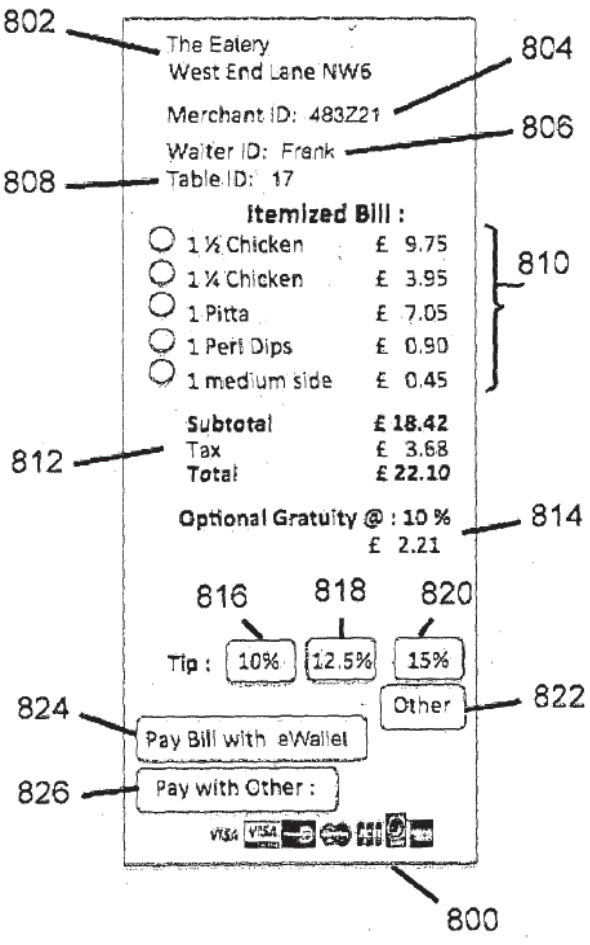
GOOG-1005, Fig. 7 (annotated)

265. Moshal thus discloses that (i) a payment request is generated for transmission to the payment gateway, (ii) the payment request is generated in response to the invoice when the e-wallet is chosen by the user, and (iii) the e-wallet is maintained locally on the user's mobile device.

k. [1.6] displaying the electronic invoice on the display of the mobile device for the user to verify the payment request

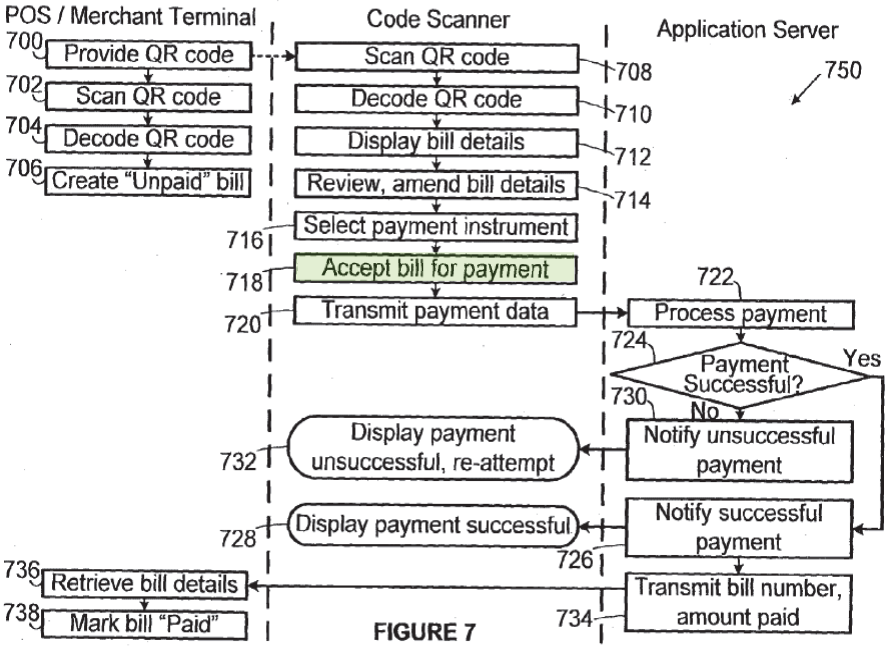
266. Moshal teaches [1.6] because Moshal discloses that the mobile device displays the invoice, and the user verifies the payment request before transmitting it to the payment gateway, as described below.

267. With reference to Figure 8 below, Moshal discloses that the mobile device displays the invoice 800 (step 712 in Fig. 7). **GOOG-1005**, ¶ 55. The invoice 800 includes "all the bill details" for the user to verify. **GOOG-1005**, ¶ 55.



GOOG-1005, Fig. 8 (annotated)

268. With reference to Figure 7 below, Moshal discloses that while the invoice 800 is displayed, "the user can review the bill details displayed on page 800 and amend the displayed data, if necessary" (e.g., adding an optional tip) at step 714, and select a payment instrument (e.g. selecting e-wallet using icon 824 in Fig. 8) in step 716. **GOOG-1005**, ¶ 55. Then, before the user causes the mobile device to transmit a payment request at 720, the user first verifies the payment request at step 718 by accepting the bill for payment. **GOOG-1005**, ¶ 55 ("After reviewing and amending the data on page 800, the user can select, at block 716, a payment instrument to pay the bill. At block 718 the user can accept the bill for payment.").



GOOG-1005, Fig. 7 (annotated)

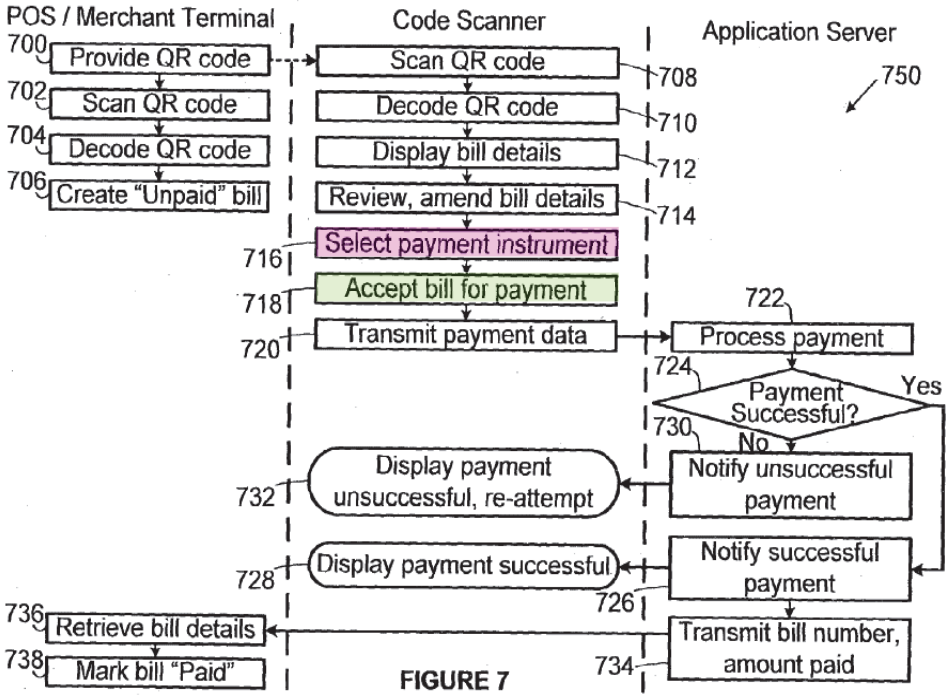
269. Thus, Moshal teaches [1.6].

270. It should be noted that limitations [1.2.2] and [1.6] do not require separate or distinct displaying steps. The intended results recited in [1.2.2] ("to show an amount to be paid by a user of the mobile device") and [1.6] ("for the user to verify the payment request") are accomplished while the invoice is displayed, as taught by Moshal for the reasons presented above with respect to [1.2.2] and [1.6]. The '046 Patent does not disclose separate, distinct displaying steps for performing the intended results recited in [1.2.2] and [1.6].

l. [1.7] verifying the total amount with a balance in the e-purse, wherein said verifying the total amount with a balance in the e-purse is performed within the mobile device without sending the payment request to a payment gateway;

271. Limitation [1.7] is rendered obvious by Moshal and Jogu, for the reasons discussed below.

272. Moshal teaches that after the selected gratuity "is automatically added to the amount due" (to arrive at a total amount) (¶ 58), the user selects an appropriate payment instrument (step 716) before the user accepts the bill for payment (step 718) in Figure 7 below. **GOOG-1005**, ¶ 55.



GOOG-1005, Fig. 7 (annotated)

273. As discussed above, one of the payment options from which the user may choose is an "e-wallet" ("Pay Bill with eWallet" icon 824 in Fig. 8). To the extent Moshal is silent as to the specific actions the code scanner takes after "e-wallet" is selected (in 716), a POSITA would have been motivated to modify Moshal to verify whether the balance of the e-wallet is sufficient to cover the total amount (bill + gratuity) before the payment request is transmitted (step 720) to the payment gateway, as discussed above in Section X.D.1. This was a common e-wallet technique, as described by Jogu.

274. As shown in the excerpt of Figure 22 below, Jogu discloses that the mobile device determines whether the balance in the mobile device is sufficient for a transaction (step S718 in Fig. 22; screen D18 displayed on mobile device in Fig. 23); **GOOG-1006**, 14 ("the data processing unit 131 [of the mobile device] determines whether or not the received payment amount is within the current balance (S718). When the payment amount exceeds the balance, the data processing unit 131 displays the screen D19 shown in FIG. 23 on the display device 137 and notifies the user 12 of the insufficient balance (S719).").

FIG. 22

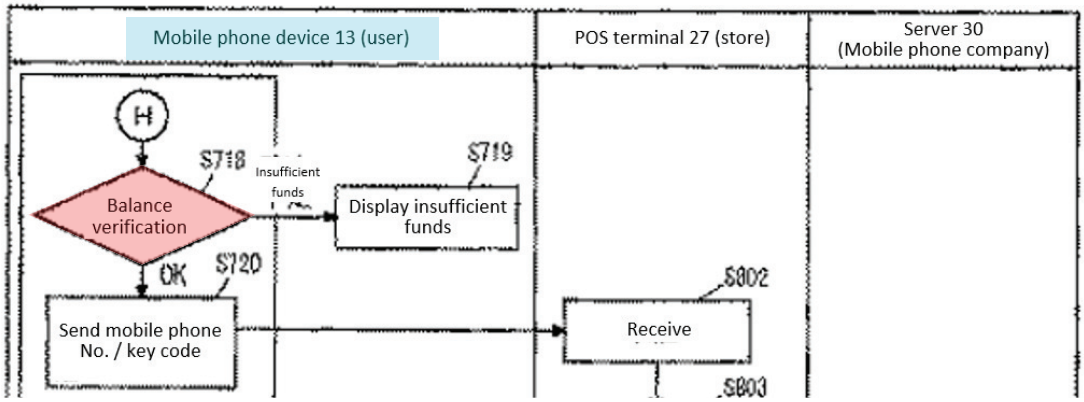
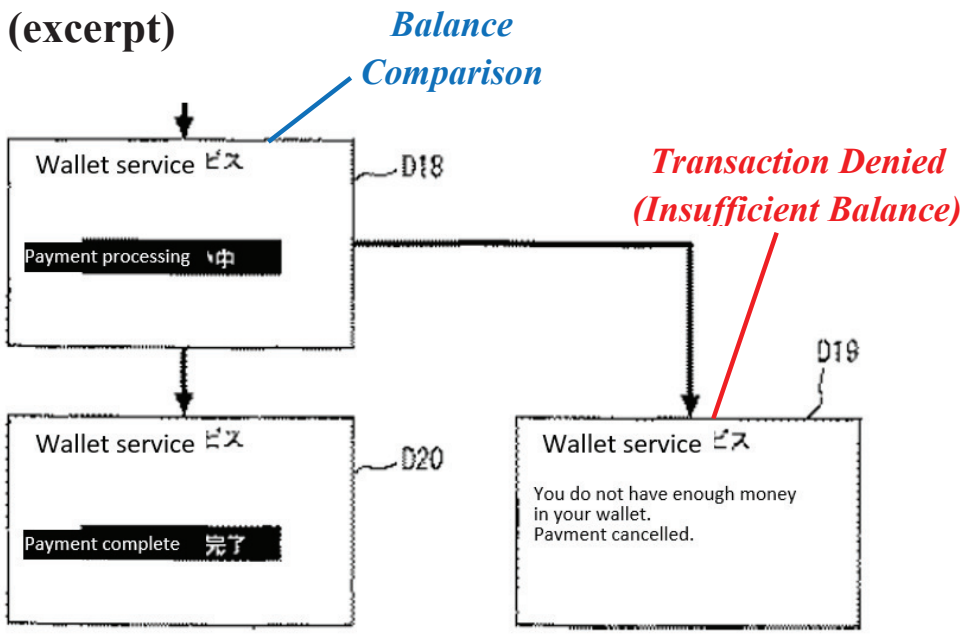


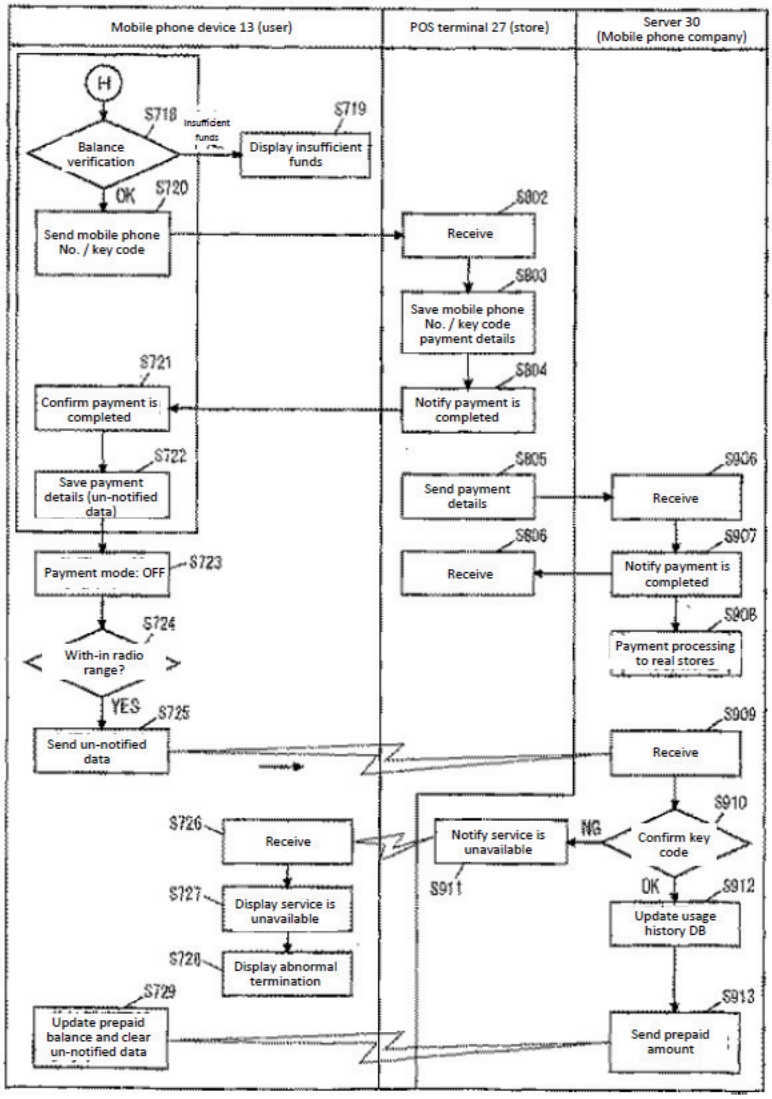
Fig. 23 (excerpt)



GOOG-1006, Figs. 22 and 23 (annotated excerpts)[13]

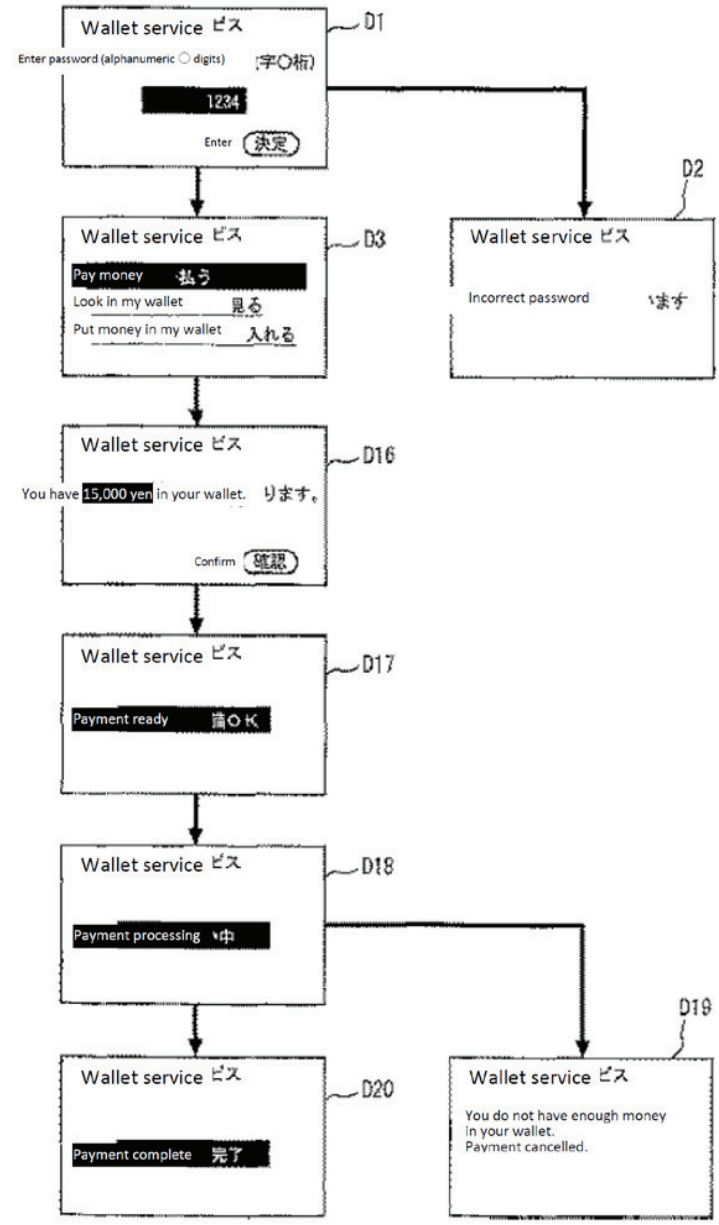
[13] The full versions of Figs. 22 and 23 are reproduced below.

FIG. 22



GOOG-1006, Fig. 22

FIG. 23



GOOG-1006, Fig. 23

275. Thus, Jogu discloses verifying the total amount with a balance in the e-purse, where the verification of the total amount with a balance in the e-purse is

performed within the mobile device without sending the payment request to a payment gateway. **GOOG-1006**, p. 14. Therefore, Moshal and Jogu render obvious [1.7].

276. In the obvious modification of Moshal using Jogu's balance verification before a payment request is sent, the local balance verification would occur at step 718 in Moshal's Figure 7, before the mobile device would send a payment request to the payment gateway (at step 720 in Fig. 7). As shown above in Figure 22 of Jogu, the mobile device performs a local verification of the balance in comparison to the payment amount (step S718 in Fig. 22) before the mobile device transmits a payment request (step S720 in Fig. 22) upon confirmation that the balance is sufficient for the payment amount. **GOOG-1006**, 14. The same process would occur in the obvious modification of Moshal utilizing Jogu's local balance verification.

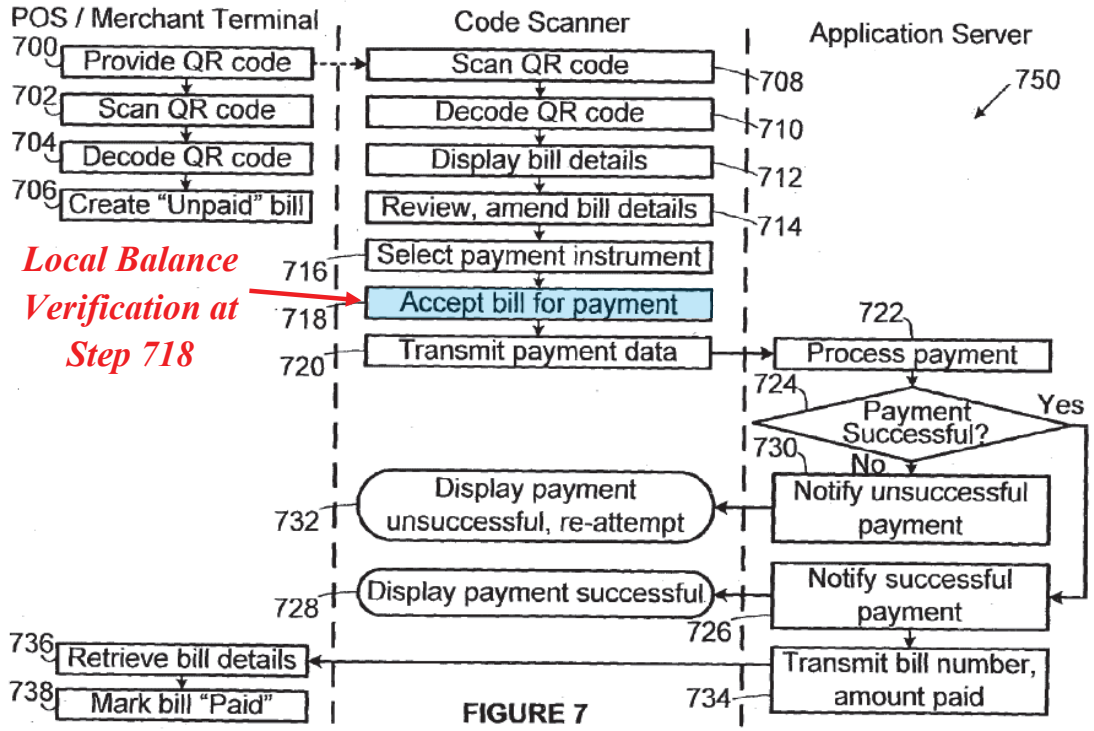


FIGURE 7

m. [1.8] displaying a denial of the payment request when the balance is less than the total amount;

277. Limitation [1.8] is rendered obvious by Moshal and Jogu, for the following reasons.

278. As described above in Section X.D.1, and with respect to limitations [1.5] and [1.7], a POSITA would have been motivated to modify Moshal to utilize an e-wallet with an updatable balance as an available payment option, based on the disclosure of Jogu, where the mobile device verifies whether there is a sufficient balance before proceeding with the transaction. **GOOG-1006**, 14, Fig. 22 (step S718).

279. Jogu discloses that when the mobile device 13 determines that there is an insufficient balance to conduct the transaction (step S718 in Fig. 22), the mobile device 13 then displays a notification that there are insufficient funds to conduct the transaction (i.e., the transaction is denied) (step S719 in Fig. 22, screen D19 in Fig. 23), as shown in the excerpts of Figures 22 and 23 below. **GOOG-1006**, 14 ("When the payment amount exceeds the balance, the data processing unit 131 [of the mobile device] displays the screen D19 shown in FIG. 23 on the display device 137 and notifies the user 12 of the insufficient balance (S719)."). Thus, utilizing an e-wallet with an updatable balance, as taught in Jogu, as an available payment option in Moshal, a denial of a payment request based on an insufficient balance would be displayed on Moshal's mobile device, based on the teachings of Jogu. **GOOG-1006**, step S719 in Fig. 22, screen D19 in Fig. 23.

FIG. 22

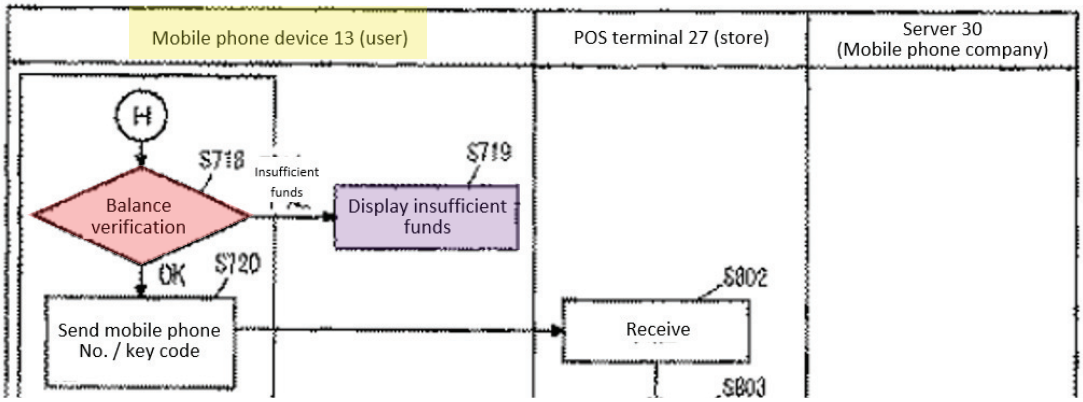
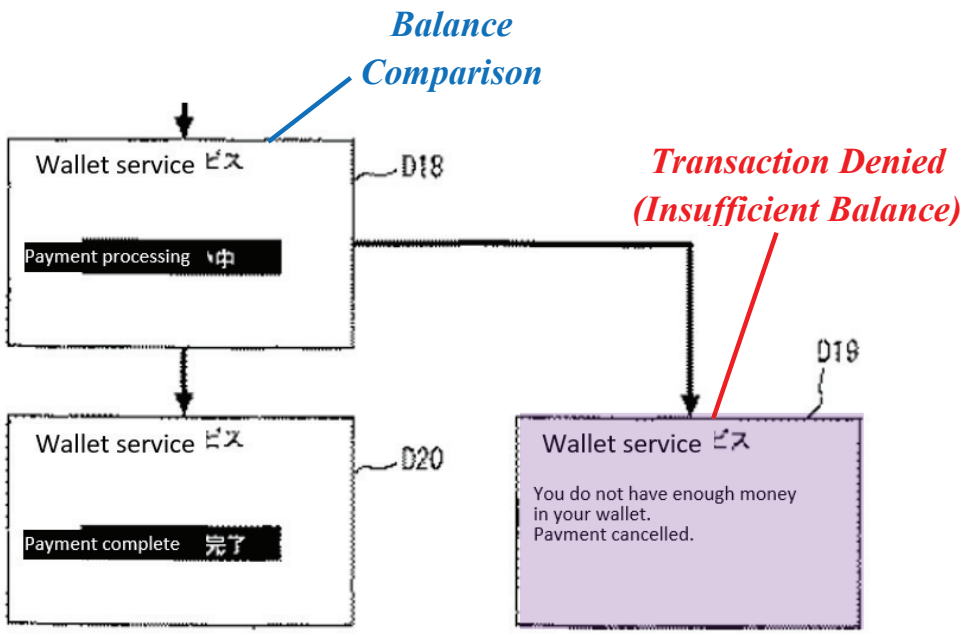


Fig. 23 (excerpt)



GOOG-1006, Figs. 22 and 23 (annotated excerpts)

n. [1.9] sending the payment request from the mobile device to the payment gateway, wherein the balance is sufficient to honor the payment request,

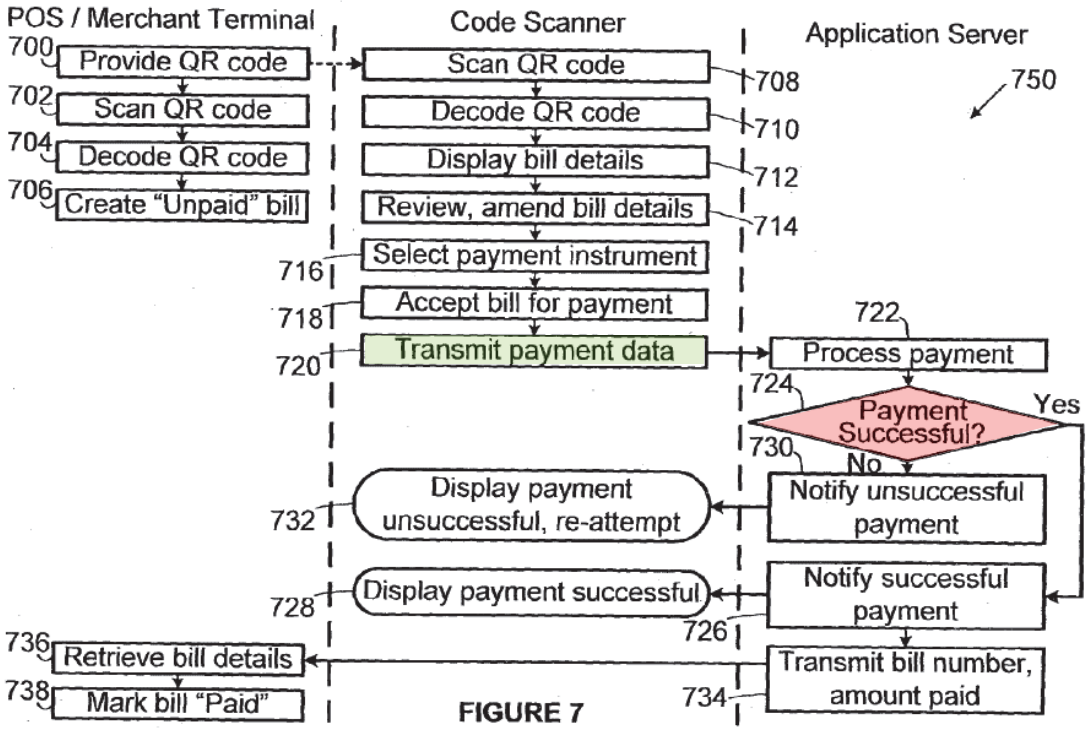
280. Limitation [1.9] is obvious in view of the teachings of Moshal and Jogu.

281. With reference to Fig. 7 below, Moshal discloses that after the user of the mobile device 106 has reviewed and verified the information on the bill 800 displayed on the mobile device, including amending any of the displayed data, the mobile device transmits a payment request (step 720 in Fig. 7) to the payment gateway (application server) 102. **GOOG-1005**, ¶ 55. By transmitting "the amount due," **GOOG-1005**, ¶ 55, Moshal teaches that the mobile device has sufficient funds to pay the bill. This is confirmed by Moshal's disclosure that the payment gateway determines whether the payment is successful (step 724), and sends a notification of successful payment to the mobile device (step 726) when the amount sent by the mobile device is sufficient to honor the payment request. **GOOG-1005**, ¶ 56.

> At block 724, the application server 102 can determine whether the payment was successful. The payment processor transmits a payment status indicator, for example, either successful or unsuccessful. If the payment status is successful, the application server 102 notifies the scanner app 164, at block 726, that payment has been successful and the displayed page refreshes to indicate that the diner's bill has been

paid (block 728). If, on the other hand, the payment status is unsuccessful, the application server 102 notifies the scanner app 164, at block 730, that payment has been unsuccessful and the page displayed by the scanner app 164 refreshes to request the user to select a different payment instrument and re-attempt payment (block 732).

GOOG-1005, ¶ 56.



GOOG-1005, Fig. 7 (annotated)

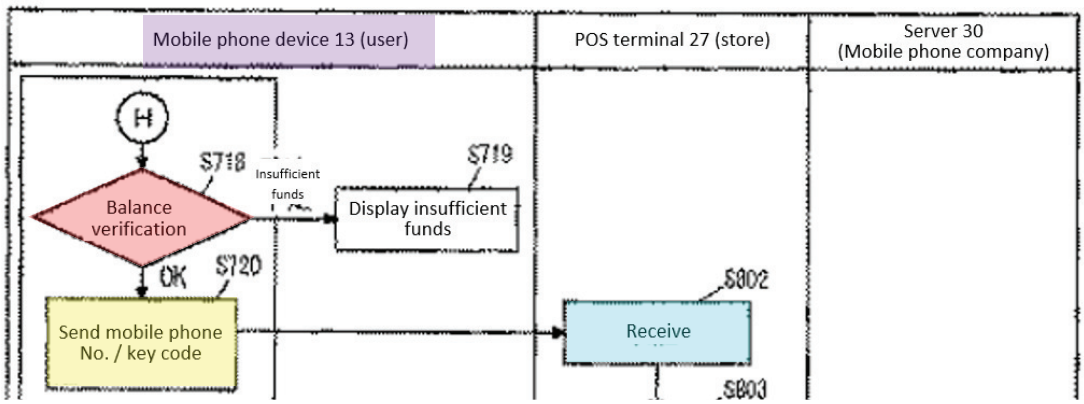
282. In the obvious modification of Moshal using Jogu's balance verification before a payment request is sent, Moshal's payment would be sent from the mobile device to the payment gateway (at step 720 in Fig. 7) after the mobile device verifies that the balance is sufficient to pay the bill (i.e., the amount

is less than the balance of the e-purse maintained in the mobile device). As shown in the annotated excerpt of Figure 22 below, Jogu discloses that the mobile device transmits a payment request (S720) following positive verification in step S718 that the balance is sufficient. **GOOG-1006**, 14:

> In the mobile phone 13, the data processing unit 131 receives the payment amount transmitted from the POS terminal 27 (S717). Then, the data processing unit 131 [of the mobile device] determines whether or not the received payment amount is within the current balance (S718). When the payment amount exceeds the balance, the data processing unit 131 displays the screen D1 9 shown in FIG. 23 on the display device 137 and notifies the user 12 of the insufficient balance (S719). When the payment amount is within the balance, the data processing unit 131 transmits the telephone number of the mobile phone 13 and the key code pre-registered in hardware in the RO M 133 to the POS terminal 27 through the reader 28 (S720).

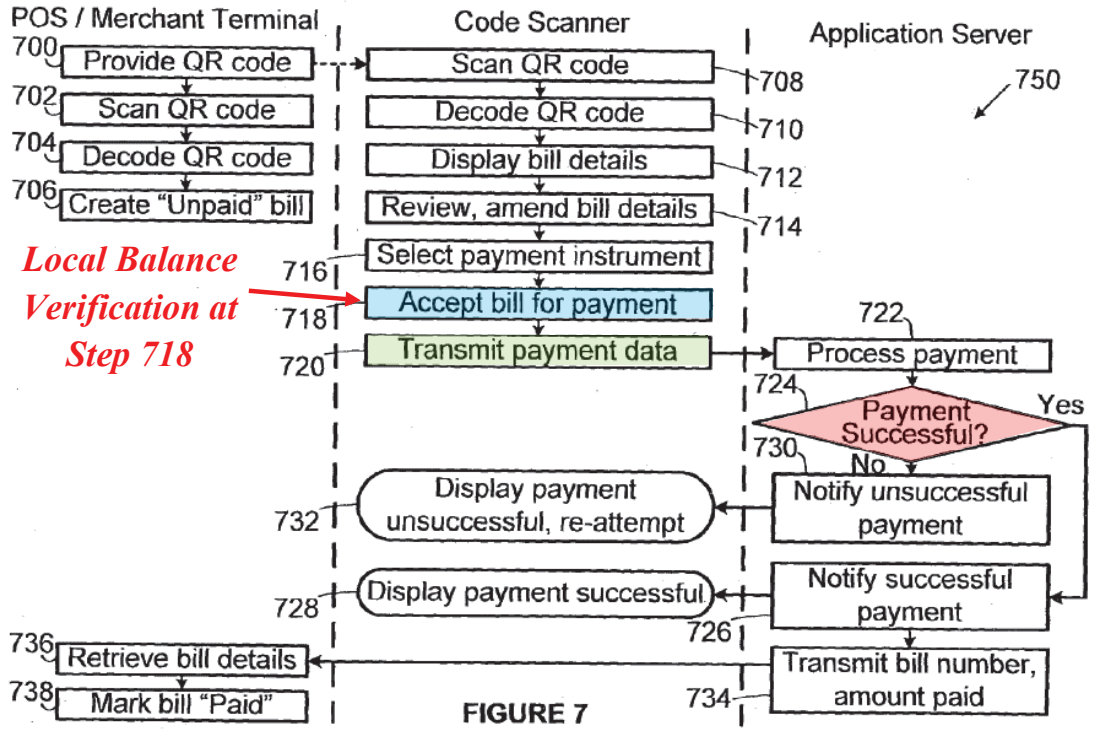
In Jogu, the payment request includes the telephone number of the mobile phone 13 and the mobile device's key code.

FIG. 22



GOOG-1006, Fig. 22 (annotated excerpt)

283. Thus, in the obvious modification of Moshal using Jogu's balance verification before a payment request is sent, Moshal's mobile device would send a payment request to the payment gateway (at step 720 in Fig. 7) ***after the mobile device has locally verified that the amount of the transaction does not exceed the balance in the mobile device*** (step S718 in Fig. 22 of Jogu), as shown in annotated Figure 7 of Moshal below.



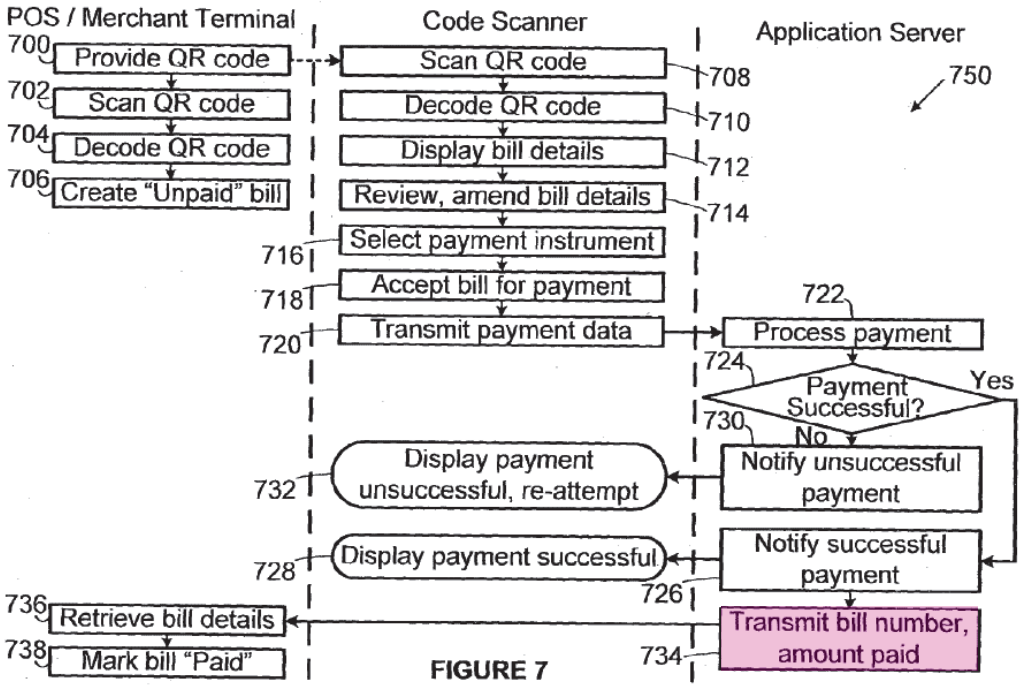
GOOG-1007, Fig. 7 (annotated)

o. [1.10] the payment gateway sends a message directly to the POS device that a monetary transaction per the payment request sent from the mobile device has been successfully completed; and

284. Limitation [1.10] would have been obvious in light of the teachings of Moshal and Jogu.

285. With reference to Fig. 7 below, Moshal discloses that in step 734, the payment gateway (application server) 102 sends a message (successful payment notification, bill identification number, and amount paid) directly to the POS/merchant terminal. **GOOG-1005**, ¶ 57 ("At block 734, if the payment status indicator is successful, the application server 102 can transmit the bill

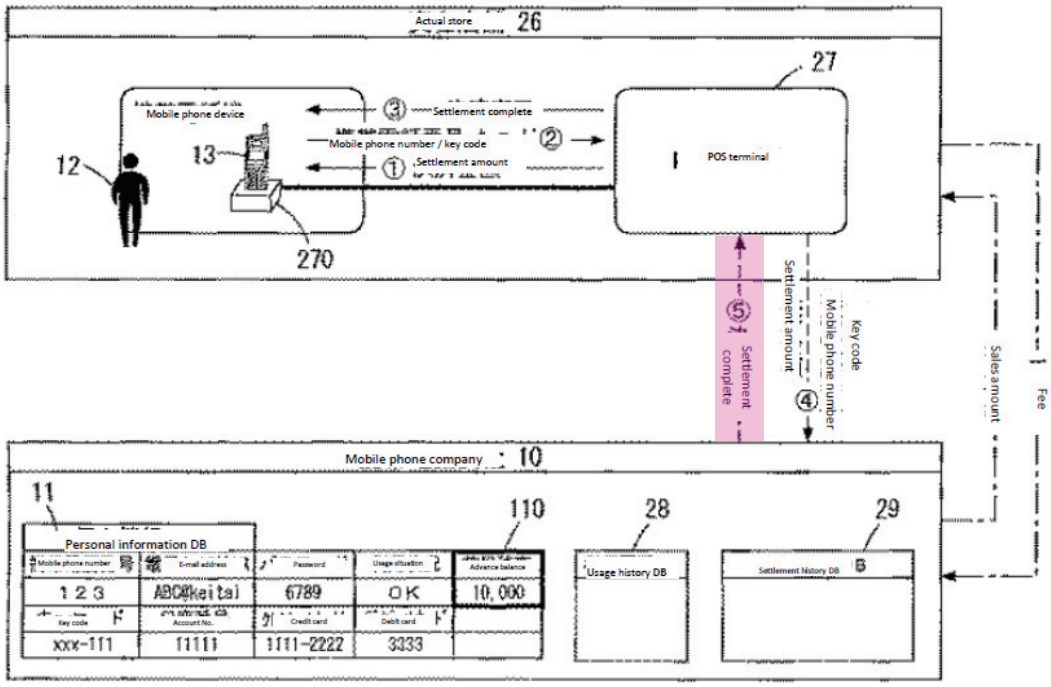
identification number and the amount paid by the user to the merchant terminal 108 for processing.").



GOOG-1005, Fig. 7 (annotated)

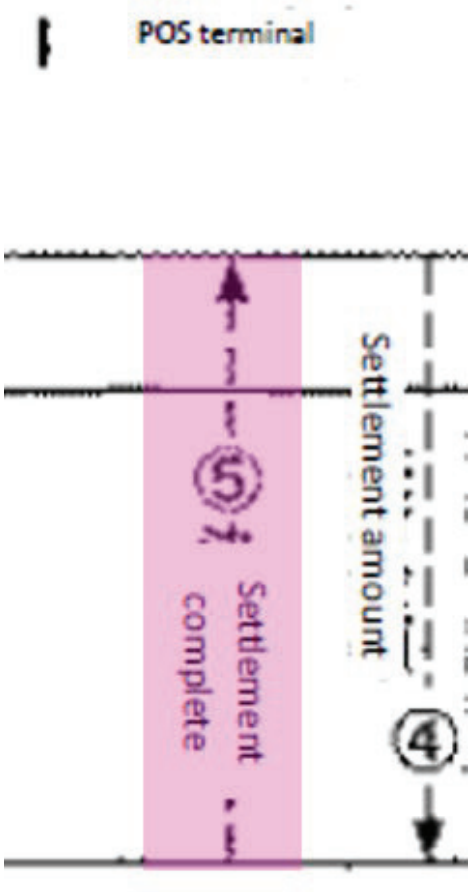
286. Further, with reference to Fig. 6 below, Jogu discloses that the payment gateway 10 sends a payment confirmation message ("Settlement complete") directly to the POS terminal 27. **GOOG-1006**, 6 ("[T]he [payment gateway] 10 updates the prepaid balance by subtracting the payment amount from the prepaid balance of the virtual account 110, and notifies the POS terminal 27 of the completion of the payment.").

FIG. 6



GOOG-1006, Fig. 6 (annotated)

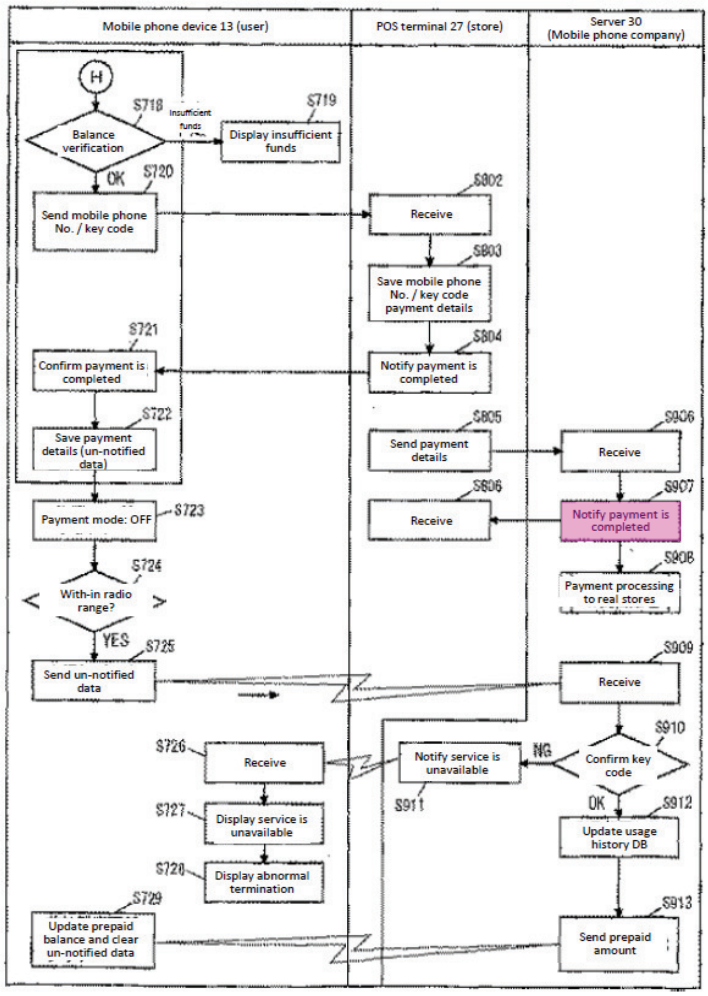
Below is an enlarged version of the pertinent portion of Fig. 6:



GOOG-1006, Fig. 6 (enlarged, annotated excerpt)

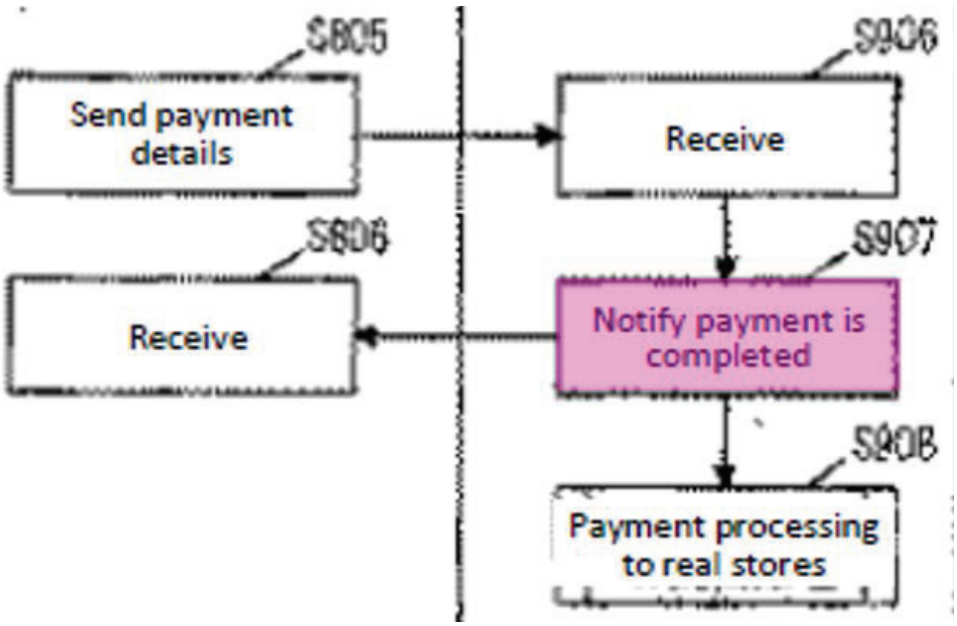
287. Similarly, with reference to Fig. 22 below, Jogu discloses that the payment gateway 10 sends notification of a successful payment completion directly to the POS device 27 (step S906). **GOOG-1006**, 15 ("[T]he data processing unit 301 transmits the payment completion information to the POS terminal 27 (S907).").

FIG. 22



GOOG-1006, Fig. 22 (annotated)

Below is an enlarged version of the pertinent portion of Fig. 22:



GOOG-1006, Fig. 22 (enlarged, annotated excerpt)

288. Thus, it was known in the art to transmit a successful payment notification from a payment gateway directly to a POS device, as disclosed by Jogu. This is confirmed by other prior art references that disclose transmitting a successful payment notification from a payment gateway to a POS device. For example, Narayanan (**GOOG-1013**) discloses that a payment gateway 320 transmits a successful payment confirmation notice directly to a POS device 325, as shown in Figure 3 below. **GOOG-1013**, ¶ 28 ("If the payment is authorized, the payment gateway 320 may transmit a notification of the authorization and any relevant information (e.g., the authorized user, the amount, the date the transaction will settle, etc.) to the POS device 325.")

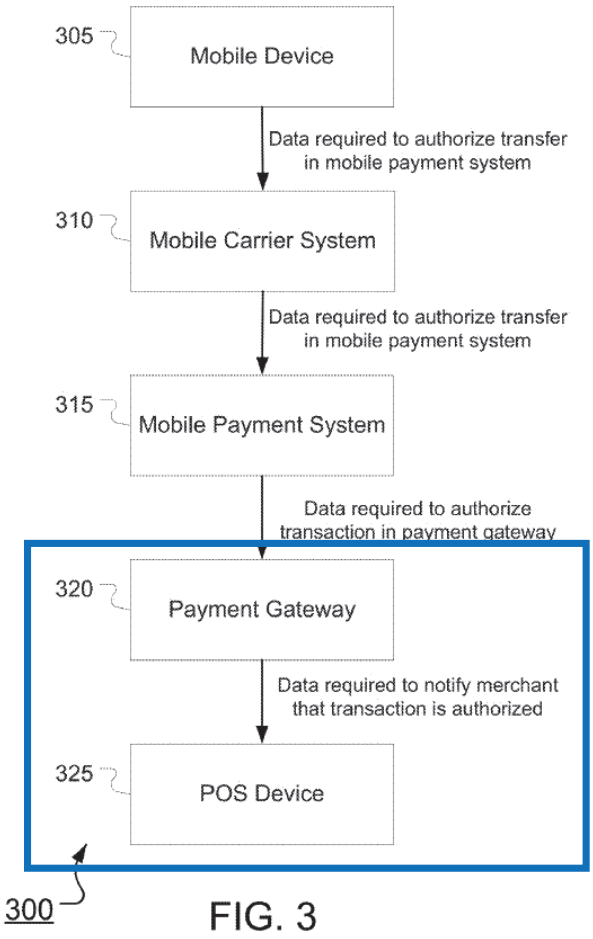
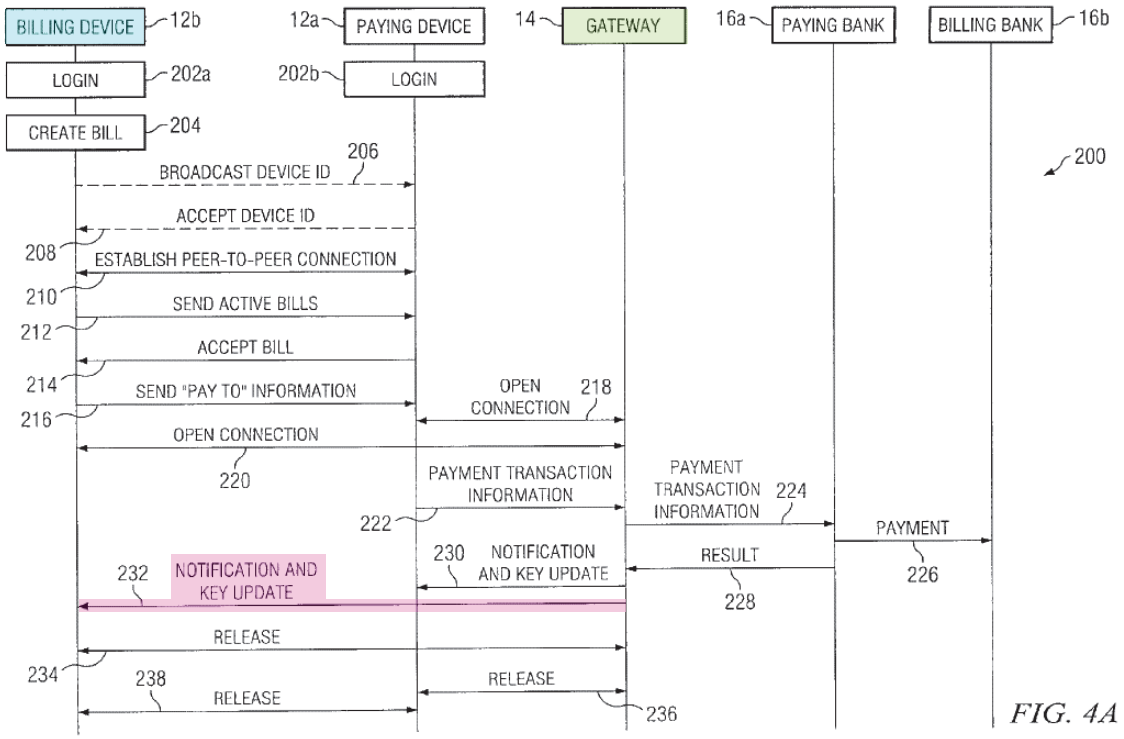


FIG. 3

GOOG-1013, Fig. 3 (annotated)

289. As another example, Shank discloses that it was for a payment gateway to transmit a successful payment notification directly to a POS device. As shown in Figure 4A below, Shank discloses that discloses that a payment gateway (gateway 14) sends a message directly to a POS device (billing device 12b) that a monetary transaction per the payment request sent from a mobile device (paying device 12a) has been successfully completed. **GOOG-1011**, ¶ 62 ("In some

embodiments, the gateway 14 may notify the paying device 16a of the result at step 230 and may notify the billing device 16b [POS terminal] of the result at step 232. **Sending the result to the billing device 16b from the gateway 14, rather than from the paying device 16a, may reduce the risk of fraud.** For example, the paying device 16a may not be able to alter the notification that the billing device 16b receives. The result may be communicated to the user via email, text message, or any suitable type of notification.").



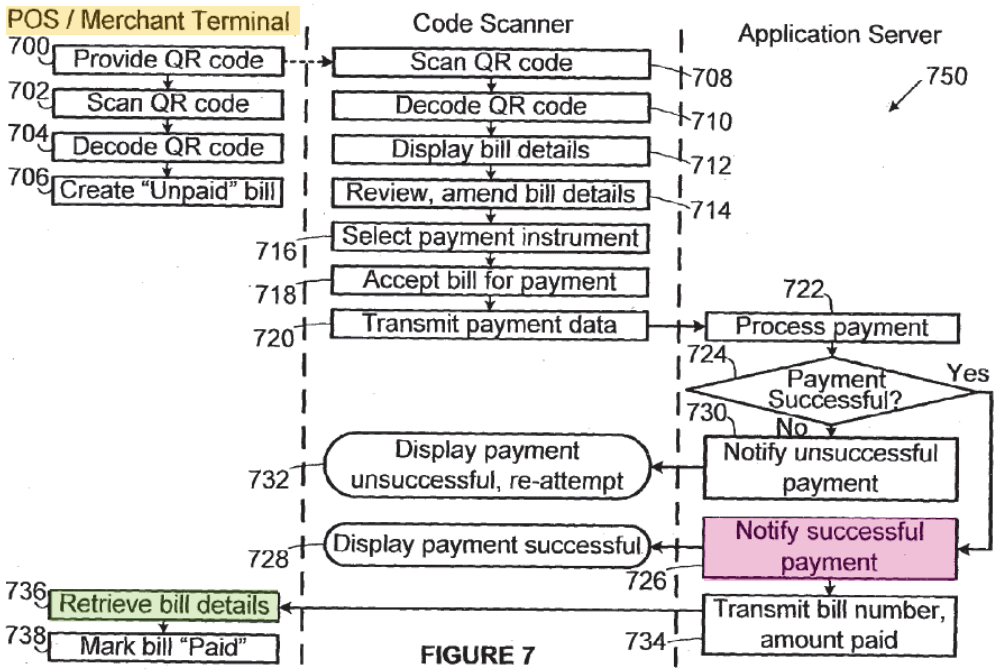
GOOG-1011, Fig. 4A (annotated)

290. Therefore, Shank discloses that an advantage of transmitting a successful payment notification directly from the payment gateway to the POS device is that it may reduce the risk of fraud. **GOOG-1011**, ¶ 62.

291. Thus, it was known in the art to transmit a successful payment notification from a payment gateway directly to a POS device, as disclosed by Jogu, Narayanan, and Shank.

292. Accordingly, a POSITA would have been motivated to modify Moshal to send a message from Moshal's payment gateway 102 directly to the POS device 104 indicating that a monetary transaction per the payment request sent from the mobile device has been successfully completed. This direct notification would simplify and accelerate processing by the POS device 104. The POS device 104 "provide[s] a payment QR code that encodes the merchant identification code 140 in the merchant profile 142, a bill identification code or number, and all the details contained in the bill." **GOOG-1005**, ¶ 54. Moshal discloses that the mobile device transmits "the merchant identification code, the bill identification number, the amount due and the details of a payment instrument to be used for payment" when the mobile device sends the payment data to the payment gateway (step 720 in Fig. 7), and the payment gateway transmits the bill identification and the amount paid when transmitting the successful payment notification at step 734 in Fig. 7. **GOOG-1005**, ¶¶ 55, 57.

293. While Fig. 1 of Moshal suggests that the POS terminal 104 and merchant terminal 108 may be distributed devices, the use of "POS / Merchant Terminal" in Figure 7 (below) informs a POSITA that they can be integrated. Moshal implicitly discloses that the POS terminal 104 and merchant terminal 108 are provided in the same location, because Moshal explains that "[a]t block 702 the waiter or merchant can use the merchant app 178 and the scanner 171 on the merchant terminal 108 to scan the payment QR code provided by the POS terminal 104." **GOOG-1005**, ¶ 54.



GOOG-1005, Fig. 7 (annotated)

294. It was well known in the art to make a POS terminal and a merchant terminal into one integrated component in a contactless payment system. For example, with reference to Figures 2 and 3 below, Granucci (**GOOG-1012**) discloses that a POS device 2210 (Card Point-of-Sale Read/Writer) can be integrated with a merchant terminal 2230 (Merchant Central Computer) in a merchant device 2200 (Merchant) that communicates with a mobile device 1000 and a payment gateway 2300. **GOOG-1012**, 4:7-12, 4:23-32, and 5:35-40.

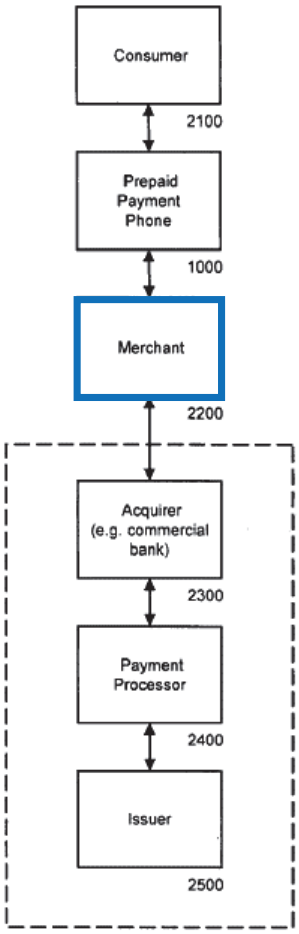


FIG. 2

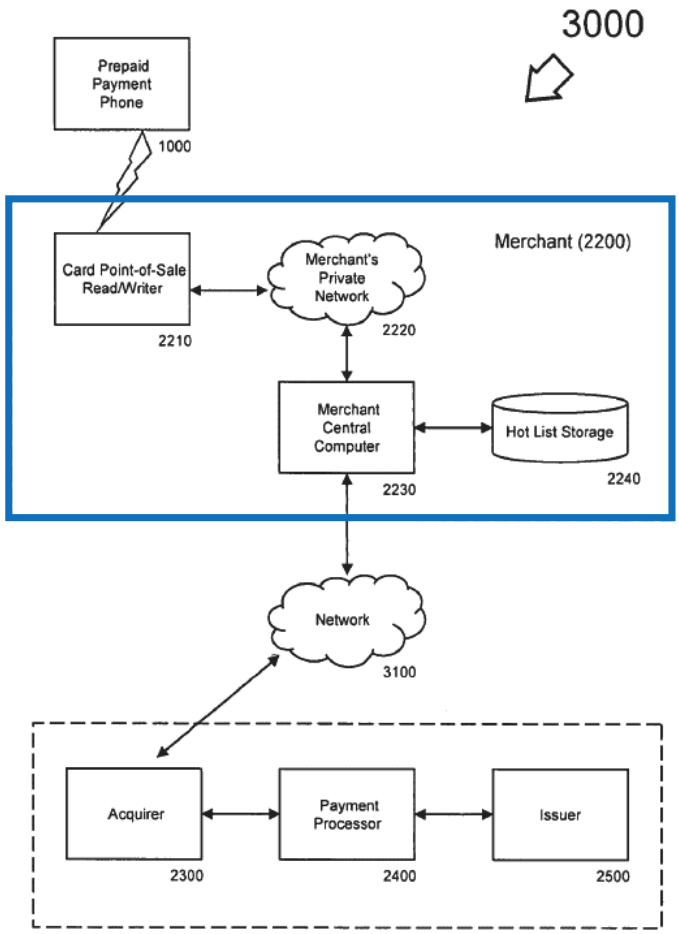


FIG. 3

GOOG-1012, Figs. 2 and 3 (annotated)

> **When the customer 2100 uses the prepaid payment mobile phone 1000 at a merchant 2200 to pay for a product or service, the merchant 2200 contacts an acquirer 2300** (for example, a commercial bank) to determine whether there is sufficient funds on the mobile phone to pay for the transaction or a portion of the transaction.

GOOG-1012, 4:7-12 (emphasis added).

> FIG. 3 depicts merchant 2200 in greater detail, where merchant 2200 includes a system to support the display of a real-time prepaid payment balance on a mobile phone, constructed and operative in accordance with an embodiment of the present invention. As shown, in FIG. 3, **merchant 2200 comprises a mobile phone point-of-sale read/writer 2210 that communicated with a merchant central computer 2230 via the merchant's private network 2220**. In some embodiments, merchant central computer 2230 may be coupled to hot list storage 2240.

GOOG-1012, 4:23-32 (emphasis added).

> In other embodiments, **merchant central computer 2230 contacts acquirer 2300 to determine whether the transaction is valid**. If the transaction is invalid as determined at decision block 5004, an error message is returned at block 5006. When the transaction is valid, flow continues at block 5008.

GOOG-1012, 5:35-40 (emphasis added).

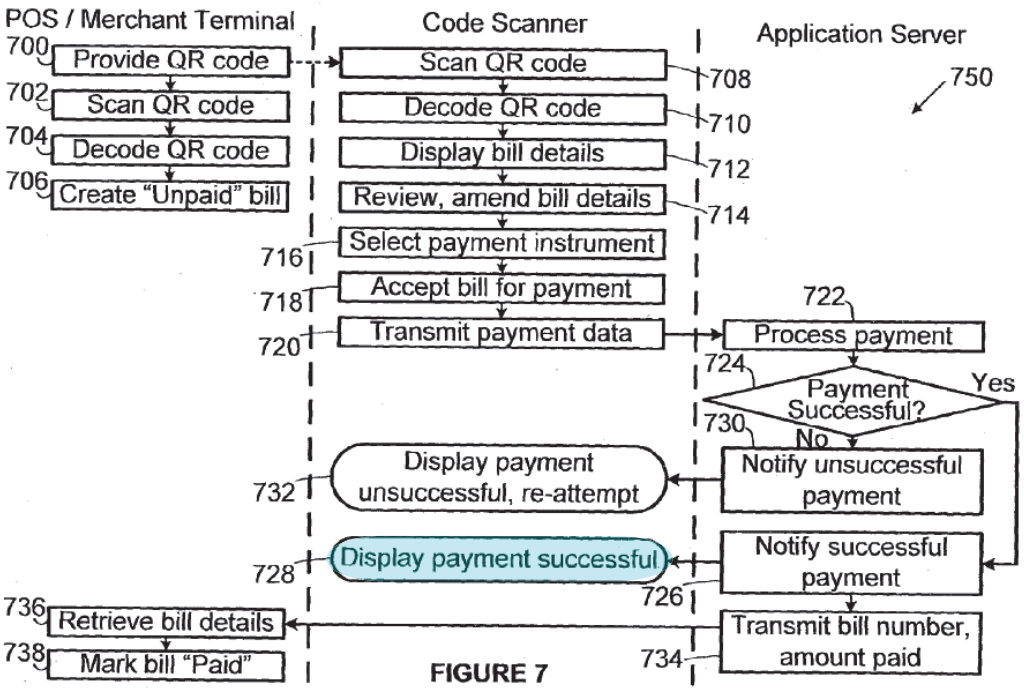
295. Thus, it was well known in the art to make a POS terminal and a merchant terminal into one integrated component in a contactless payment system, as shown by Granucci.

296. A POSITA would have been motivated to modify Moshal so that the payment gateway 102 sends a message directly to the POS device that a monetary transaction per the payment request sent from the mobile device has been successfully completed, because then the POS device is informed of a successful transaction, as disclosed by Jogu. **GOOG-1006**, 6 ("[T]he [payment gateway] 10 updates the prepaid balance by subtracting the payment amount from the prepaid balance of the virtual account 110, and notifies the POS terminal 27 of the completion of the payment."), Fig. 6, 15 ("[T]he data processing unit 301 transmits the payment completion information to the POS terminal 27 (S907 [in Fig. 22])."). Further, it was known to POSITAs that sending a notification of a successful transaction directly from the payment gateway to the POS device may reduce the risk of fraud. **GOOG-1011**, ¶ 62 ("Sending the result to the billing device [POS terminal] from the [payment] gateway 14, rather than from the paying device [mobile device] 16a, may reduce the risk of fraud.")).

p. [1.11] displaying a confirmation in the mobile device that the balance in the e-purse has been reduced by the total amount.

297. Limitation [1.11] would have been obvious in light of the teachings of Moshal and Jogu.

298. With reference to Fig. 7 below, Moshal discloses that the mobile device displays confirmation that the payment has been successful (step 728). **GOOG-1005**, ¶ 56 ("At block 724, the application server 102 can determine whether the payment was successful. The payment processor transmits a payment status indicator, for example, either successful or unsuccessful. If the payment status is successful, the application server 102 notifies the scanner app 164, at block 726, that **payment has been successful and the displayed page refreshes to indicate that the diner's bill has been paid (block 728)**.") (emphasis added).

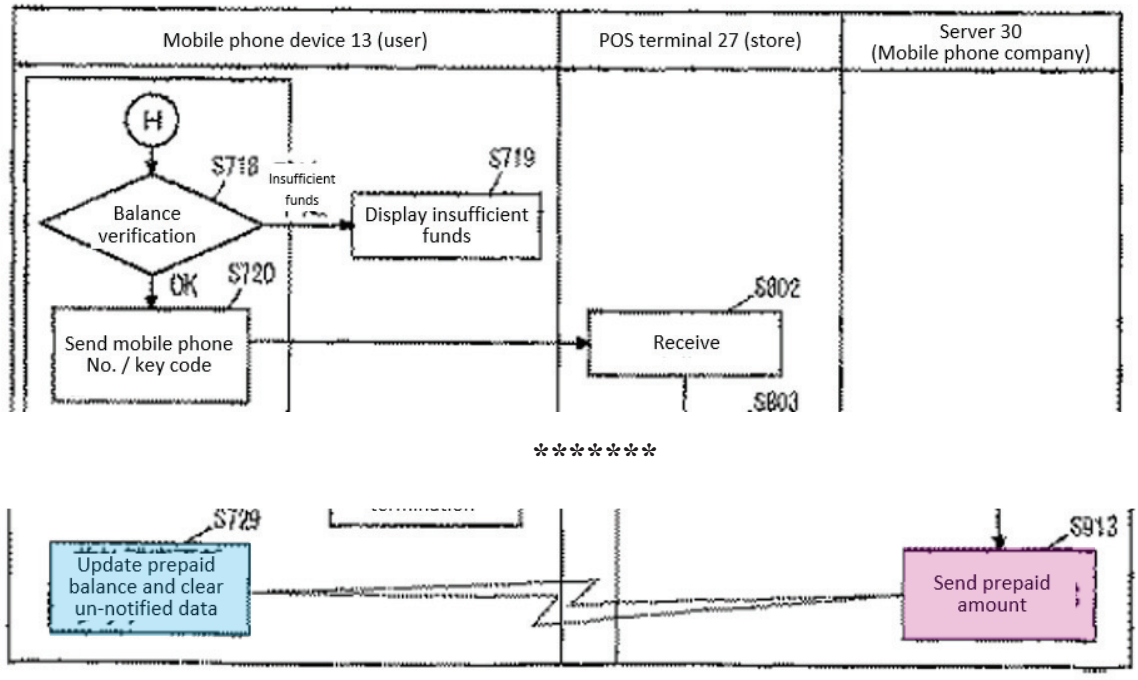


GOOG-1005, Fig. 7 (annotated)

299. When using the e-wallet payment option in Moshal, it would have been obvious as part of this successful payment display to also display the reduced balance in the e-wallet, as doing so was a conventional e-wallet technique. For example, Jogu teaches that when a transaction has been successfully conducted, the balance on the mobile phone is updated to reflect the completed transaction (S729 in Fig. 22). In another embodiment, Jogu discloses that the updated balance is displayed on the mobile device as part of the confirmation that payment with the account balance was successful (S432 in Fig. 73). These balance updating and payment confirmation features of Jogu are shown below in Figs. 22 and 73.

300. As shown in the excerpt of Figure 22 below, Jogu discloses that the payment gateway 10 sends the updated balance to the mobile device 13 (step S913), and the mobile device 13 updates the balance stored on the mobile device 13 (step S729). **GOOG-1006**, 14-15 ("[T] the data processing unit 301 transmits the latest prepaid balance to the mobile phone 13 (S913). The mobile phone 13 receives the prepaid balance transmitted from the server 30 of the mobile phone company 10, and the prepaid balance stored in ARM 132 is updated so that it becomes the same as the received prepaid balance, and the unreported data is cleared (S729).").

FIG. 22

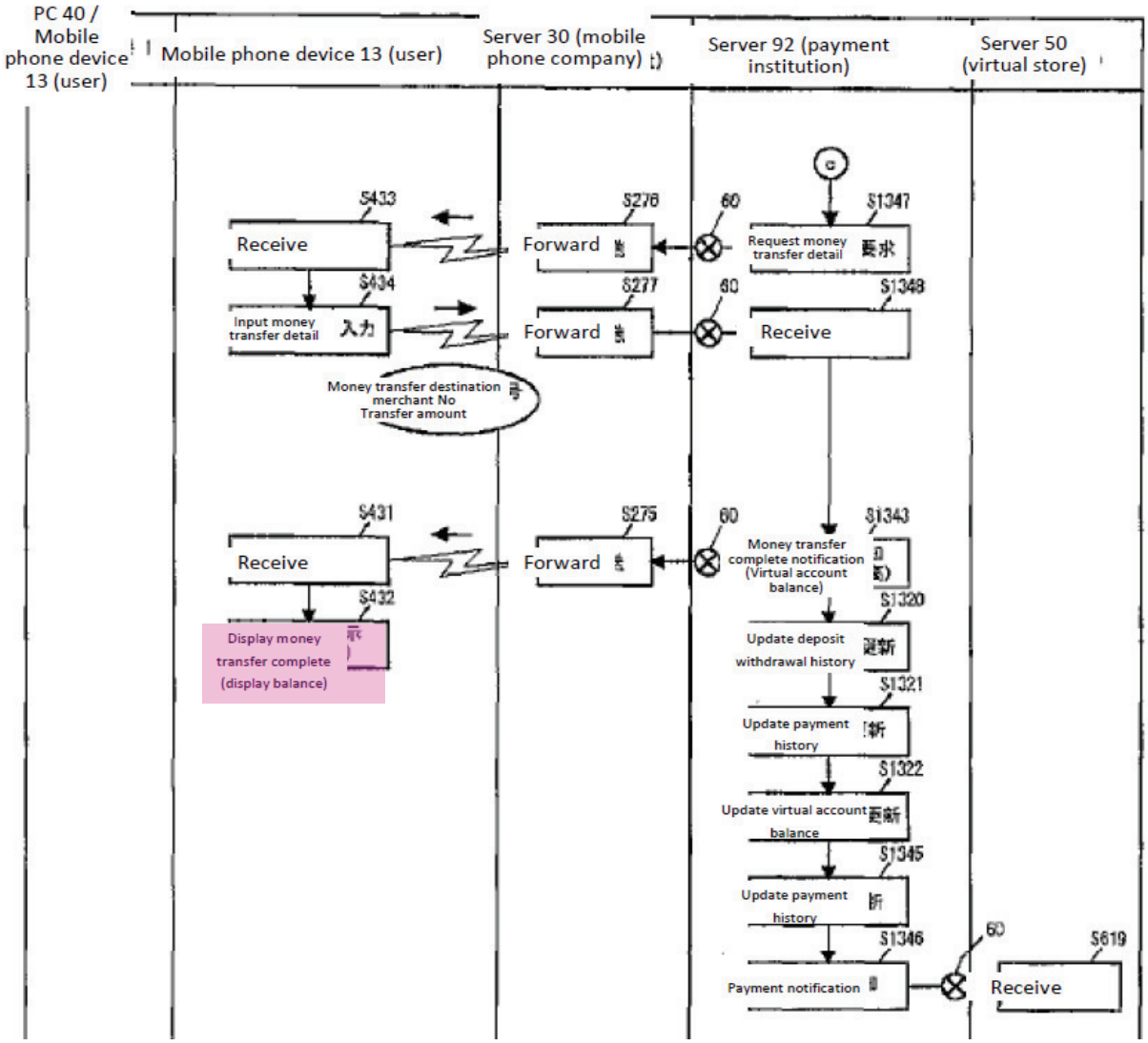


GOOG-1006, Fig. 22 (annotated)

301. Thus, Jogu discloses that when using an account with a balance in a mobile device's e-wallet, it was known that when the transaction is successful, the payment gateway 30 reduces the balance in response to the transaction, and the balance is updated (reduced) in the mobile phone (step S729 in Fig. 22). This updating is advantageous to the mobile device user because he or she would then know the current balance before deciding whether the e-purse has sufficient funds to use that balance for another transaction.

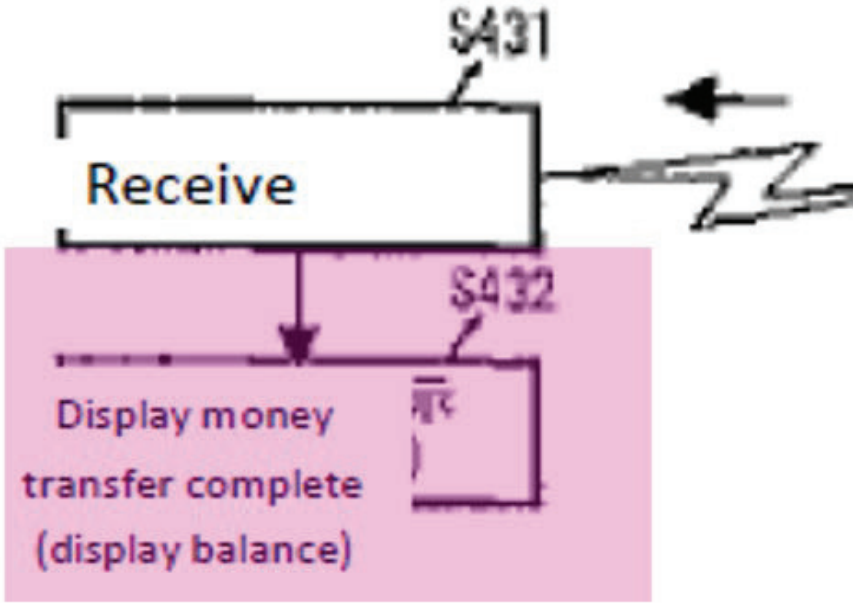
302. Further, with reference to Fig. 73 below, Jogu discloses that the updated (reduced) balance is displayed as part of the confirmation that payment with the account balance was successful. **GOOG-1006**, 34 ("In mobile phone 13, the transmission / reception unit 135 receives the remittance completion notification sent from the payment institution 90 via the mobile phone company 10 (S431), and further, the data processing unit 131 **displays the remittance completion on the display device 137 together with the virtual account balance after the remittance (S432)**.").

FIG. 73



GOOG-1006, Fig. 73 (annotated excerpt)

Below is an enlarged version of the pertinent portion of Fig. 73:



GOOG-1006, Fig. 73 (enlarged, annotated excerpt)

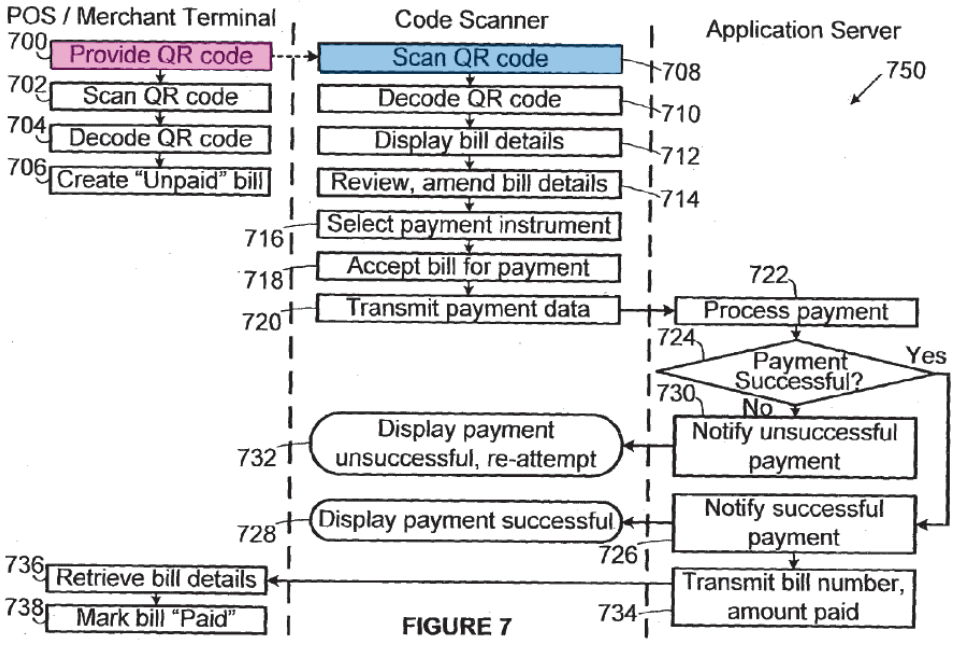
303. Thus, Jogu discloses that when using an account with a balance in a mobile device's e-wallet, it was known that when the transaction is successful, the payment gateway 30 confirms the successful transaction and reduces the balance in response to the transaction, in one combined operation (step S432 in Fig. 73). This confirmation and display of an updated balance is advantageous to the mobile device user because he or she would then have contemporaneous confirmation that a transaction was successfully conducted and would know the current balance before deciding whether the e-purse has sufficient funds to use that balance for another transaction. A POSITA would have been motivated to modify Moshal to provide this confirmation of a reduction in the balance completion of a successful transaction for the reasons presented above in Section X.D.2.

304. Accordingly, for at least the foregoing reasons, claim 1 is obvious over Moshal, Jogu, and Dessert.

2. Claim 2

a. [2.0] The method as recited in claim 1, wherein said causing a mobile device to capture data directly from a tag physically presented thereto includes placing the mobile device near the tag.

305. Moshal teaches [2.0]. With reference to Figure 7 below, Moshal discloses that the waiter presents the tag to the consumer with the restaurant bill (step 700), and the consumer uses the scanner app 164 and scanner 156 (see Fig. 4) on the consumer's mobile device to scan the tag when the mobile device is near the tag (step 708). **GOOG-1005**, ¶¶ 54-55.



GOOG-1005, Fig. 7 (annotated)

> Upon completion of the meal the diner can request a bill for payment from a waiter. The waiter can draw up a bill that contains, for example, a name and address of the restaurant, a waiter identification, a table number, a description and a corresponding cost of each item consumed during the meal, any tax such as sales tax or value-added tax included in the bill, and a total amount due. At block 700 the POS terminal 104 can provide a payment QR code that encodes the merchant identification code 140 in the merchant profile 142, a bill identification code or number, and all the details contained in the bill….

GOOG-1005, ¶ 54.

> The bill and the payment QR code can be provided, individually or in combination, to the diner. For example, the POS terminal 104 may print a hardcopy of the bill that contains the payment QR code, or may print the QR code separately to a hardcopy of the bill. At block 708, the user can use the scanner app 164 and the scanner 156 to scan the payment QR code on the hardcopy of the bill. At block 710, the scanner app 164 decodes the scanned payment QR code to recover the encoded data that it contains namely, the merchant identification code, the bill identification number and the bill details.

GOOG-1005, ¶ 55.

306. Thus, Moshal discloses that the tag is physically presented to the user's mobile device, and the mobile device user places the mobile device near the tag to scan the tag. **GOOG-1005**, ¶¶ 54-55.

307. Further, as described above in Section X.D.3, a POSITA would have found it obvious to utilize any machine-readable tag (e.g., QR tag, RFID tag, NFC tag), as such machine-readable tags were known to be interchangeable. *See* **GOOG-1007** (Dessert), 6:20:34 and **GOOG-1010** (Park), ¶¶, 52, 137 (both references describing interchangeable use of QR tags, RFID tags, and NFC tags).

3. Claim 3

a. [3.0] The method as recited in claim 2, wherein the POS device provides security and authentication to generate the electronic bill and transfer the data to the tag.

308. Limitation [3.0] would have been obvious in light of the teachings of Moshal and Dessert. As discussed above with respect to limitations [1.1.2] and [1.1.3], Moshal discloses that the POS device 104 prepares and presents the tag (QR code) at step 700 (modified tag, *see* Section X.D.3), where the tag includes an electronic bill with "the merchant identification code 140 in the merchant profile 142, a bill identification code or number, and all the details contained in the bill." **GOOG-1005**, ¶¶ 54, 55.

309. With reference to Figure 1 below, Dessert illustrates that it was known for a POS device (Merchant POS System 12) to provide security (NFC-linked "secure-element") and authentication (unique terminal identifier and merchant identifier) to generate the electronic bill and transfer the data to a tag (124) that is scanned by a customer's mobile device (100), as described below.

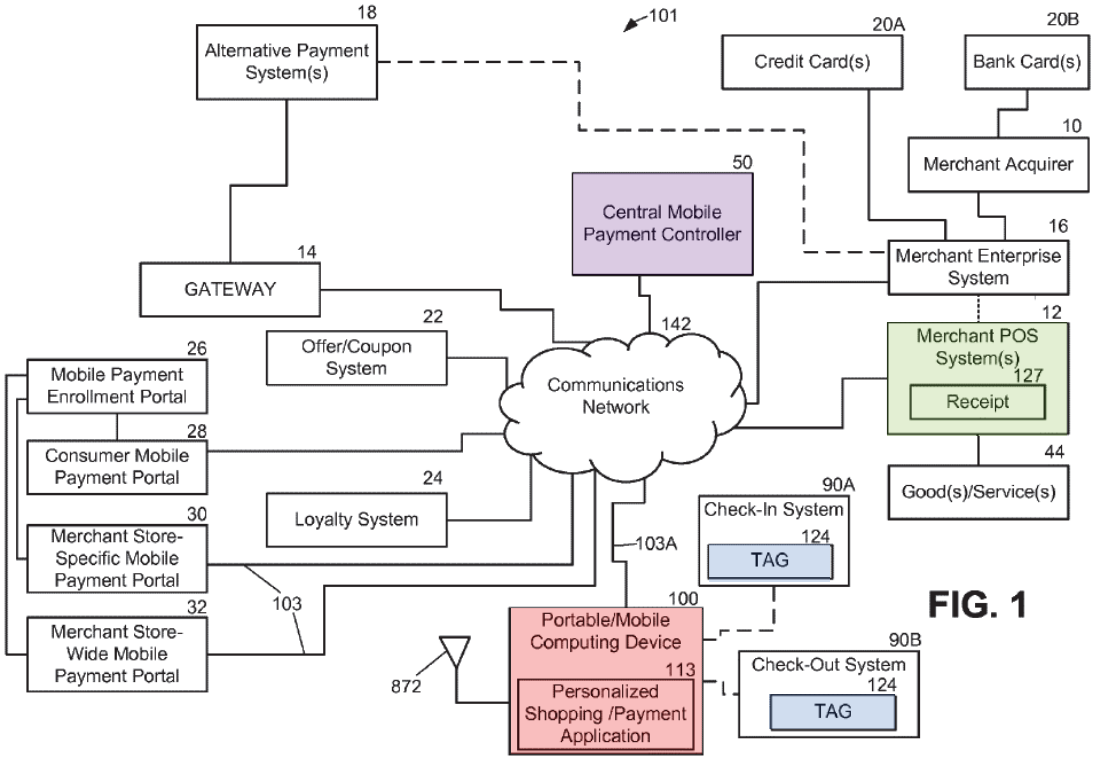


FIG. 1

GOOG-1007, Fig. 3 (annotated)

310. Dessert discloses that the tag 124, which "may be coupled to an electronic cash register ('ECR'),…may comprise a unique merchant identifier and a unique terminal (or electronic cash register) identifier that helps the [mobile device] 100 to manage point-of-sale (POS) transactions." **GOOG-1007**, 5:7-21, 12:11-16 (unique identifiers are "contained within the machine-readable code and/or associated with the code."). Dessert discloses that the mobile device 100 "retrieve[s] the unique terminal identifier and the merchant identifier associated with a tag 124 of a check-out system 90B which is affixed to the ECR 412 of the [POS device] 12…by scanning the tag 124 with the camera 848 or with a near-

field-communication ("NFC") antenna 879 [of the mobile device]." **GOOG-1007**, 7:12-20.

311. Further, Dessert discloses that additional security measures are utilized for the POS device 12 to generate the tag 124. Dessert discloses that the tag 124 (machine-readable code) may be an NFC tag which is "**linked to a secure-element**." GOOG-1007, 6:25-34, 11:65-12:7. Thus, Dessert discloses that the tag 124 is created with a "secure-element," and the tags 124 are provided in the premises of the POS device (e.g., on electronic cash registers (ECRs)). GOOG-1007, 6:1-14, 6:25-34, 11:65-12:7. Therefore, Dessert discloses that the POS device provides security to generate the tag.

> An operator (also referred to as a PCD consumer) of the PCD 100 may physically enter an establishment of a merchant, such as a store. The operator "checks-in" with the merchant's enterprise system 16 using his or her PCD 100. An operator may check-in with the enterprise system 16 using a check-in system 90A in combination with the PCD 100. **The check-in system 90A may comprise a machine-readable tag 124 that is presented at an entrance to a merchant's store or in various locations within a particular store**. In other exemplary embodiments, **the tag 124 may be coupled to individual products within a merchant's premises**. In other cases, the tag 124 may be provided on any object in order to initiate a transaction using the portable computing device 100.

GOOG-1007, 6:1-17 (emphases added).

> The machine-readable code 222 may comprise either a one dimensional or two-dimensional barcode. Further, other machine-readable codes are included within the scope of the invention and may include contactless technologies, such as near-field communications (NFC), WiFi, acoustic, which may or may not be **linked to a secure-element**, and RFID cards as understood by one of ordinary skill in the art. For these contactless technologies, the tag 124 may comprise an antenna 224 coupled to an integrated-circuit chip (not illustrated).

GOOG-1007, 6:25-34 (emphasis added).

> As noted above, the machine-readable code 222 may comprise either a one dimensional or two-dimensional barcode. Further, other machine-readable codes are included within the scope of the invention and may include contactless technologies, such as near-field communications (NFC) which may or may not be **linked to a secure-element**, and RFID cards as understood by one of ordinary skill in the art. For these contactless technologies, the tag 124 may comprise an antenna 224 coupled to an integrated-circuit chip (not illustrated).

GOOG-1007, 11:65-12:7 (emphasis added).

312. Dessert discloses that the payment gateway (central mobile payment controller) 50 utilizes theunique terminal identifier and merchant identifier included in the tag 124, to authenticate the POS device 12 when authorizing the transaction conducted with the tag 124. **GOOG-1007**, 7:21-52 (describing that the "unique terminal (or ECR) identifier and merchant identifier retrieved by the [mobile device] 100 may be relayed back to the [payment gateway] 50 along with

a personal identification number ('PIN')" to (i) authenticate the POS device together with "product scan data" about the product being scanned, and (ii) approve the transaction conducted with the tag 134 scanned by the mobile device 100). Thus, Dessert discloses that the POS device 12 the POS device provides security (NFC-linked secure-element) and authentication (unique terminal identifier and merchant identifier) to generate the electronic bill and transfer the data to the tag 134.

313. A POSITA would have been motivated to modify Moshal so that its POS terminal 104 provides security (e.g., a NFC-linked secure-element) and authentication (e.g., POS device identifier) to generate the electronic bill and transfer the data to the tag, because doing so would promote security in the transaction and facilitate authorization of a transaction using such information provided in the tag scanned by the mobile device, as taught by Dessert. **GOOG-1007**, 7:1-7.

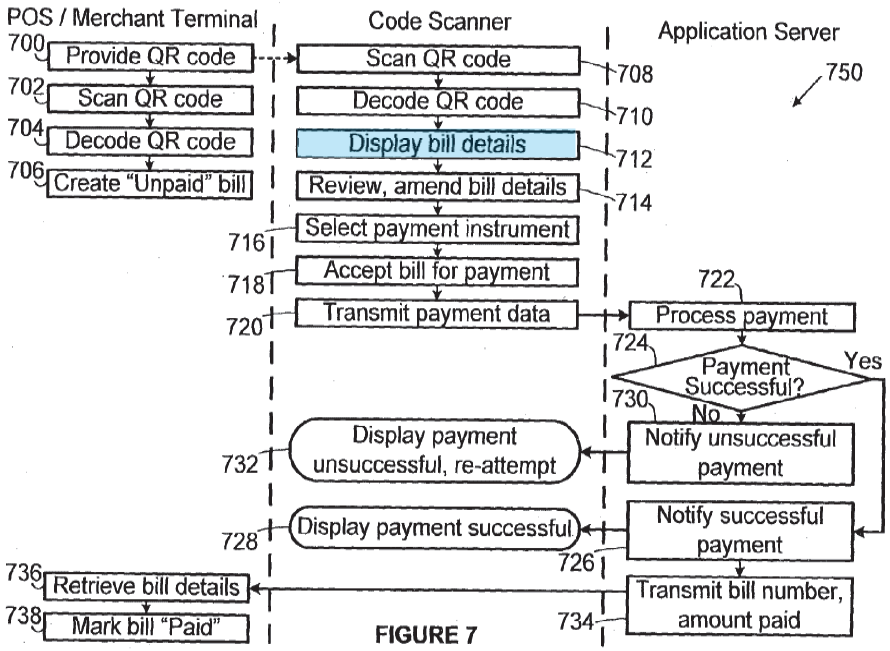
4. Claim 4

314. Moshal discloses all the features of claim 4.

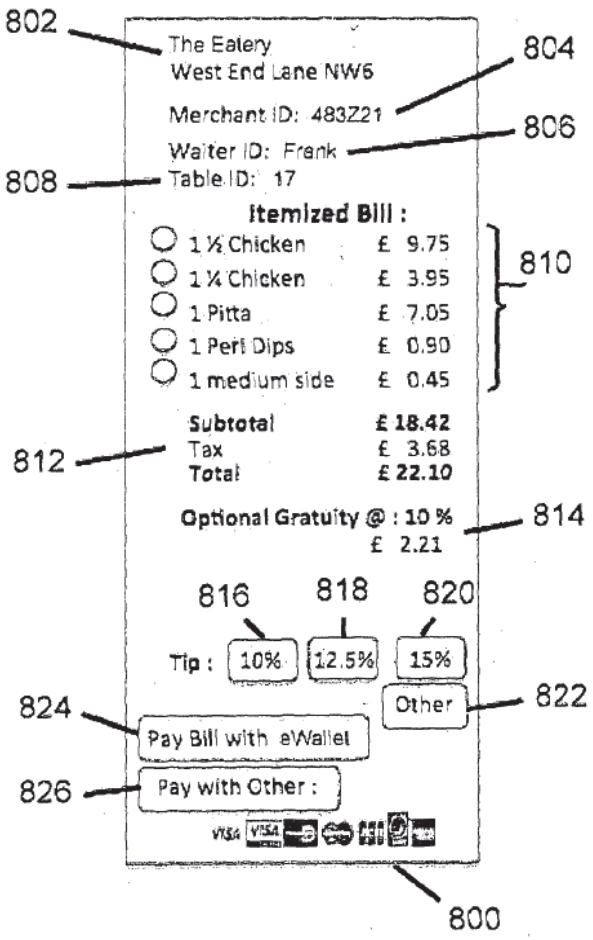
a. [4.0] The method as recited in claim 1, wherein said displaying the electronic invoice on the display of the mobile device comprises:

315. As described above with respect to [1.6], Moshal discloses that the mobile device displays the electronic invoice on the display of the mobile device

(code scanner). **GOOG-1005**, ¶ 55, Figs. 7, 8 (step 712 in Fig. 7, displayed invoice 800 in Fig. 8).



GOOG-1005, Fig. 7 (annotated)

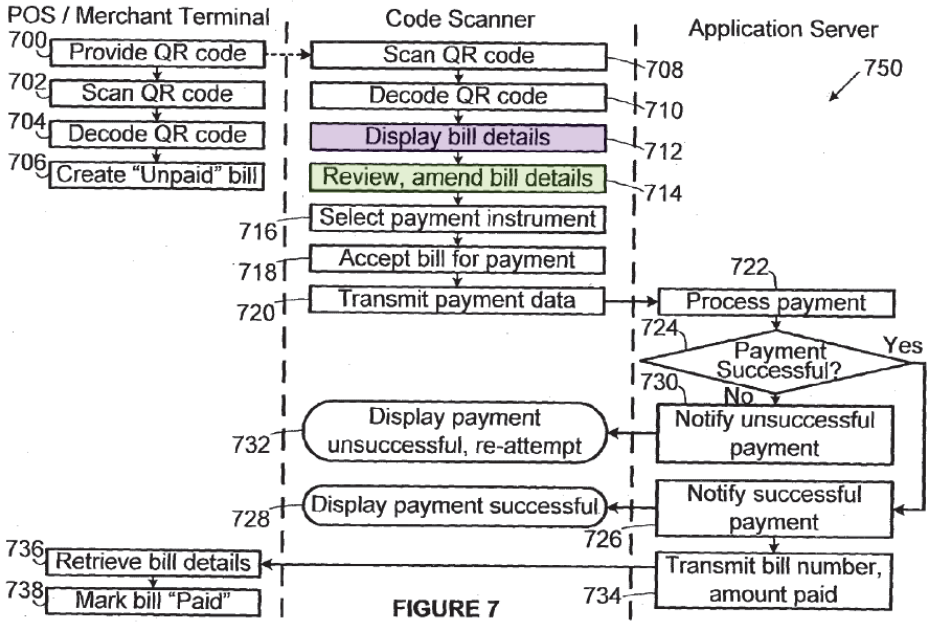


GOOG-1005, Fig. 8

b. [4.1] allowing the user to verify the amount in the electronic invoice and make a change to the amount when needed; and

316. Moshal teaches the features of limitation [4.1]. Moshal teaches that the user reviews (verifies) the amount in the electronic invoice and makes changes to the amount when needed. With reference to Figs. 7 and 8 below, the user of the mobile device 106 reviews the invoice 800 displayed on the mobile device and amends the bill details. **GOOG-1005**, ¶ 55 ("At block 712, the scanner app 164 displays a page 800 on the user interface 154 with all the bill details, as illustrated

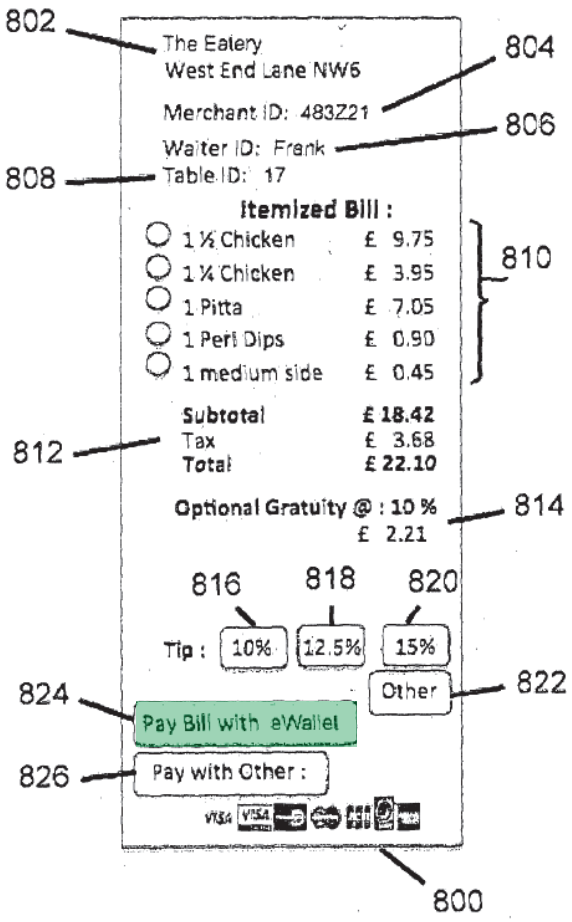
in FIG. 8. At block 714 of FIG. 7 **the user can review the bill details displayed on page 800 and amend the displayed data, if necessary. After reviewing and amending the data on page 800**, the user can select, at block 716, a payment instrument to pay the bill.").



GOOG-1005, Fig. 7 (annotated)

c. [4.2] paying the total amount with the e-purse.

317. Moshal also teaches [4.2]. As shown in Fig. 8 below, the mobile device user may pay for the invoice with the e-wallet (e-purse as claimed in the '046 Patent) using icon 824 displayed on the mobile device. GOOG-1005, ¶58.



GOOG-1005, Fig. 8 (annotated)

5. Claim 5

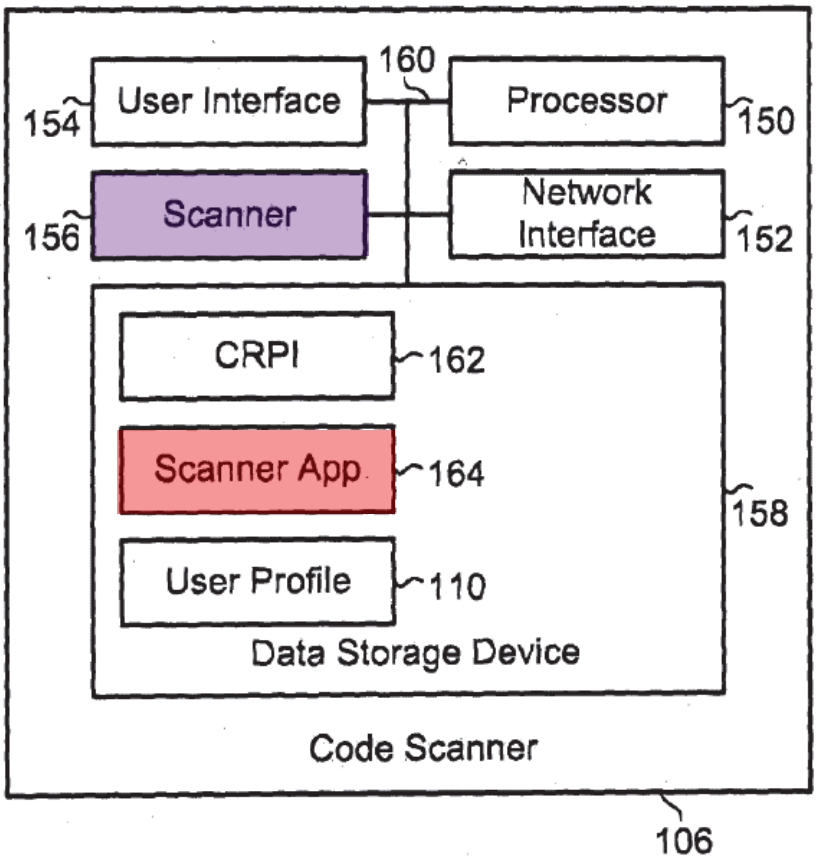
a. [5.0] The method as recited in claim 1 further comprising: causing the mobile device to execute an installed module upon detecting the POS device in a near field of the mobile device,

318. The features of limitation [5.0] would have been obvious to a POSITA in light of the teachings of Moshal and Dessert, as described below.

319. Moshal discloses that the mobile device (code scanner) 106 executes an installed module (scanner app) to scan a tag (QR code) when the mobile device

is in a near field of the POS device (e.g., the mobile device user is presented with the tag at a restaurant at the conclusion of a meal). **GOOG-1005**, ¶ 55 ("The bill and the payment QR code can be provided, individually or in combination, to the diner. For example, the POS terminal 104 may print a hardcopy of the bill that contains the payment QR code, or may print the QR code separately to a hardcopy of the bill. At block 708, the user can use the scanner app 164 and the scanner 156 to scan the payment QR code on the hardcopy of the bill.").

320. With reference to Figure 4 below, Moshal discloses that the user of the mobile device downloads the scanner app 164 and installs it on the mobile device to scan a tag in connection with the scanner 156. **GOOG-1005**, ¶¶ 41-42, 55.



GOOG-1005, Fig. 4 (annotated)

321. It was well known for readable tags to be coupled to equipment at a merchant's business and/or coupled to products at a merchant's business. For example, Dessert discloses that the personalized shopping/payment application 113 of the mobile device 100 scans machine-readable tags 124 "coupled to an electronic cash register (ECR) 412" at a merchant's retail store 12 (check-out system 90B), as shown in Figure 4 below. **GOOG-1007**, 5:4-14 (mobile device uses application 113 to scan machine-readable tags 124 at ECR), 6:1-14 (tags

provided in merchant premises and/or on individual products). Dessert discloses that the scan tag module 316A of the application 113 installed on the mobile device 100 automatically activates the mobile device's camera 848 to focus and scan on a tag 124. **GOOG-1007**, 15:9-10. Thus, Dessert discloses that the mobile device application 113 is executed upon detecting that a POS device (ECR with a tag coupled thereto) is in a near field of the mobile device 100.

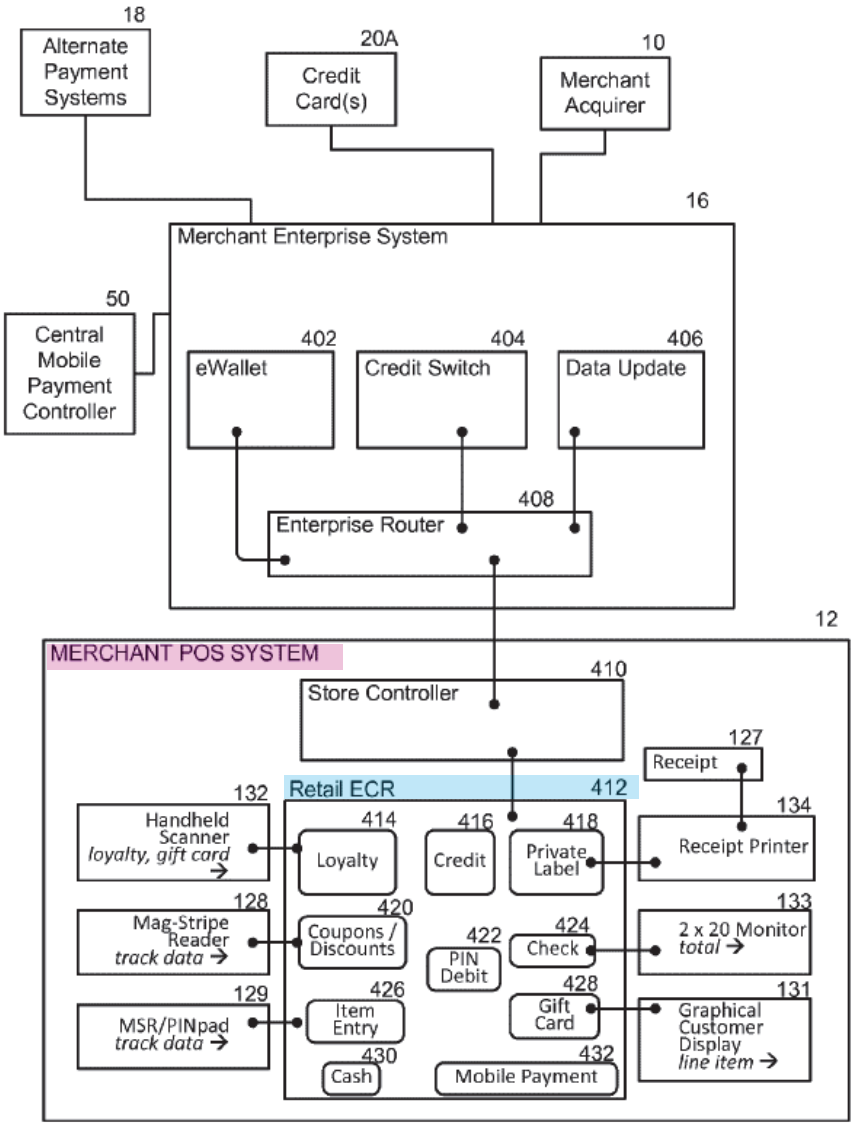


FIG. 4

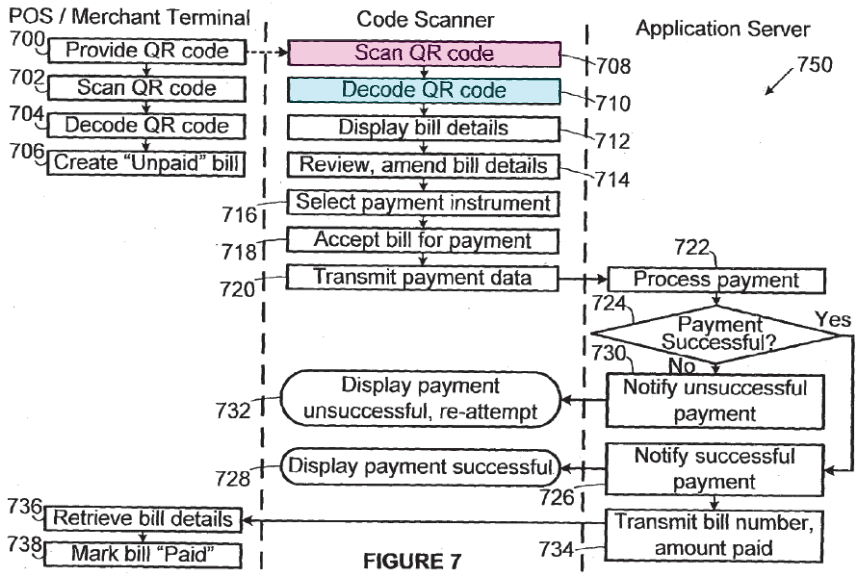
GOOG-1007, Fig. 4 (annotated)

b. [5.1] wherein the installed module is executed to receive the data directly from the tag carrying the electronic invoice and the settlement information.

322. Moshal teaches [5.1] because, as explained above with respect to limitation [1.2.3], Moshal discloses that the installed module (scanner app) 164 of

the mobile device (code scanner) 106 receives the data directly from the tag (QR code) carrying the electronic invoice and the settlement information, as discussed below.

323. With reference to Fig. 7 below, Moshal's scanner app 164 decodes the tag (step 710) to obtain the electronic invoice and settlement information from the scanned tag (step 708). **GOOG-1005**, ¶ 55 ("At block 708, the user can use the scanner app 164 and the scanner 156 to scan the payment QR code on the hardcopy of the bill. At block 710, the scanner app 164 decodes the scanned payment QR code to recover the encoded data that it contains namely, the merchant identification code, the bill identification number and the bill details.").



GOOG-1005, Fig. 7 (annotated)

6. Claim 12

a. [12.0] A method for mobile payment, the method comprising:

324. Limitation [12.0] is identical to limitation [1.0]. Limitation [12.0] is disclosed by Moshal for the same reasons presented above with respect to limitation [1.0].

b. [12.1] generating a set of data in a point of sale (POS) device, the data including an electronic invoice and settlement information with a merchant associated with the POS device;

325. Moshal teaches [12.1]. With reference to Fig. 7 below, Moshal discloses that the POS terminal 104 creates and provides a set of data (in the form of a QR code) to be scanned by the user's mobile device 106 to pay the transaction (step 700). **GOOG-1005**, ¶¶ 54-55. To create the QR code, the POS terminal 104 generates a set of data including an electronic invoice (bill details) and settlement information (merchant identification code and bill identification code) with a merchant associated with the POS device. **GOOG-1005**, ¶ 54 ("At block 700 the POS terminal 104 can provide a payment QR code that encodes the merchant identification code 140 in the merchant profile 142, a bill identification code or number, and all the details contained in the bill.").

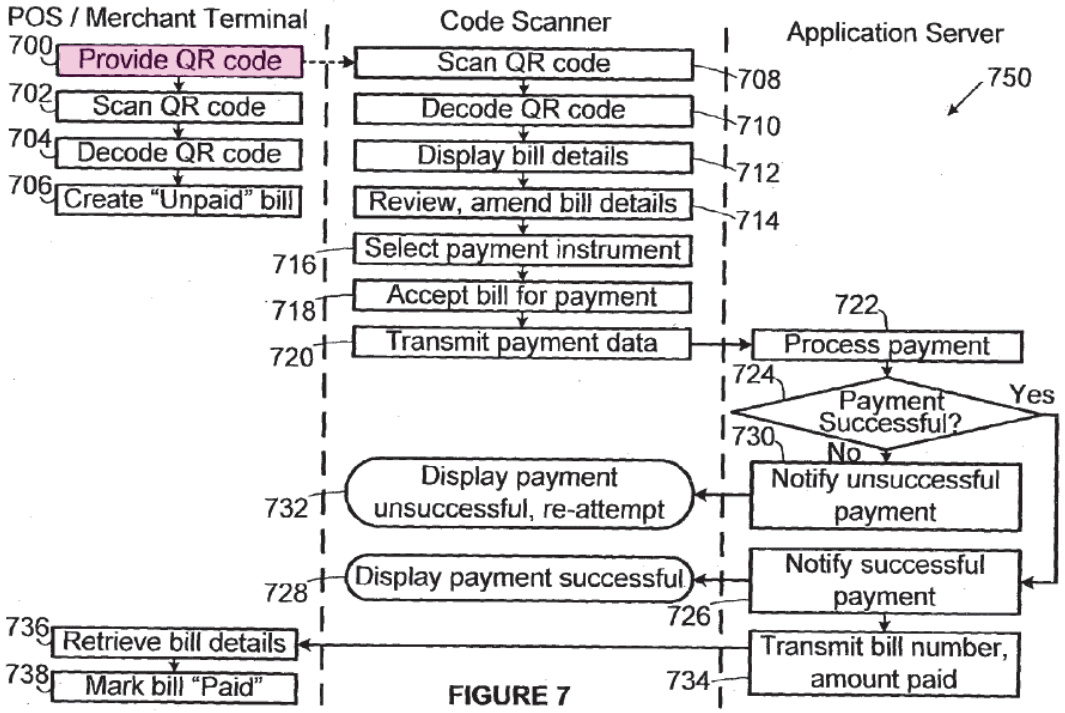


FIGURE 7

326. Moshal confirms that the set of data that is generated by the POS device and encoded into the tag includes an electronic invoice and settlement information with a merchant associated with the POS device, because Moshal discloses that the mobile device, by operating the scanner app at step 710, "decodes the scanned payment QR code to recover the encoded data that it contains namely, the merchant identification code, the bill identification number and the bill details." **GOOG-1005**, ¶ 55.

327. Like claim 1, claim 12 does not require that the tag is an RFID tag or an NFC tag. A POSITA reading the "term" tag in claim 12 would understand it to include QR tags, such as those taught in Moshal. As described above in Section

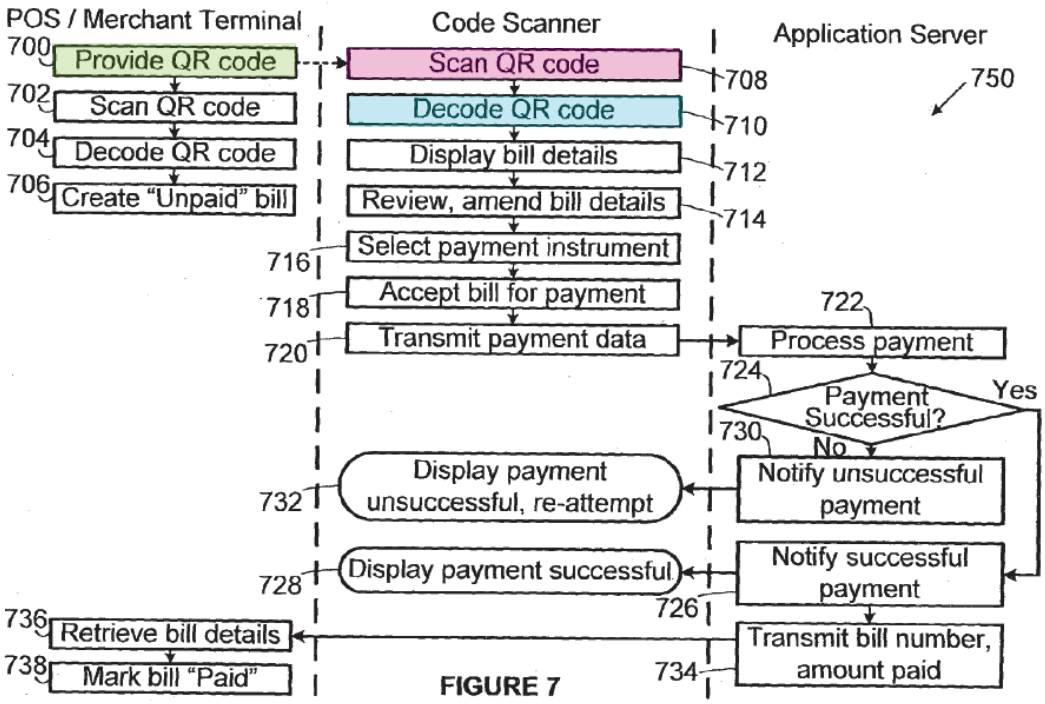
X.D.3 and Section X.E.1.b (limitation [1.1.1]), to the extent that claim 12 is interpreted as requiring an unrecited feature of RFID tags or NFC tags, a POSITA would have found it obvious to utilize an RFID or NFC tag, as taught by Dessert, to store Moshal's invoice and merchant information so that it may be read by Moshal's modified scanner. Such a modification is functionally equivalent and achieves the same result of encoding information in a readable format. As described above in in Section X.D.3 and Section X.E.1.b, Dessert, 6:20:34, and Park (**GOOG-1010**), ¶¶, 52, 137 both describe the interchangeable use of QR tags, RFID tags, and NFC tags.

328. Accordingly, limitation [12.1] is taught by Moshal. Limitation [12.1] is also rendered obvious in view of the teachings of Moshal and Dessert by modifying Moshal to include the conventional features of utilizing tags such as QR codes, RFID tags, and NFC tags, as described above in Section X.D.3.

c. [12.2] embedding the data directly to a tag;

329. Limitation [12.2] is obvious in view of the teachings of Moshal and Dessert. Moshal discloses that the data is embedded (encoded) directly to the modified tag. As discussed above in Section X.D.3, it would have been obvious to modify Moshal to utilize conventional types of contactless tags ("modified tag") such as QR codes, RFID tags, and NFC tags, as taught by Dessert.

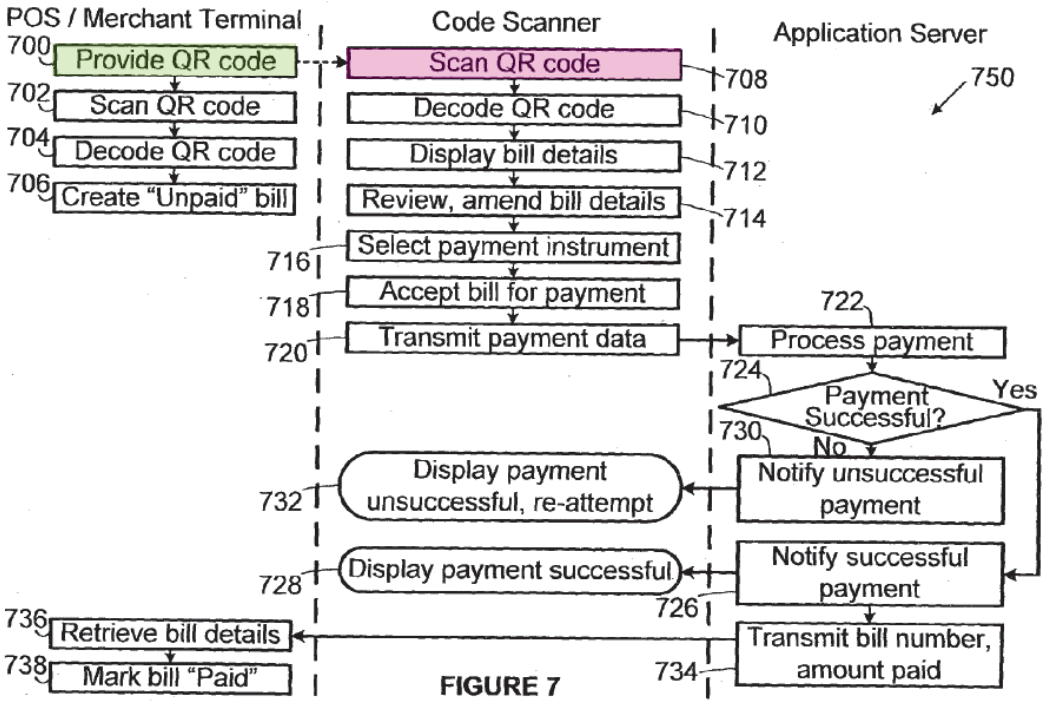
330. With reference to Figure 7 below, Moshal discloses that at step 700, the POS terminal 104 provides a tag (QR code) that "**encodes** the merchant identification code 140 in the merchant profile 142, a bill identification code or number, and all the details contained in the bill." **GOOG-1005**, ¶ 54. As further confirmation that that the data is embedded into a tag, Moshal discloses that the customer's mobile device 106 scans and decodes the tag (steps 708 and 710 in Fig. 7) to obtain the data encoded in the tag. **GOOG-1005**, ¶ 55. Thus, Moshal discloses embedding the data directly to a tag.



GOOG-1005, Fig. 7 (annotated)

d. [12.3] presenting the tag to a mobile device;

331. Limitation [12.3] is rendered obvious by Moshal and Dessert. With reference to Figure 7 below, Moshal discloses that the modified tag (see Section X.D.3 above) is presented to the mobile device (step 700), and the mobile device scans and decodes the modified tag (steps 708 and 710). Moshal explains that the "bill and the payment QR code can be provided, individually or in combination, to the diner," who uses the mobile device to scan the tag (step 708). **GOOG-1005**, ¶ 55. Thus, Moshal discloses that the modified tag is presented to a mobile device.



GOOG-1005, Fig. 7 (annotated)

e. [12.4.1] causing the mobile device to capture the data from the tag,

332. Limitation [12.4.1] is obvious in view of the teachings of Moshal and Dessert. Moshal teaches that the mobile device captures (scans) the data from the modified tag (see Section X.D.3 above) presented to the mobile device. As described above with respect to limitations [12.2] and [12.3], the data is embedded to the modified tag, and the modified tag is presented to the mobile device. With reference to Figure 7 below, Moshal discloses that at step 708, the user of the mobile device can "use use the scanner app 164 and the scanner 156 to scan the payment QR code," and at step 710, "the scanner app 164 decodes the scanned payment QR code to recover the encoded data that it contains namely, the merchant identification code, the bill identification number and the bill details." **GOOG-1005**, ¶ 55. Thus, Moshal discloses that the mobile device captures the data from the tag. As discussed above in Section X.D.3, it would have been obvious to modify Moshal to utilize the modified scanner to read/scan conventional tags such as QR codes, RFID tags, and NFC tags, as disclosed by Dessert.

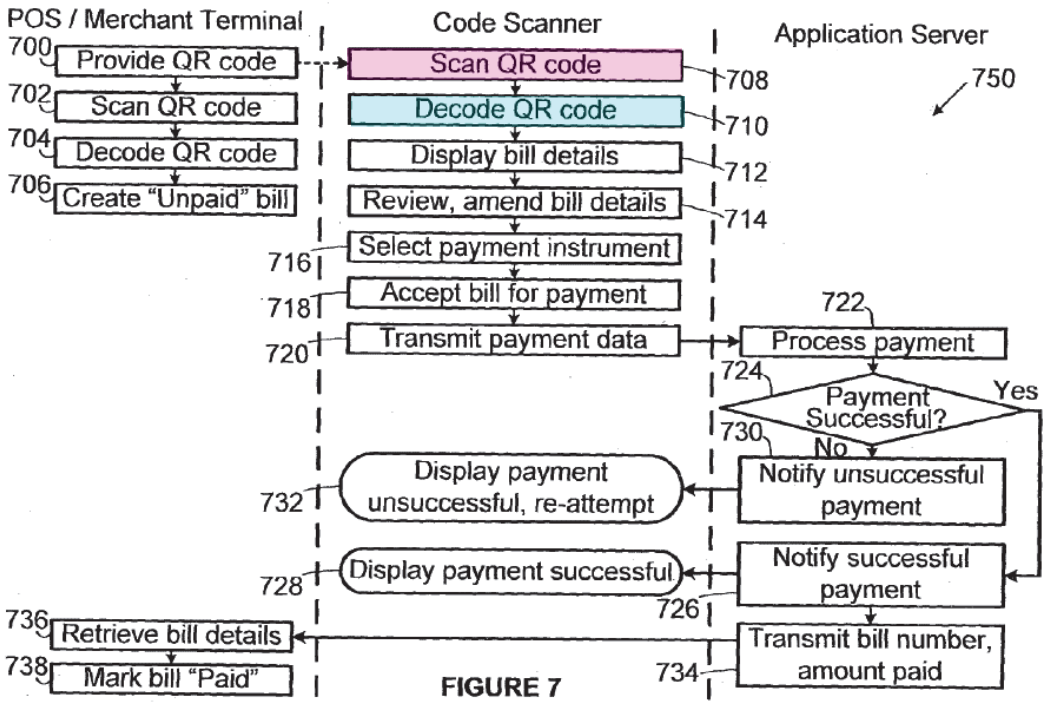


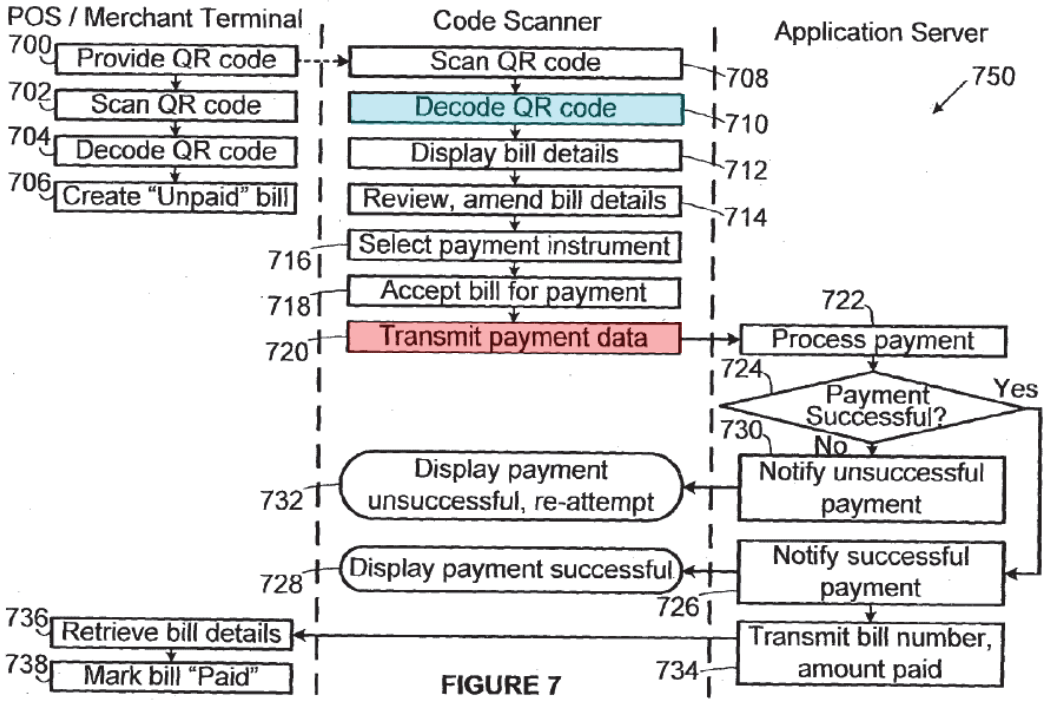
FIGURE 7

GOOG-1005, Fig. 7 (annotated)

f. [12.4.2] wherein the mobile device executes an installed application therein to retrieve an amount in the electronic invoice from the data and generate a payment request in response to the captured data,

333. As described above with respect to [12.4.1], the mobile device 106 has a "scanner app" installed therein (scanner app 164 in Fig. 4). **GOOG-1005**, ¶ 48 ("Data storage device 158 includes computer-readable program instructions (CRPI) 162, the scanner app 164, and a user profile 110."). The scanner app (modified scanner) is used by the mobile device to retrieve an amount in the electronic invoice from the data and generate a payment request in response to the captured data, as recited in [12.4.2].

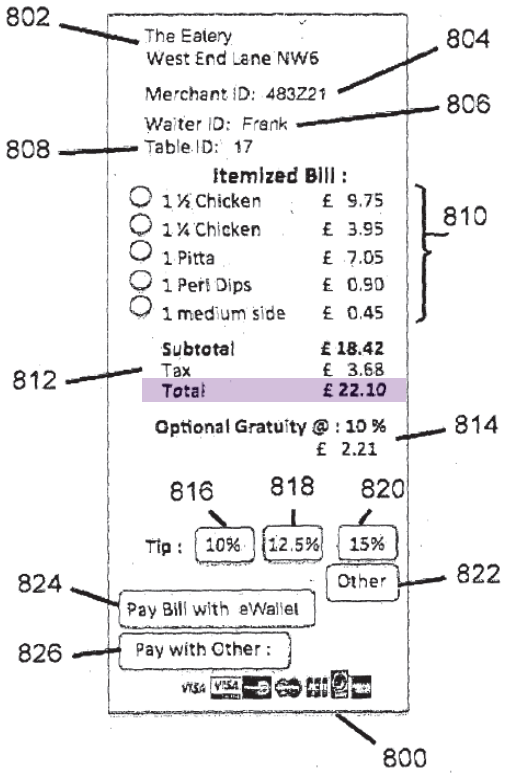
334. With reference to Figure 7 below, Moshal discloses that the mobile device executes the scanner app to decode the tag (step 710) and retrieve an amount in the electronic invoice contained in the tag. **GOOG-1005**, ¶ 55 ("At block 712, the scanner app 164 displays a page 800 on the user interface 154 with **all the bill details**, as illustrated in FIG. 8.") (emphasis added).



GOOG-1005, Fig. 7 (annotated)

335. As described above, the tag produced by the merchant POS contains all the bill details (**GOOG-1005**, ¶¶ 54-55), which corresponds to the "electronic invoice" recited in claim 12. Figure 8 below illustrates the invoice 800 that is created by decoding the tag (step 710) and displayed on the mobile device (step

712, **GOOG-1005**, ¶ 55), where the invoice 800 includes the name and address of the merchant 802, merchant identification code 804, bill identification code, and all the details contained in the bill 810. **GOOG-1005**, ¶¶ 54-55, 58. As shown in the invoice 800 illustrated in Figure 8, the invoice includes a "Total" amount (£ 22.10) that was contained in the tag (i.e., the original invoice amount).



GOOG-1005, Fig. 8 (annotated)

336. As shown in Figure 7 above, the mobile device user then uses the scanner app to generate and transmit a payment request (step 720) after the user has reviewed the bill details and made any alterations, as needed (step 714), selected a payment instrument (step 716) (e.g., selecting to pay with the e-wallet

by using icon 824 in Figure 8), and accepted the bill for payment (step 718).

GOOG-1005, ¶ 55 ("The scanner app then transmits to the application server 102, at block 720, the merchant identification code, the bill identification number, the amount due and the details of a payment instrument to be used for payment....").

Thus, Moshal discloses [12.4.2].

g. [12.4.3] the payment request is denied in the mobile device when the amount is more than a balance of an electronic purse (e-purse) maintained locally in the mobile device,

337. Limitation [12.4.3] is taught by Jogu. As shown in the excerpts of Figures 22 and 23 below, Jogu discloses the following operations performed in the mobile device:

(1) the mobile device determines whether the balance maintained locally on the mobile device is sufficient for a transaction (step S718 in Fig. 22; screen D18 displayed on mobile device in Fig. 23); and

(2) if the balance is insufficient, the transaction is denied by the mobile device (S719 in Fig. 22; screen D19 displayed on mobile device in Fig. 23).

GOOG-1006, 14 ("[T]he data processing unit 131 [of the mobile device] determines whether or not the received payment amount is within the current balance (S718). When the payment amount exceeds the balance, the data processing unit 131 displays the screen D19 shown in FIG. 23 on the display device 137 and notifies the user 12 of the insufficient balance (S719).").

FIG. 22

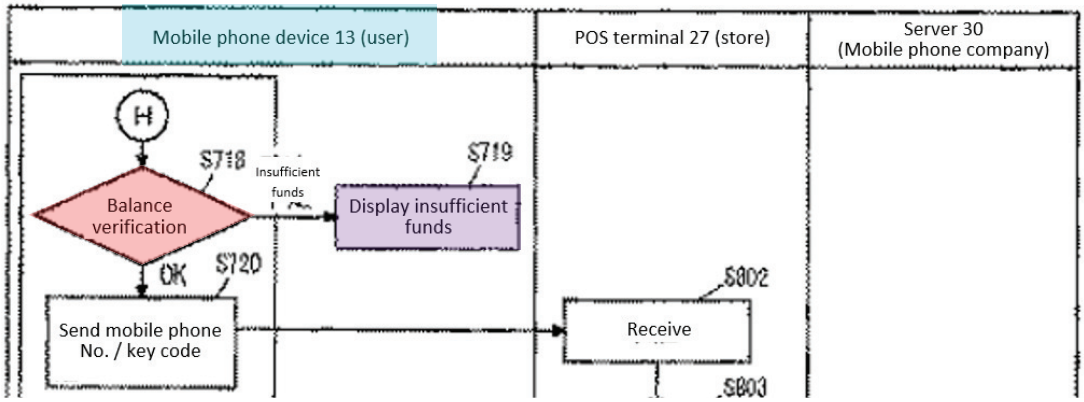
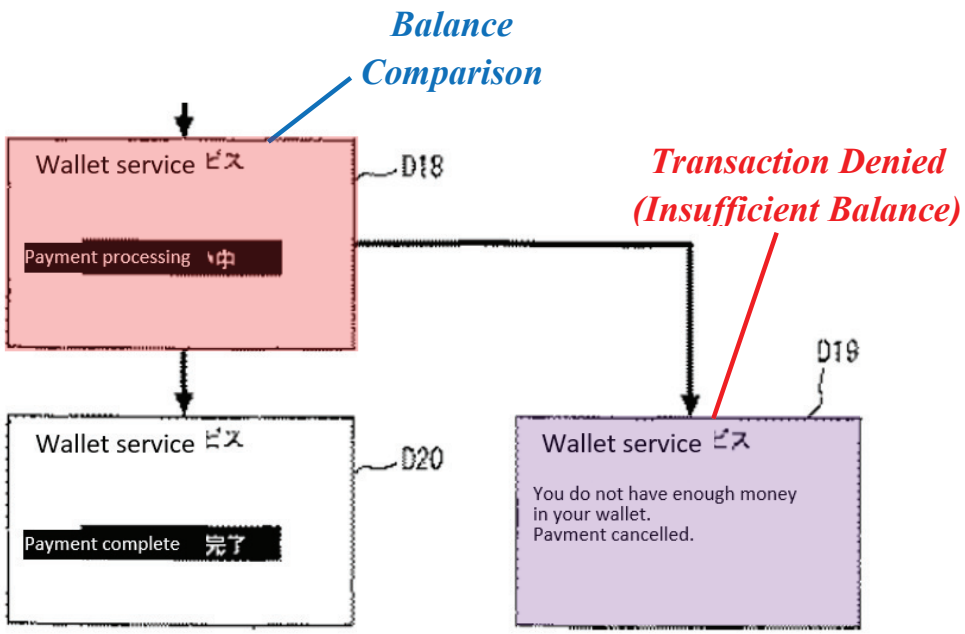


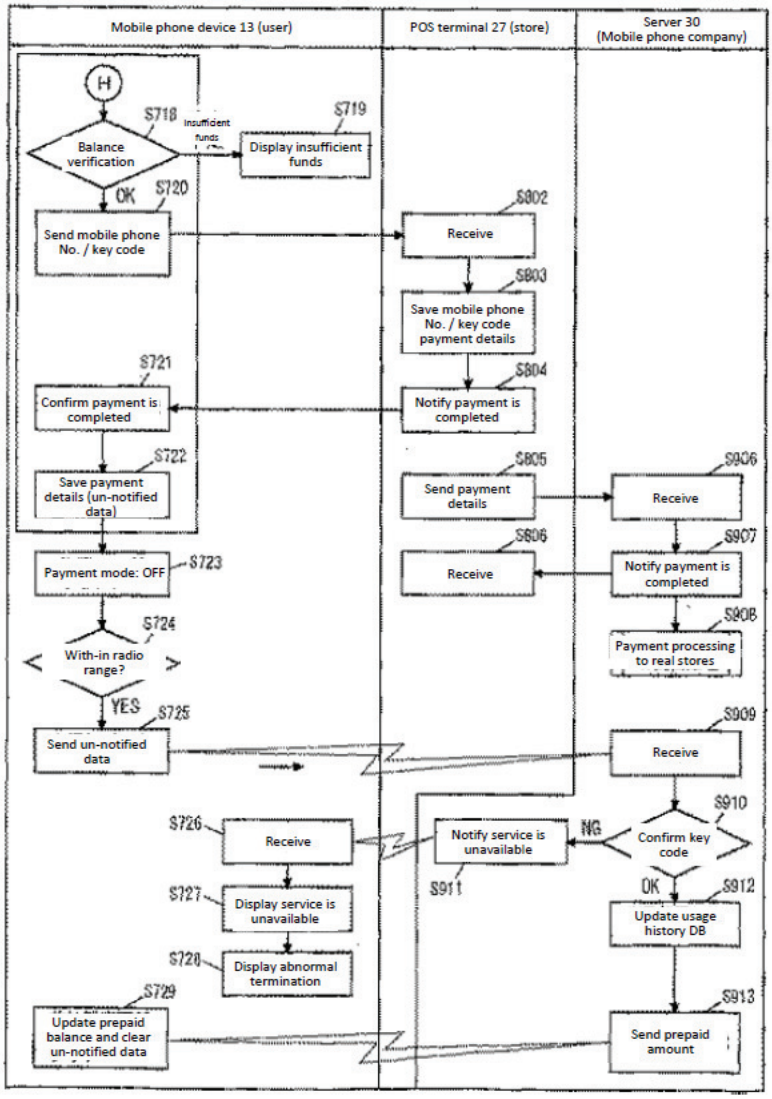
Fig. 23 (excerpt)



GOOG-1006, Figs. 22 and 23 (annotated excerpts)[14]

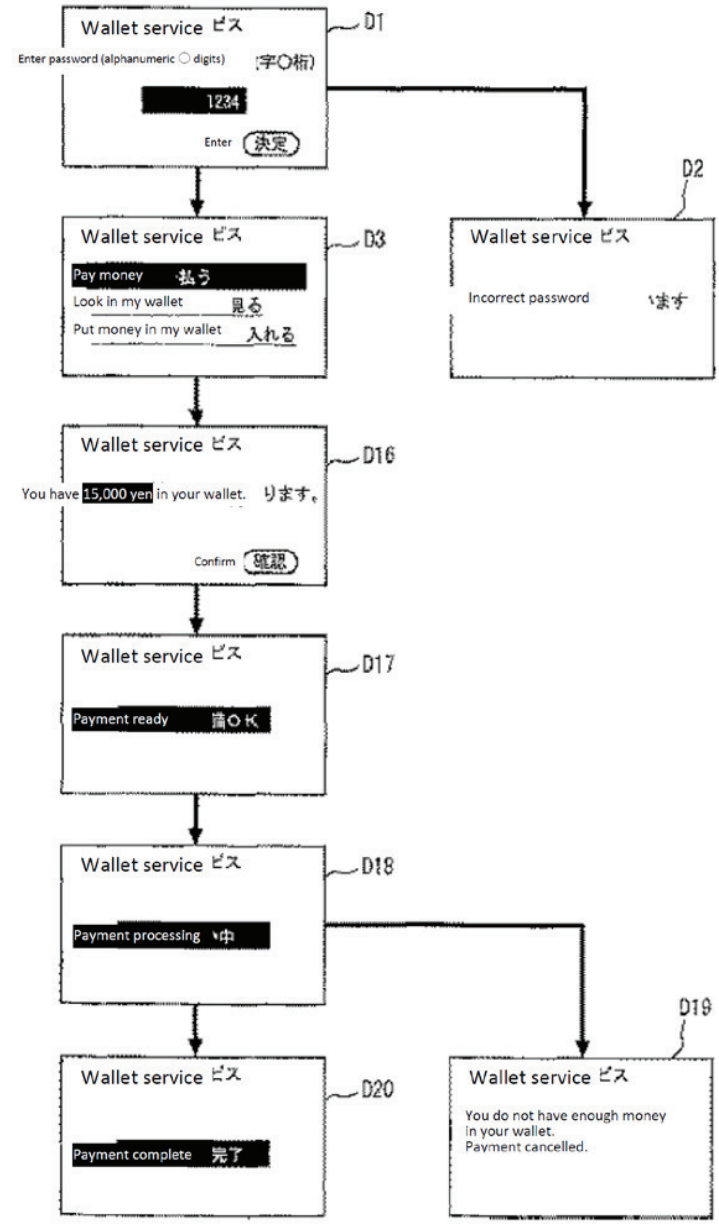
[14] The full versions of Figs. 22 and 23 are reproduced below.

FIG. 22



GOOG-1006, Fig. 22

FIG. 23



GOOG-1006, Fig. 23

338. Thus, Jogu discloses that a payment request is denied in the mobile device when the amount of the transaction is more than the balance of an e-purse maintained locally in mobile device (steps S718 and S719 in Fig. 22, and screen

D19 in Fig. 23). As described above in Section X.D.1, a POSITA would have been motivated to utilize Jogu's conventional balance-check technique before a transaction is conducted with Moshal's e-wallet to confirm whether the e-purse has sufficient funds to conduct the transaction.

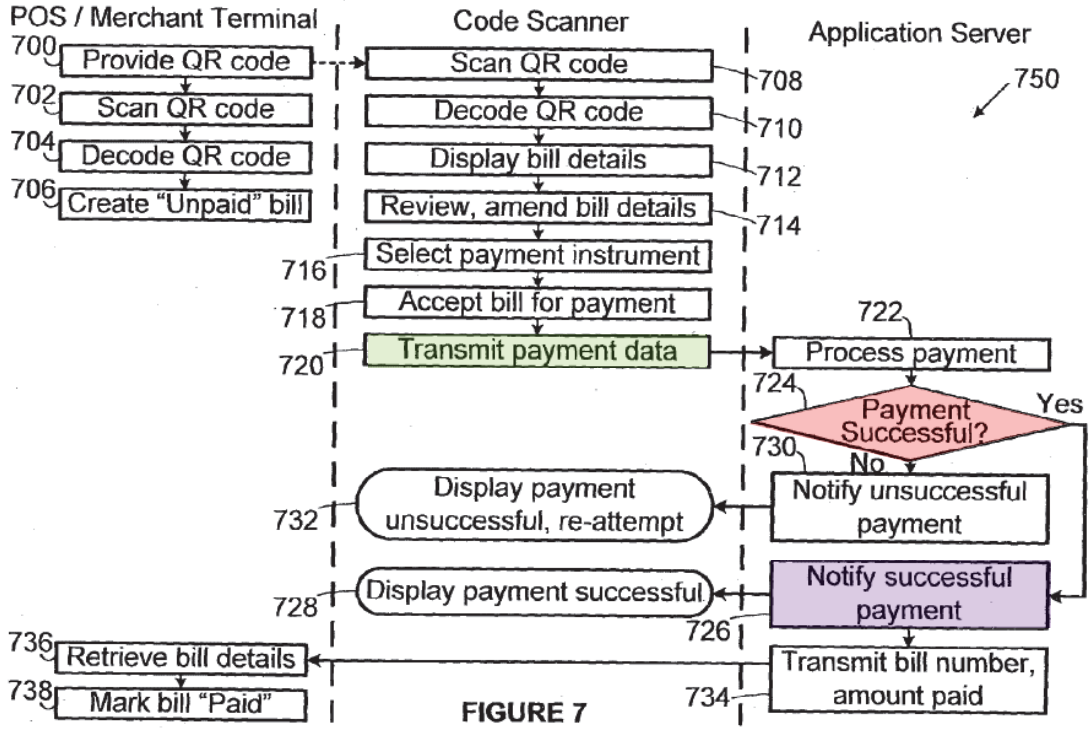
339. Thus, limitation [12.4.3] is rendered obvious in light of the teachings of Moshal and Jogu. **GOOG-1006**, p. 14.

h. [12.4.4] the payment request is sent to a payment gateway when the amount is less than a balance of an electronic purse (e-purse) maintained locally in the mobile device; and

340. Limitation [12.4.4] is similar to the features of limitation [1.9] above, and is rendered obvious by Moshal in view of Jogu for reasons similar to those presented above with respect to limitation [1.9]. As described above with respect to limitation [12.4.3], Jogu teaches that the mobile device determines whether the amount in the transaction exceeds a balance on the mobile device (step S718 in Fig. 22).

341. With reference to Fig. 7 below, Moshal discloses that after the user of the mobile device 106 has reviewed and verified the information on the bill 800 displayed on the mobile device, including amending any of the displayed data, the mobile device transmits a payment request (step 720 in Fig. 7) to the payment gateway (application server) 102. **GOOG-1005**, ¶ 55. By transmitting "the amount due," Moshal teaches that the mobile device has sufficient funds to pay the

bill. This is confirmed by Moshal's disclosure that the payment gateway determines whether the payment is successful (step 724), and sends a notification of successful payment to the mobile device (step 726) when the amount sent by the mobile device is sufficient to honor the payment request.



GOOG-1007, Fig. 7 (annotated)

342. Further, in the obvious modification of Moshal using Jogu's balance verification before a payment request is sent, Moshal's payment request would be transmitted from the mobile device to the payment gateway (at step 720 in Fig. 7) after the mobile device verifies that the balance is sufficient to pay the bill (i.e., the amount is less than the balance of the e-purse maintained in the mobile device), as

shown in the annotated version of Moshal's Figure 7 below, consistent with the teachings of Jogu discussed below.

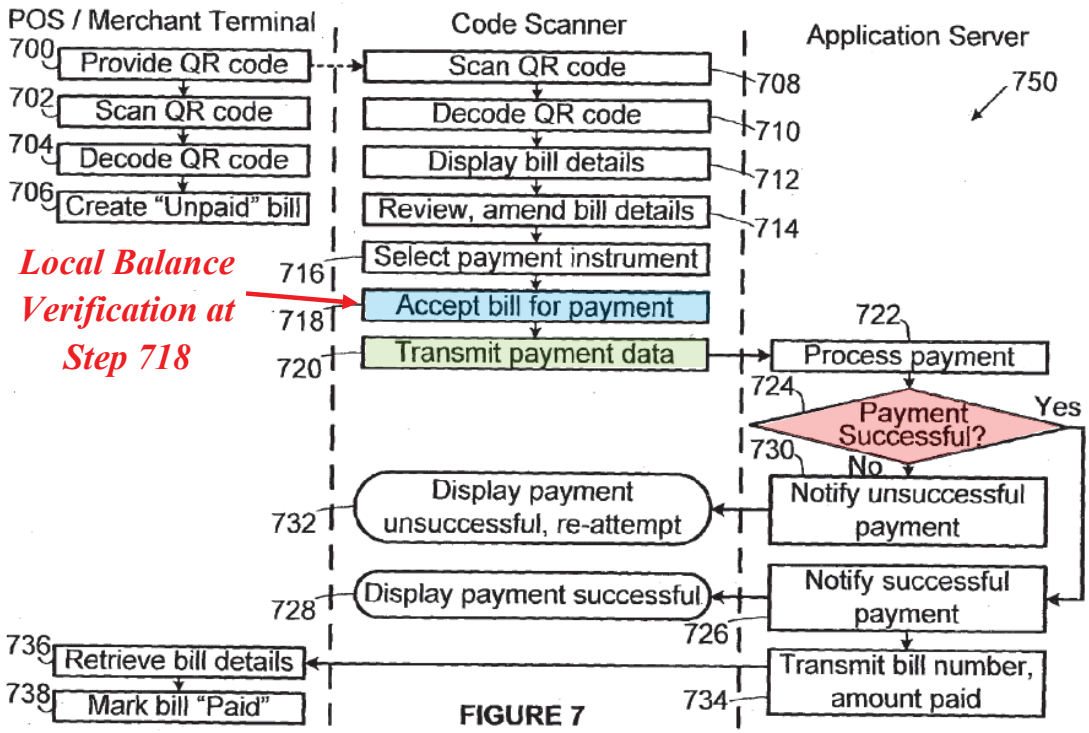
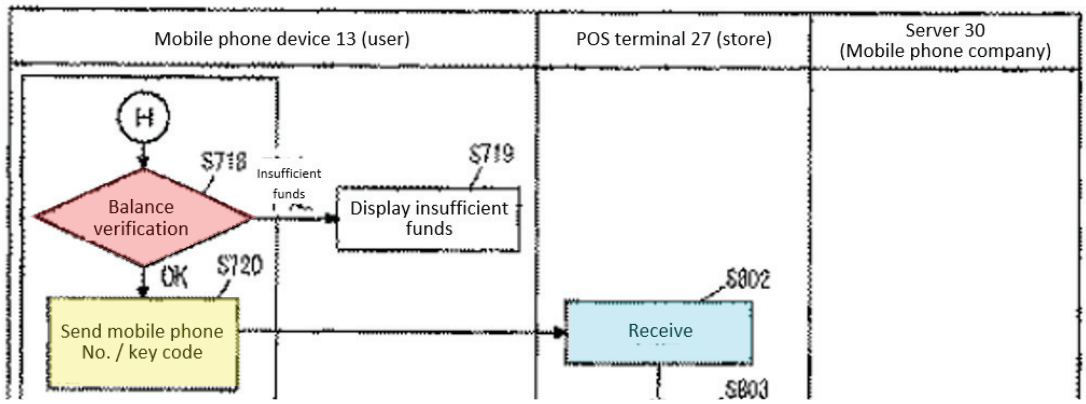


FIGURE 7

343. As shown in the annotated excerpt of Figure 22 below, Jogu discloses that the mobile device transmits a payment request (S720) following positive verification in step S718 that the balance is sufficient. **GOOG-1006**-14 ("In the mobile phone 13, the data processing unit 131 receives the payment amount transmitted from the POS terminal 27 (S717). Then, the data processing unit 131 [of the mobile device] determines whether or not the received payment amount is within the current balance (S718). When the payment amount exceeds the balance, the data processing unit 131 displays the screen D1 9 shown in FIG. 23 on the

display device 137 and notifies the user 12 of the insufficient balance (S719). When the payment amount is within the balance, the data processing unit 131 transmits the telephone number of the mobile phone 13 and the key code pre-registered in hardware in the RO M 133 to the POS terminal 27 through the reader 28 (S720).”). Thus, in the obvious modification of Moshal using Jogu’s balance verification before a payment request is sent, Moshal’s mobile device would transmit a payment request to the payment gateway (at step 720 in Fig. 7) after the mobile device has locally verified that the amount of the transaction does not exceed the balance in the mobile device (step S718 in Fig. 22 of Jogu).

FIG. 22

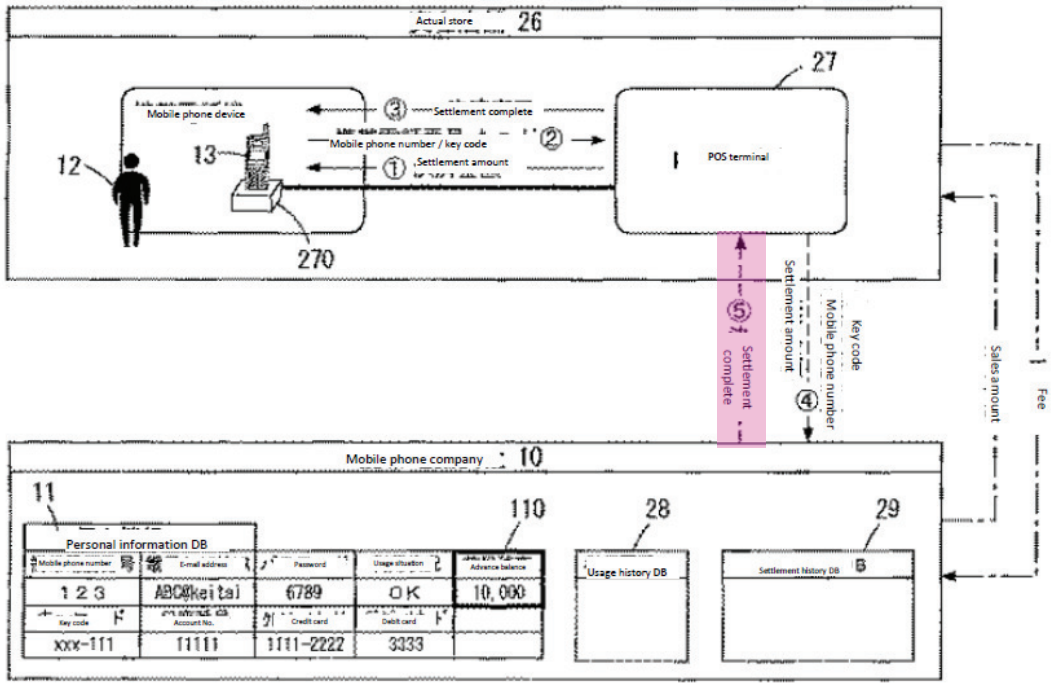


GOOG-1007, Fig. 22 (annotated excerpt)

i. [12.5.1] receiving a message in the POS device directly from the payment gateway that the electronic invoice has been settled,

344. Limitation [12.5.1] is substantially similar to [1.10] and is rendered obvious by Moshal and Jogu for the same reasons presented above with respect to [1.10]. As described above with respect to [1.10], the obvious modification of Moshal with Jogu teaches the payment gateway transmitting to the POS device a message that payment of the transaction has been completed, as shown in annotated Figure 6 of Jogu below. **GOOG-1006**, 6 ("[T]he mobile phone company 10 updates the prepaid balance by subtracting the payment amount from the prepaid balance of the virtual account 110, and notifies the POS terminal 27 of the completion of the payment."); see also **GOOG-1006**, Fig. 22 (step S907) (payment gateway sends notification of a successful payment completion directly to the POS device, which receives the notification in step S806), 15 (description of steps S907 and S806 in Fig. 22).

FIG. 6



GOOG-1007, Fig. 6 (annotated)

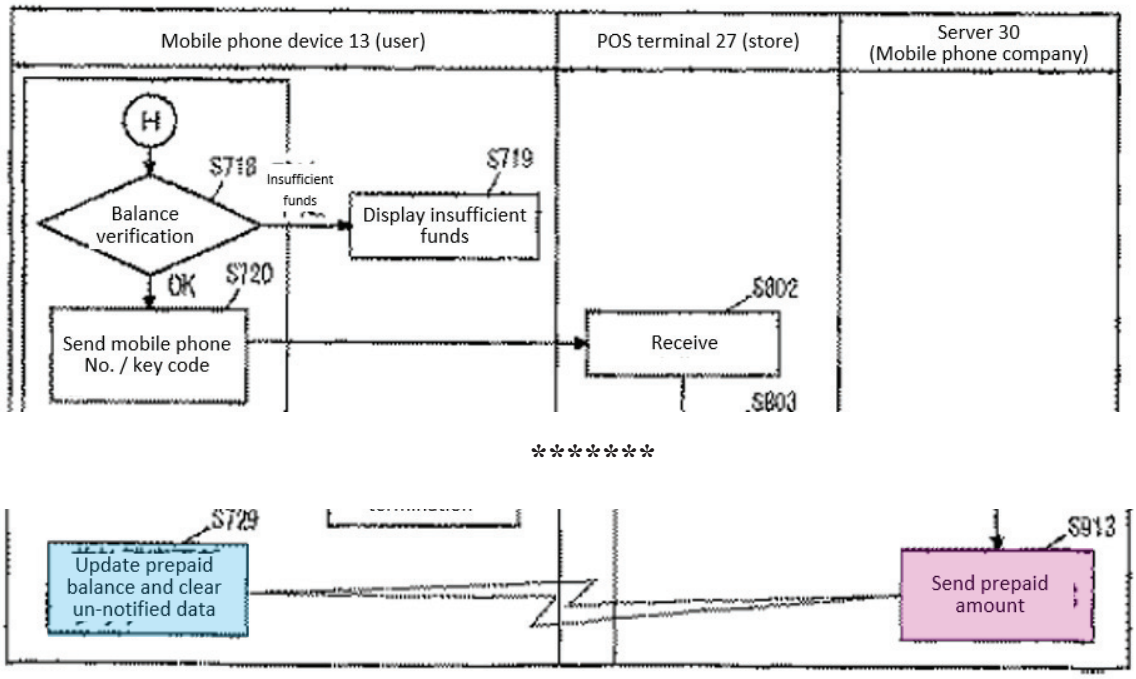
345. Accordingly, for the same reasons presented above with respect to [1.10], a POSITA would have been motivated to modify Moshal such that the POS device receives a message directly from the payment gateway that the electronic invoice has been settled.

j. [12.5.2] wherein the payment gateway is configured to cause the balance in the e-purse reduced by the amount.

346. Limitation [12.5.2] would have been obvious to a POSITA in view of the teachings of Moshal and Jogu.

347. As shown in the excerpt of Figure 22 below, Jogu discloses that the payment gateway 10 sends the updated balance to the mobile device 13 (step S913 and S729) after a successful transaction. **GOOG-1006**, Fig. 22, 14-15. This causes the balance on the mobile device to be reduced: "In the mobile phone 13 of the user 12, the transmission / reception unit 135 receives the virtual account balance transmitted from the mobile phone company 10 (S730), **further updates the virtual account balance recorded in RAM132 based on the received virtual account balance**, and clears the unreported data (S729)." **GOOG-1006**, 21. In other words, the payment gateway causes the balance on the mobile device to be reduced because the reduction is "based on the received virtual account balance"—*i.e.*, if not for the payment gateway sending the updated balance, the balance would not be reduced.

FIG. 22



348. Thus, Jogu discloses that when using an account with a balance in a mobile device's e-wallet, it was known that when the transaction is successful, the payment gateway 30 reduces the balance in response to the transaction, and the balance is updated (reduced) in the mobile phone (step S729 in Fig. 22). A POSITA would have been motivated to modify Moshal to incorporate this advantageous feature, as taught by Jogu, for the same reasons presented above in Section X.D.2. Accordingly, Moshal and Jogu render obvious [12.5.2].

349. This updating of the balance by the payment gateway when there has been a successful transaction is advantageous to the mobile device user because he or she would then know the current balance before deciding whether the e-purse

has sufficient funds to use that balance for another transaction. This is an advantageous feature that is recognized in the prior art. For example, with reference to Figure 2 below, Aabye (**GOOG-1009**) discloses a contactless mobile payment system (**GOOG-1009**, ¶ 2) in which a mobile device 100 conducts a contactless transaction with a POS device 22, and a payment gateway 134, 138 authorizes the transaction when the balance of the mobile device user's account is sufficient to pay for the transaction. **GOOG-1009**, ¶¶ 35, 37, 43-44. Aabye discloses that the user receives notification of a current balance on the user's mobile device after a transaction is conducted. **GOOG-1009**, ¶¶ 51 ("The data provided over the cellular network to the payment [mobile] device may include, for example, data used to complete the records for a transaction. **Such records might be used to update the data stored in the device to reflect the final amount of a transaction**, provide identification data for a transaction, provide a receipt or warranty information for a transaction, **update the balance of an account as a result of the completion of the transaction**, etc.), 52-53 (describing example where mobile device user is informed of updated balance after a transaction, where the "the Issuer is able to **update the transaction records stored in the phone so that the data in the phone's memory** (e.g., the secure memory region of the contactless element or another suitable data storage region of the phone) **reflects the actual transaction information**. This capability can be very important in

situations where the balance of an account (as reflected by the data stored in the phone) is used to determine whether a later transaction is authorized.") (emphases added).

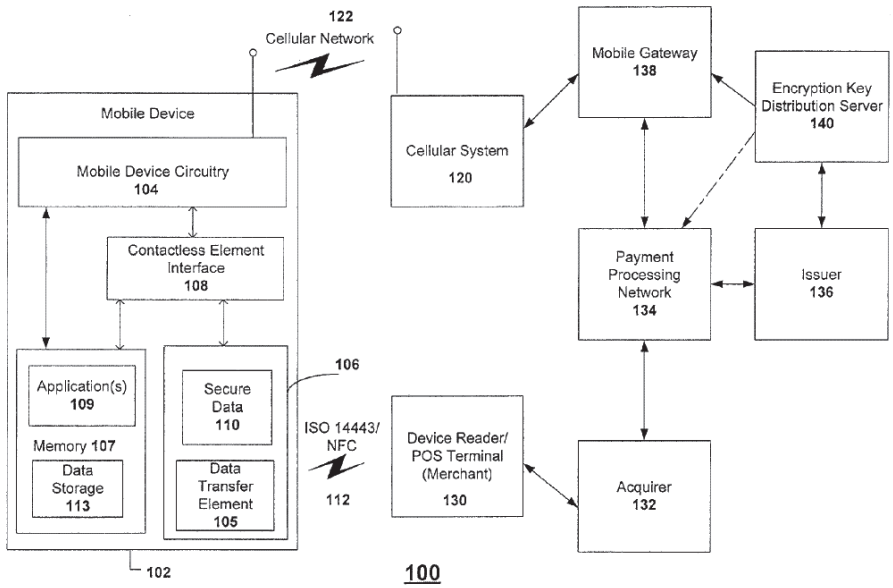


Figure 2

GOOG-1009, Fig. 2

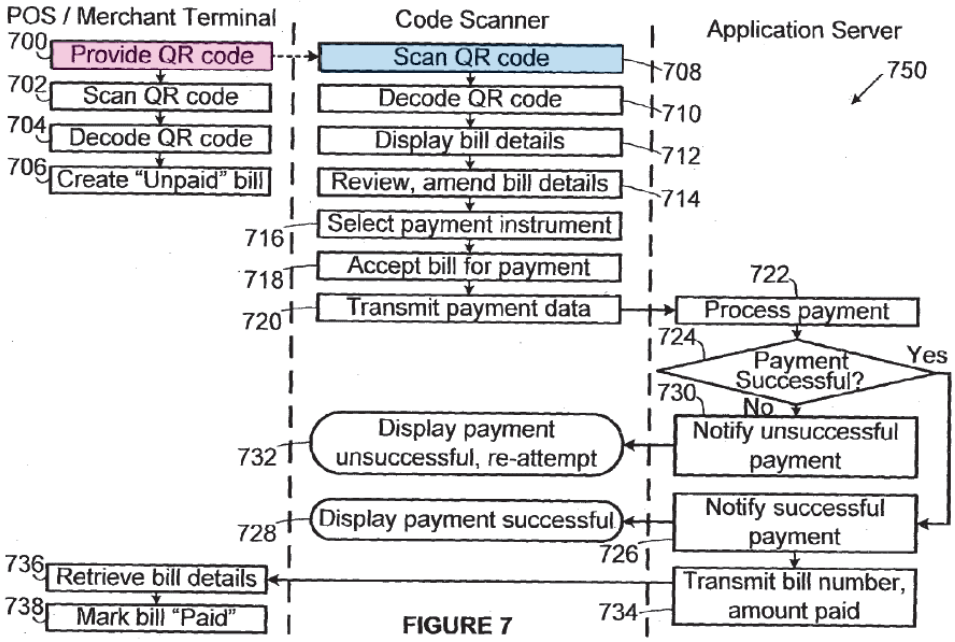
350. Thus, claim 12 is rendered obvious by Moshal, Jogu, and Dessert, for the reasons presented above.

7. Claim 13

a. [13.0] The method as recited in claim 12, wherein the tag is presented near the mobile device to allow a user of the mobile device to use the mobile device to capture the data.

351. Limitation [13.0] is substantively similar to limitation [2.0] and is disclosed by Moshal for the same reasons presented above with respect to limitation [2.0]. In particular, with reference to Figure 7 below, Moshal discloses

that the waiter presents the tag to the consumer with the restaurant bill (step 700), and the consumer uses the scanner app 164 and scanner 156 (see Fig. 4) on his or her mobile device to scan the tag when the mobile device is near the tag (step 708). **GOOG-1005**, ¶¶ 54-55.



GOOG-1005, Fig. 7 (annotated)

> Upon completion of the meal the diner can request a bill for payment from a waiter. The waiter can draw up a bill that contains, for example, a name and address of the restaurant, a waiter identification, a table number, a description and a corresponding cost of each item consumed during the meal, any tax such as sales tax or value-added tax included in the bill, and a total amount due. At block 700 the POS terminal 104 can provide a payment QR code that encodes the merchant identification code 140 in the merchant profile 142, a bill

> identification code or number, and all the details contained in the bill….

GOOG-1005, ¶ 54.

> The bill and the payment QR code can be provided, individually or in combination, to the diner. For example, the POS terminal 104 may print a hardcopy of the bill that contains the payment QR code, or may print the QR code separately to a hardcopy of the bill. At block 708, the user can use the scanner app 164 and the scanner 156 to scan the payment QR code on the hardcopy of the bill. At block 710, the scanner app 164 decodes the scanned payment QR code to recover the encoded data that it contains namely, the merchant identification code, the bill identification number and the bill details.

GOOG-1005, ¶ 55.

352. Thus, Moshal discloses that the tag is physically presented to the user's mobile device to allow a user of the mobile device to use the mobile device to capture the data encoded in the tag. **GOOG-1005**, ¶¶ 54-55.

353. Further, as described above with respect to limitation [1.1.1], to the extent that claim 13 is interpreted as requiring an unrecited feature of RFID tags or NFC tags, a POSITA would have found it obvious to utilize any machine-readable tag (e.g, QR tag, RFID tag, NFC tag), as such machine-readable tags were known to be interchangeable. *See* **GOOG-1007** (Dessert), 6:20:34 and **GOOG-1010**

(Park), ¶¶, 52, 137 (both references describing interchangeable use of QR tags, RFID tags, and NFC tags).

8. Claim 14

a. [14.0] The method as recited in claim 13, wherein the POS device is provided with security and authentication to generate the electronic invoice.

354. The subject matter of claim 14 is rendered obvious by the teachings of Moshal and Dessert, for the same reasons presented above with respect to limitation [3.0]. For completeness, I explain those reasons below. Limitation [14.0] differs from limitation [3.0] in that limitation [14.0] recites that the POS device is provided with security and authentication to generate the electronic invoice," whereas limitation [3.0] recites that the POS device provides security and authentication to generate the electronic bill and transfer the data to the tag" (emphases showing differences). These differences are immaterial because Dessert discloses that the POS device 12 provides (or is provided with) security (NFC-linked secure-element) and authentication (unique terminal identifier and merchant identifier) to generate the tag 124 read by the user's mobile device 100, where the tag includes the electronic invoice (see, e.g., GOOG-1007, Fig. 2E (showing invoice on mobile device after tag is read by mobile device), as discussed below.

355. Moshal discloses that the POS device 104 prepares and presents the tag (QR code) at step 700, where the tag includes an electronic bill with "the merchant identification code 140 in the merchant profile 142, a bill identification code or number, and all the details contained in the bill." **GOOG-1005**, ¶¶ 54, 55.

356. With reference to Figure 1 below, Dessert illustrates that it was known for a POS device (Merchant POS System 12) is provided with security (PIN) and authentication (unique terminal identifier and merchant identifier) to generate the electronic bill and transfer the data to a tag (124) that is scanned by a customer's mobile device (100), as described below.

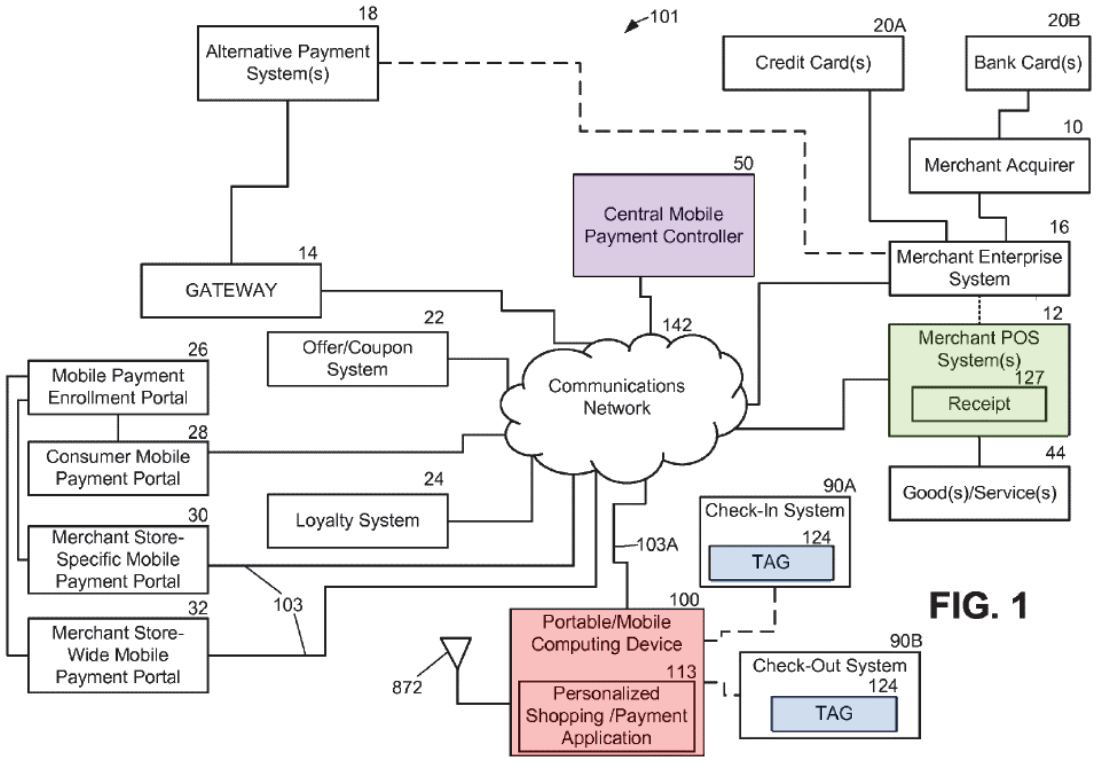


FIG. 1

GOOG-1007, Fig. 3 (annotated)

357. Dessert discloses that the tag 124, which "may be coupled to an electronic cash register ('ECR'),…may comprise a unique merchant identifier and a unique terminal (or electronic cash register) identifier that helps the [mobile device] 100 to manage point-of-sale (POS) transactions." **GOOG-1007**, 5:7-21, 12:11-16 (unique identifiers are "contained within the machine-readable code and/or associated with the code."). Dessert discloses that the mobile device 100 "retrieve[s] the unique terminal identifier and the merchant identifier associated with a tag 124 of a check-out system 90B which is affixed to the ECR 412 of the [POS device] 12…by scanning the tag 124 with the camera 848 or with a near-field-communication ("NFC") antenna 879 [of the mobile device]." **GOOG-1007**, 7:12-20.

358. Further, Dessert discloses that additional security measures are utilized for the POS device 12 to generate the tag 124. Dessert discloses that the tag 124 (machine-readable code) may be an NFC tag which is "**linked to a secure-element**." GOOG-1007, 6:25-34, 11:65-12:7. Thus, Dessert discloses that the tag 124 is created with a "secure-element," and the tags 124 are provided in the premises of the POS device (e.g., on electronic cash registers (ECRs)). **GOOG-1007**, 6:1-14, 6:25-34, 11:65-12:7. Therefore, Dessert discloses that the POS device provides security to generate the tag, which includes the electronic invoice.

> An operator (also referred to as a PCD consumer) of the PCD 100 may physically enter an establishment of a merchant, such as a store. The operator "checks-in" with the merchant's enterprise system 16 using his or her PCD 100. An operator may check-in with the enterprise system 16 using a check-in system 90A in combination with the PCD 100. **The check-in system 90A may comprise a machine-readable tag 124 that is presented at an entrance to a merchant's store or in various locations within a particular store**. In other exemplary embodiments, **the tag 124 may be coupled to individual products within a merchant's premises**. In other cases, the tag 124 may be provided on any object in order to initiate a transaction using the portable computing device 100.

GOOG-1007, 6:1-17 (emphases added).

> The machine-readable code 222 may comprise either a one dimensional or two-dimensional barcode. Further, other machine-readable codes are included within the scope of the invention and may include contactless technologies, such as near-field communications (NFC), WiFi, acoustic, which may or may not be **linked to a secure-element**, and RFID cards as understood by one of ordinary skill in the art. For these contactless technologies, the tag 124 may comprise an antenna 224 coupled to an integrated-circuit chip (not illustrated).

GOOG-1007, 6:25-34 (emphasis added).

> As noted above, the machine-readable code 222 may comprise either a one dimensional or two-dimensional barcode. Further, other machine-readable codes are included within the scope of the invention and may

> include contactless technologies, such as near-field communications (NFC) which may or may not be **linked to a secure-element**, and RFID cards as understood by one of ordinary skill in the art. For these contactless technologies, the tag 124 may comprise an antenna 224 coupled to an integrated-circuit chip (not illustrated).

GOOG-1007, 11:65-12:7 (emphasis added).

359. As shown in Figures 2E and 2G below, for example, Dessert discloses that the invoice is displayed on the customer's mobile device when the tag 124 is read/scanned, where Figure 2E shows that the mobile device displays the products being scanned for purchase, and Figure 2G shows that the mobile device displays the invoice along with payment options. **GOOG-1007**, 10:3-14, 11:65-12:7.

> FIG. 2E is a diagram of a screen 202E that shows **merchant information 212 relevant to a transaction and a line item listing 214 of products** during check-out being scanned by a product scanner 132 coupled to an ECR 412 (See FIG. 4). The merchant information 212 may comprise information such as, but not limited to, a merchant name, a mailing address of the store, date and time data relevant to the transaction, a store number, and a electronic cash register number, and other like information. **The line item listing 214 of product scan data may comprise information such as, but not limited to, a product number, a short name for the product, a price and other similar information**.

GOOG-1007, 10:3-14 (emphasis added).

FIG. 2G is a diagram of a screen 202G that **shows merchant information 212 relevant to a transaction and a total bill for a purchase** along with a plurality of payment options 218A that may be selected by the operator. In the example illustrated in FIG. 2G, **the total amount due for the purchase is $16.90**. The payment options 218A allow a user to select the expense as a business expense towards taxes. The payment options 218A also allow an operator of the PCD 100 to select among a plurality of payment methods that may have been previously selected by the operator and stored in a user's profile in the second storage device 146B.

GOOG-1007, 10:50-60 (emphases added).

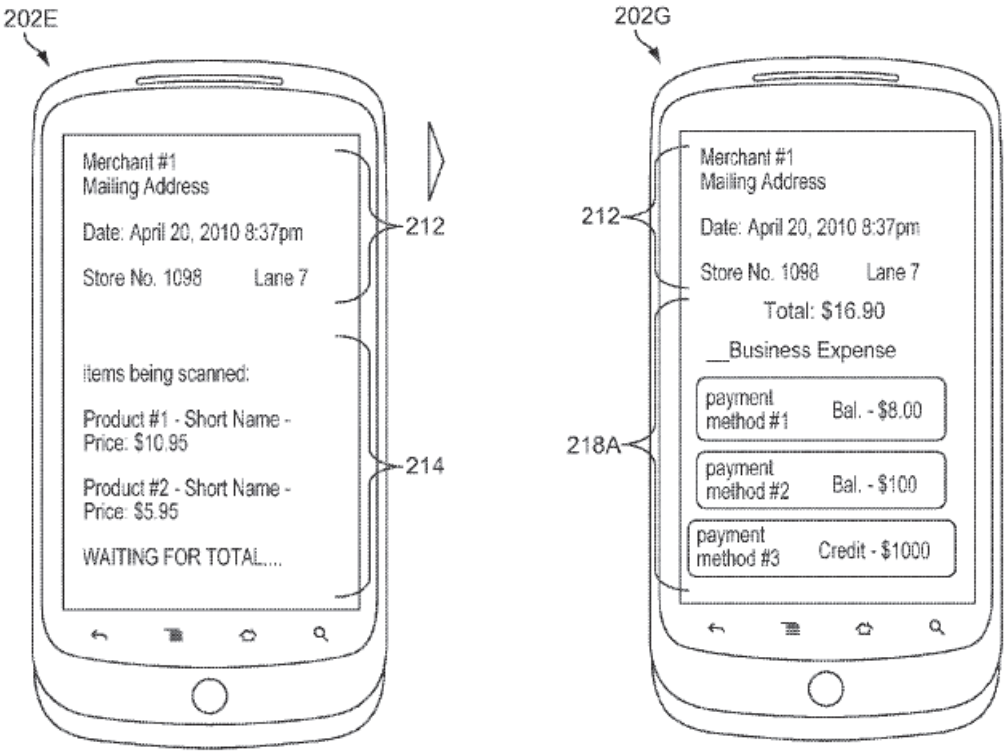


FIG. 2E FIG. 2G

GOOG-1007, Figs. 2E and 2G

360. Thus, Dessert discloses that the tag 124 read/scanned by the mobile device contains the electronic invoice, as shown in Figure 2E and 2G above.

361. Dessert discloses that the payment gateway (central mobile payment controller) 50 utilizes the unique terminal identifier and merchant identifier included in the tag 124 to authenticate the POS device 12 when authorizing the transaction conducted with the tag 124. **GOOG-1007**, 7:21-52 (describing that the "unique terminal (or ECR) identifier and merchant identifier retrieved by the [mobile device] 100 may be relayed back to the [payment gateway] 50 along with a personal identification number ('PIN')" to (i) authenticate the POS device together with "product scan data" about the product being scanned, and (ii) approve the transaction conducted with the tag 134 scanned by the mobile device 100). Thus, Dessert discloses that the POS device 12 the POS device provides security (NFC-linked secure-element) and authentication (unique terminal identifier and merchant identifier) to generate the electronic bill and transfer the data to the tag 134.

362. A POSITA would have been motivated to modify Moshal so that its POS terminal 104 is provided with security (e.g., NFC-linked secure-element) and authentication (e.g., POS device identifier) to generate the electronic bill and transfer the data to the tag, because doing so would promote security in the transaction and facilitate authorization of a transaction using such information

provided in the tag scanned by the mobile device, as taught by Dessert. **GOOG-1007**, 7:1-6.

XI. Challenge #4: Claims 6, 15, and 16 are rendered obvious by Moshal in view of Jogu, Dessert, and Ohlhausen

A. Overview of Challenge #4

363. Dependent claims 6 and 15 recite additional "security information" features that are disclosed by Ohlhausen (**GOOG-1008**).

1. Claim 6

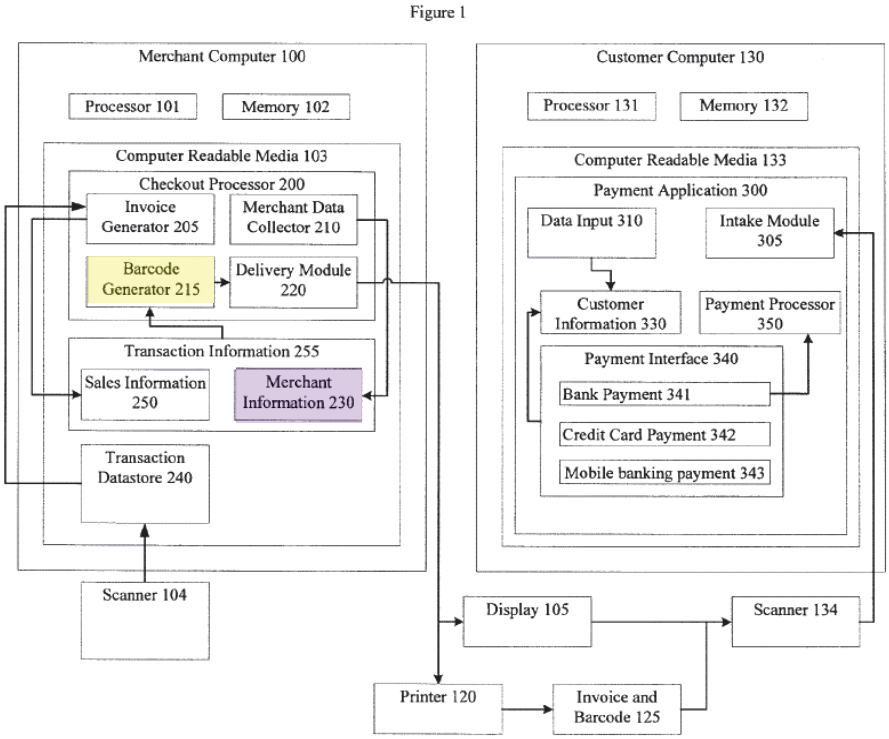
a. [6.0] The method as recited in claim 5, wherein the data further includes security information about the merchant associated with the POS device,

364. Moshal teaches [6.0] because it discloses that the data in the tag includes a merchant identifier, which is unique to the merchant terminal. **GOOG-1005**, ¶ 45 (payment gateway 102 assigns a unique merchant identification code to each merchant business), ¶ 52 (merchant registers with payment gateway 102 using unique merchant identifier), and ¶ 54 (tag encoded with merchant identifier, bill identification code or number, and all the details contained in the bill).

b. [6.1] the security information includes an account and bank information of the registered merchant, an identifier of the tag or the POS device.

365. The features of limitation [6.1] would have been obvious in light of the teachings of Moshal, Dessert, and Ohlhausen.

366. Like Moshal, Ohlhausen discloses that a merchant computer 100 creates a barcode (barcode generator 205) for use in conducting transactions with a customer computer 130, and the customer computer 130 (e.g., smartphone, **GOOG-1008**, ¶ 21) uses a payment application 300 to obtain a scan of the barcode 125 (via scanner 134) to obtain transaction details, as shown in Figure 1 below. **GOOG-1008**, ¶¶ 19-20. Ohlhausen discloses that "Both the Merchant Information 230 and Sales Information 250 may be encoded by a barcode generator 215 into a barcode 125." **GOOG-1008**, ¶ 19. Ohlhausen discloses that "Merchant Information 230 may include name, address, email address, website URLs, **bank or other payment details of the merchant**, Payment Service Provider (PSP) details, and/or **merchant ID**." **GOOG-1008**, ¶ 19.



GOOG-1008, Fig. 1 (annotated)

367. Accordingly, Ohlhausen discloses that the information encoded into the barcode includes merchant settlement information (bank or other payment details of the merchant). **GOOG-1008**, ¶ 19. Further, Ohlhausen discloses that the merchant information encoded into the barcode includes a merchant ID (**GOOG-1008**, ¶19), which corresponds to the identifier of the POS device as recited in limitation [6.1] because the merchant computer generates the barcode. **GOOG-1008**, ¶ 28. Ohlhausen discloses that the customer computer 130 "decode[s] the sales and merchant information from the scanned barcode in order to provide the

customer computer with the needed information to effect the payment process." **GOOG-1008**, ¶ 20.

368. A POSITA would have been motivated to modify Moshal to include security information including an account and bank information of the registered merchant and that merchant's ID (e.g., the "bank or other payment details of the merchant" information and merchant ID that are encoded in Ohlhausen's tag (**GOOG-1008**, ¶ 19)) in the tag created by Moshal's POS device 104, because doing so would provide the user of the code scanner (mobile device) 106 greater flexibility in payment options available to the consumer, as disclosed by Ohlhausen. For example, Ohlhausen discloses that the customer may be provided with customized payment options based on the merchant involved in the transaction, because the merchant information is included in the scanned tag. Ohlhausen, ¶ 33 ("Based on the merchant information, which is part of the transaction information [in the decoded tag], there could be several providers for each payment option."). This modification would have been the combination of prior art elements (including merchant payment information, as disclosed by Ohlhausen, with the merchant ID and bill identification that are encoded in a code provided by the POS device 104 of Moshal) according to known methods (additionally encoding the merchant payment information in the code) to yield

predictable results of providing the merchant payment information in the code that is scanned and decoded by the consumer of Moshal.

369. Further, in the event that a merchant has multiple POS devices, a POSITA would have been motivated to modify Moshal in view of Ohlhausen and Dessert to make the POS device identifier encoded into a tag unique for each POS device. Dessert discloses that the tag 124, which "may be coupled to an electronic cash register ('ECR'),…may comprise a unique merchant identifier and a **unique terminal (or electronic cash register) identifier** that helps the [mobile device] 100 to manage point-of-sale (POS) transactions." **GOOG-1007**, 5:7-21, 12:11-16 (unique identifiers are "contained within the machine-readable code and/or associated with the code."). Thus, a POSITA would have been motivated to make the security information encoded into each tag (merchant settlement information and POS device identifier), as taught by Ohlhausen, unique for each tag encoded for a POS device to assist the mobile device in managing POS transactions, as taught by Dessert.

2. Claim 15

a. [15.0] The method as recited in claim 14, wherein the data includes security information of the merchant associated with the POS device, the security information includes an account and bank information, an identifier of the tag or the POS device.

370. Claim 15 is substantively similar to claim 6. Claim 15 recites that the data includes "security information of the merchant associated with the POS device," while limitation [6.0] recites that the data "includes security information about the merchant associated with the POS device." The use of "of" in claim 15 and "about" in limitation [6.0] is not material.

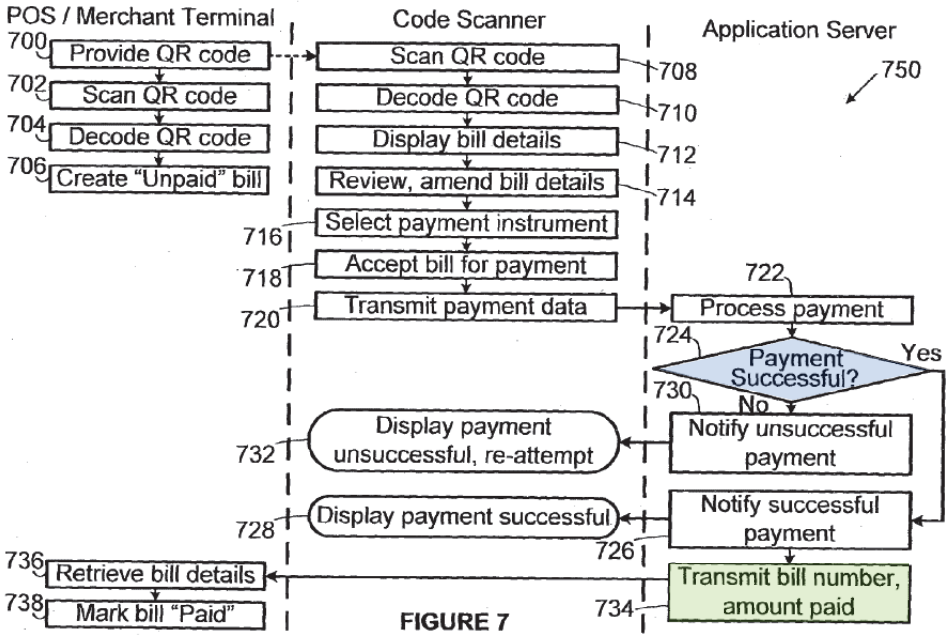
371. Further, claim 15 recites that "the security information includes an account and bank information," whereas limitation [6.1] recites that the "security information includes an account and bank information of the registered merchant." The security information of Ohlhausen includes the account and bank information as recited in limitations [15.0] and [6.1] (bank or other payment details of the merchant). **GOOG-1008**, ¶ 19.

3. Claim 16

a. [16.0] The method as recited in claim 15, wherein the message received in the POS device shows how much has been received from the user of the mobile device.

372. The features of limitation [16.0] are taught by Moshal, or in the alternative, are rendered obvious by Moshal in view of Jogu.

373. With reference to Figure 7 below, Moshal discloses that if payment is successful (Yes in step 724), the payment gateway (application server) 102 transmits a message to the POS / Merchant terminal containing the bill number and the "**amount paid**" (step 734). **GOOG-1005**, ¶ 57.



GOOG-1005, Fig. 7 (annotated)

374. As described above with respect to limitation [1.10], Moshal suggests that the POS terminal 104 and merchant terminal 108 are provided in the same location (**GOOG-1005**, ¶ 54), and it was well known in the art to make a POS terminal and a merchant terminal into one integrated component in a contactless payment system. *See* Granucci (**GOOG-1012**), Figs. 2-3, 4:7-12, 4:23-32, and

5:35-40 discussed above with respect to limitation [1.10]). Therefore, Moshal teaches [16.0].

375. To the extent that Moshal's teaching of the payment gateway transmitting notification of the "amount paid" to the POS / Merchant Terminal (step 734 in Fig. 7) does not explicitly disclose transmitting the amount paid to the POS terminal 18, a POSITA would have been motivated to modify Moshal to transmit a successful payment confirmation from the payment gateway to the POS terminal 18, as described above with respect to limitation [1.10]. It was known in the art to transmit a successful payment notification from a payment gateway directly to a POS device, as disclosed by Jogu. Further, as discussed above with respect to limitation [1.10], Narayanan (**GOOG-1013**), ¶ 28, Fig. 3, and Shank (**GOOG-1011**), Fig. 4A, ¶ 62, provide additional prior art examples and advantages of transmitting a successful payment notification from a payment gateway to a POS device.

376. Modifying Moshal to also provide notification of the amount paid (step 734 in Figure 7) to the POS terminal, in view of Jogu's disclosure that the payment gateway sends a payment confirmation directly to the POS device, provides notification to the POS device that the amount in the invoice that Moshal's POS device encodes in the tag (**GOOG-1005**, ¶ 54) is met by the amount paid by the mobile device, and serves as confirmation to the POS device that

settlement is complete, as taught by Jogu and as discussed above with respect to [1.10]. Therefore, claim 16 is rendered obvious by the teachings of Moshal and Jogu.

XII. Challenge #5: Claims 7-11 and 17 are obvious over Moshal in view of Jogu, Dessert, and Aabye

377. Dependent claims 7, 9, and 17 additionally recite that the mobile device and the payment gateway communicate over a "secured channel." This feature is disclosed by Aabye (**GOOG-1013**). Dependent claim 10 additionally recites that the mobile device includes a "secure element." This feature is also disclosed by Aabye.

A. Overview of Aabye

378. Like the '046 Patent, Aabye is directed to a mobile payment system. With reference to Figure 2 below, Aabye discloses that when a consumer uses a payment application 109 on his or her mobile device 102 to conduct a transaction with a POS terminal 130, a merchant terminal 132 in communication with the POS terminal 130 obtains payment authorization from a payment gateway (payment processing network 134 and mobile gateway 138). **GOOG-1009**, ¶¶ 34, 37, 39-40. The mobile device 102 has a secure data storage 110 that stores "data for which enhanced security is desired, for example, transaction data, personal account data, identification data, authentication data, access control data for an application or

device function, etc." **GOOG-1009**, ¶ 36. Aabye discloses that communications in the payment system may be encrypted, such as communications between the mobile device 102 and the payment gateway 134, 138, to provide a "secure channel" between the payment application 109 of the mobile device 102 and the payment gateway 134, 138. **GOOG-1009**, ¶¶ 42, 66, 54, 57-59.

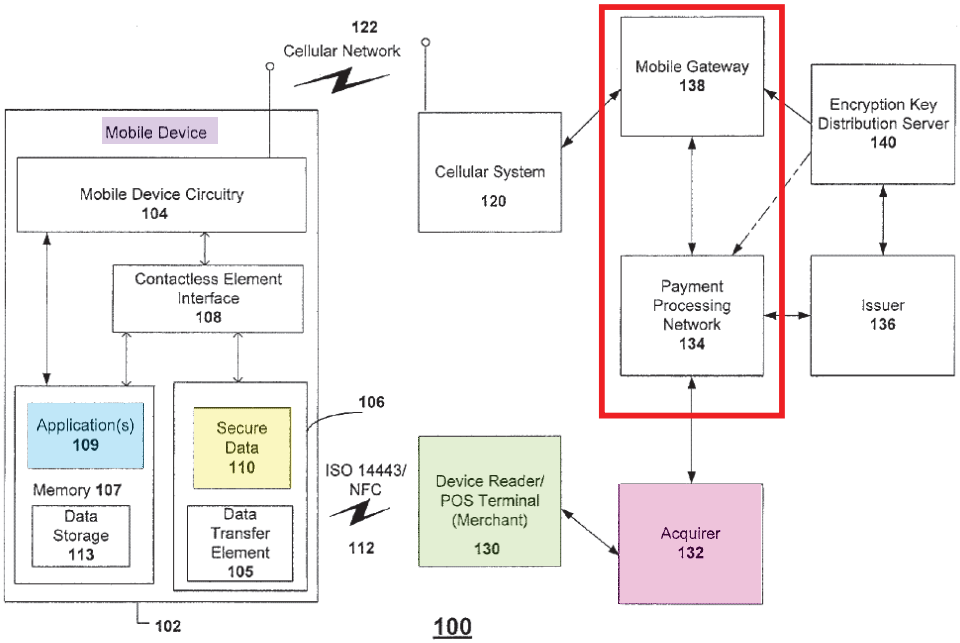


Figure 2

GOOG-1009, Fig. 2

379. A POSITA would have been motivated to modify Moshal's payment network to encrypt communications between the mobile device and the payment gateway to establish a secure channel between the mobile device and the payment gateway, as taught by Aabye. Establishing such a secure channel through

encryption between the mobile device and the payment gateway (Mobile Gateway 138) "is desirable as encrypting the transaction data may prevent unauthorized users or applications from accessing the data, either on the phone or while the data is in transit over a communications network." **GOOG-1009**, ¶ 54. A POSITA would have had a reasonable expectation of success creating a secure channel between Moshal's code scanner (smartphone) and payment gateway (application server) because communications between the two are already encrypted. **GOOG-1005**, ¶ 83 ("In order to improve security of the system 100, transmission of data from the user profile 110 to the [payment gateway] 102 by the scanner app 164 can be encrypted.").

1. Claim 7

The features of claim 7 are taught by Moshal, Jogu, and Aabye.

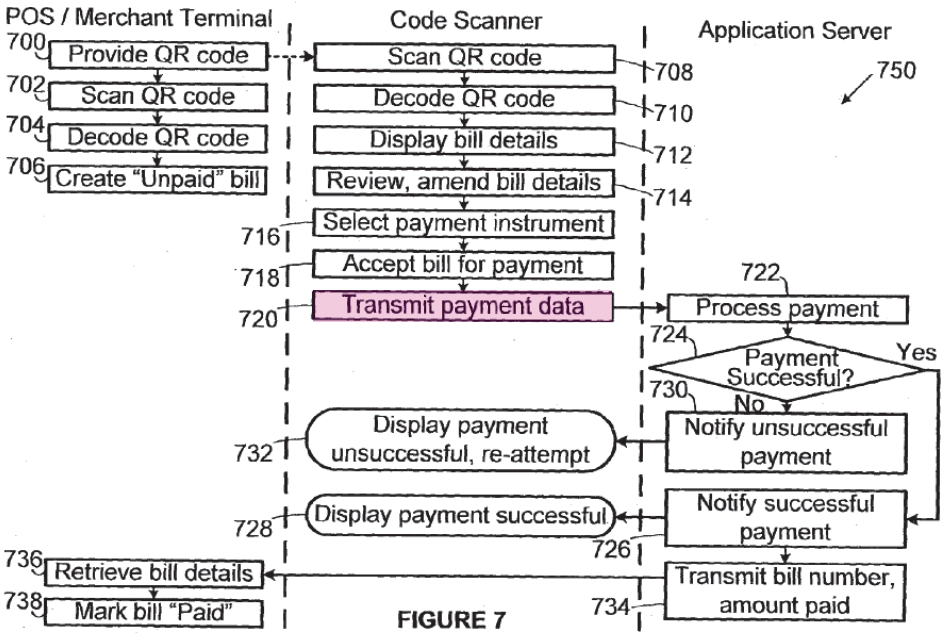
a. [7.0] The method as recited in claim 6, wherein said sending the payment request from the mobile device to the payment gateway comprises:

380. As described above, claim 6 is rendered obvious by Moshal, Jogu, Dessert, and Ohlhausen.

b. [7.1] transporting the payment request over a secured channel to the payment gateway,

381. With reference to Figure 7 below, Moshal discloses that the mobile device transmits a payment request to the payment gateway (step 720). **GOOG-1005**, ¶ 55. Moshal discloses that "[i]n order to improve security of the system

100, **transmission of data from the user profile 110 to the [payment gateway] 102 by the scanner app 164 can be encrypted**." **GOOG-1005**, ¶ 83 (emphasis added). Moshal teaches that the user's profile 110 stored on the mobile device 106 (see Fig. 4) includes payment instruments "such as credit cards, debit cards, e-wallets and the like." **GOOG-1005**, ¶ 42.



GOOG-1005, Fig. 7 (annotated)

382. To the extent Moshal is not explicit that its encrypted communications create a secure channel between the smartphone and the payment gateway, it was well known to create such a channel. For example, with reference to Figure 2 below, Aabye discloses that communications between the mobile device 102 and the payment gateway 134, 138 are encrypted to "**establish[] a secure channel**

between a payment application [109] resident in the mobile device and the mobile gateway [138], with the gateway [138] acting as an intermediary between the mobile device and the payment processing network [134]." **GOOG-1009**, ¶ 66. As described above in Section XII.A, a POSITA would have been motivated to modify Moshal to provide such a secure channel between the mobile device and the payment gateway.

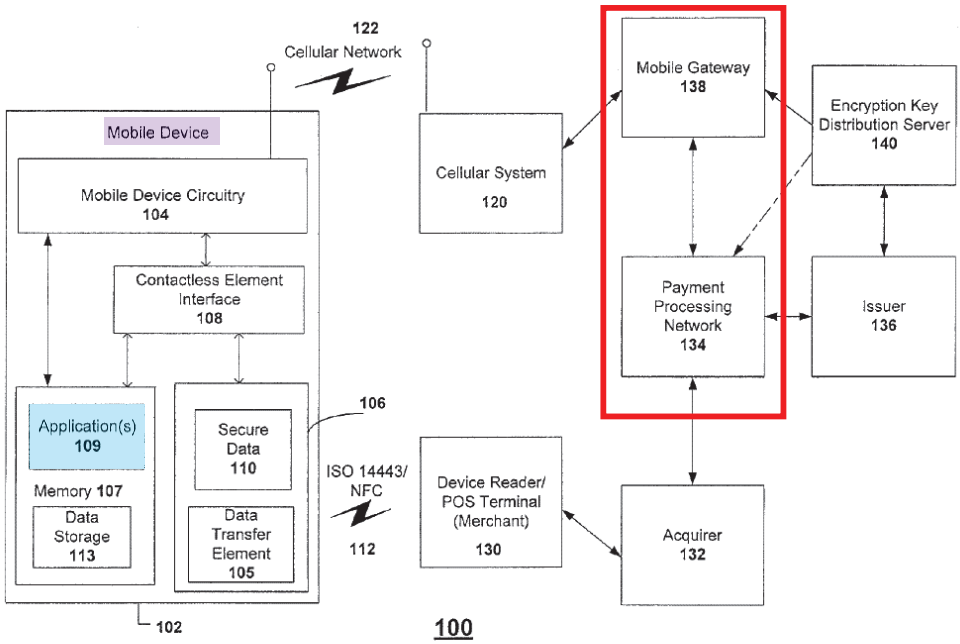


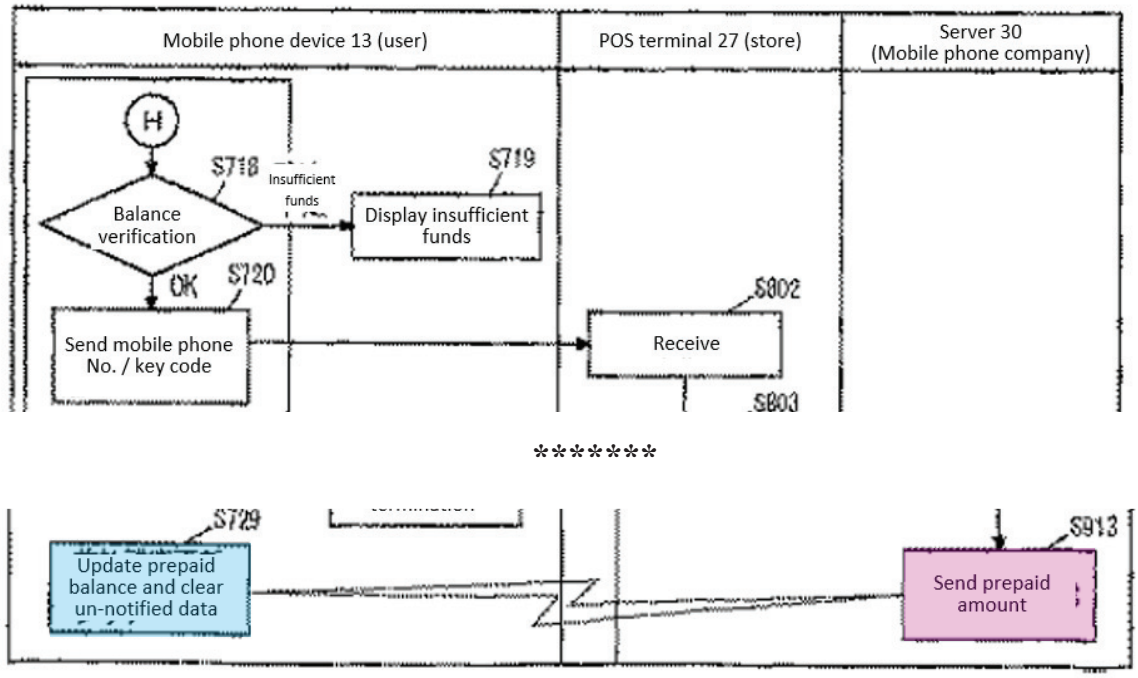
Figure 2

GOOG-1009, Fig. 2 (annotated)

c. [7.2] wherein the payment gateway is configured to perform the monetary transaction per the payment request by deducting the total amount from the e-purse and generates the confirmation for the POS device.

383. As described above with respect to [12.5.2], Jogu discloses that following a successful transaction, the payment gateway deducts the total amount from the balance of the e-purse managed in the mobile device and notifies the mobile device of the deducted amount, as shown in the excerpt of Figure 22 below (step S913 and S729). **GOOG-1006**, 14-15, 21.

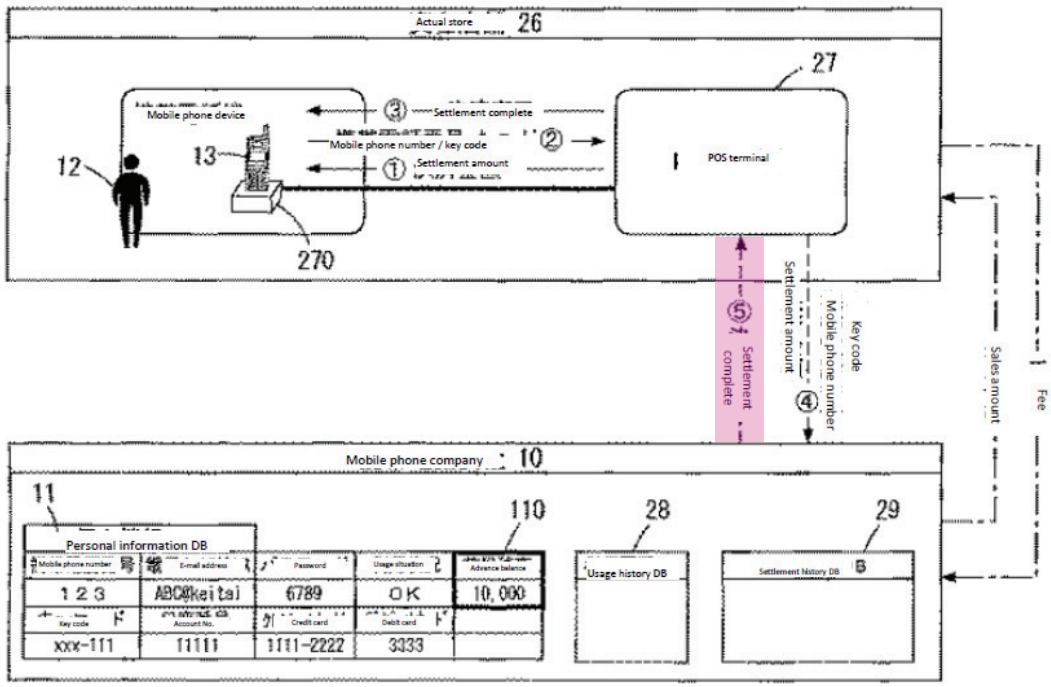
FIG. 22



GOOG-1006, Fig. 22 (annotated excerpt)

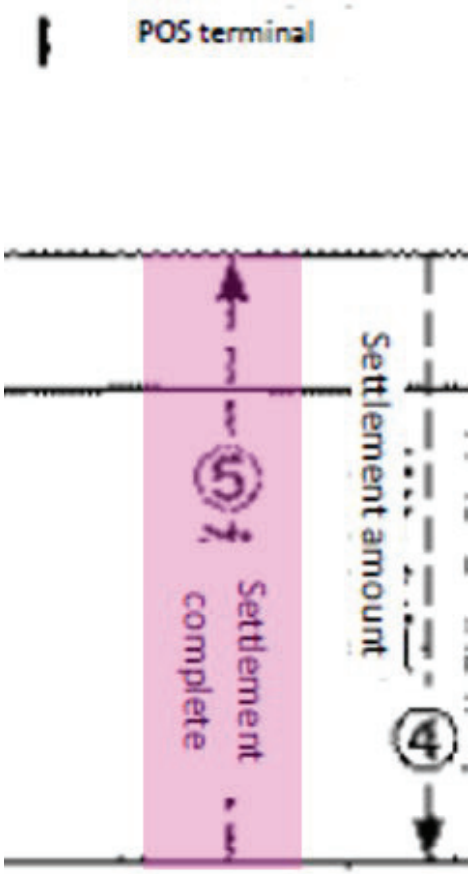
384. Further, as described above with respect to claim [1.10] and as shown below in Figure 6, Jogu discloses that the payment gateway 30 transmits confirmation to the POS terminal that the payment was successful. **GOOG-1006**, 6 ("[T]he mobile phone company 10 updates the prepaid balance by subtracting the payment amount from the prepaid balance of the virtual account 110, and notifies the POS terminal 27 of the completion of the payment.").

FIG. 6



GOOG-1006, Fig. 6 (annotated)

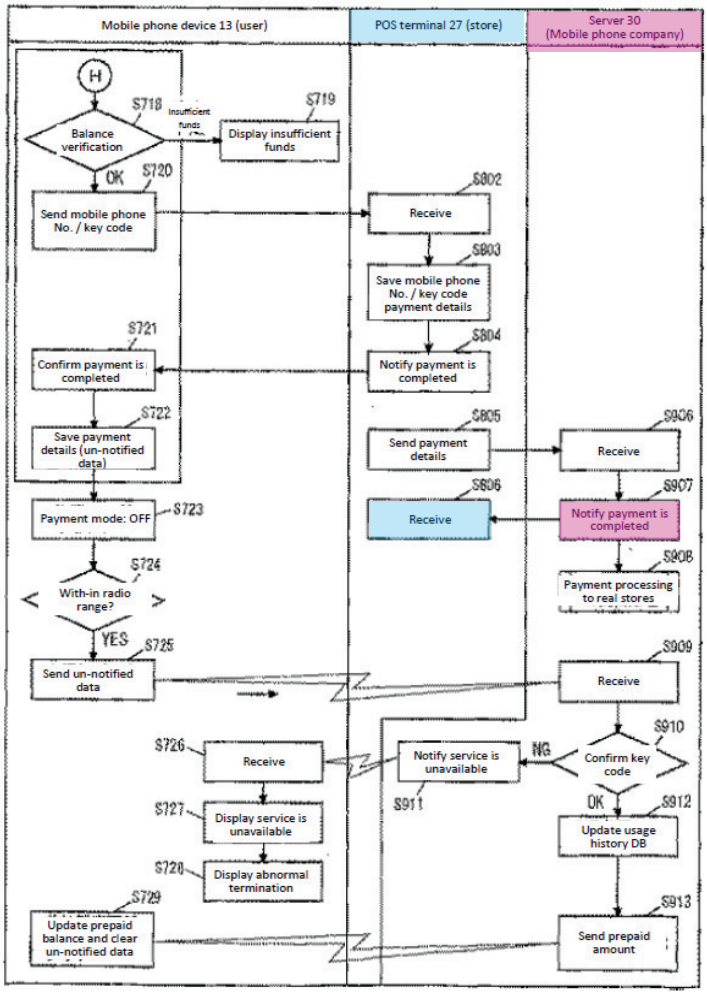
Below is an enlarged version of the pertinent portion of Fig. 6:



GOOG-1006, Fig. 6 (enlarged, annotated excerpt)

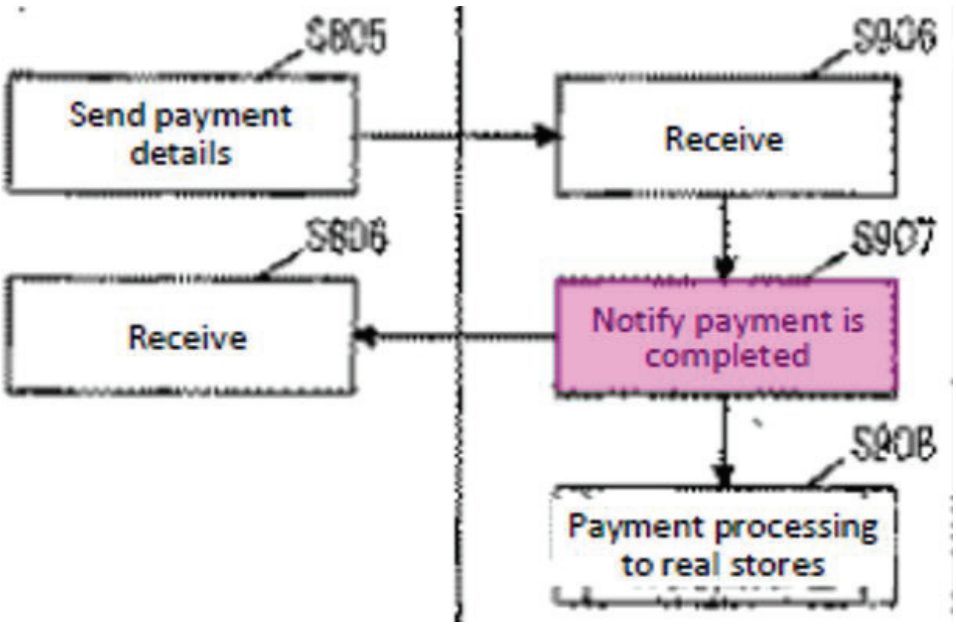
385. Similarly, with reference to Fig. 22 below, Jogu discloses that the payment gateway 10 sends notification of a successful payment completion directly to the POS device 27 (step S906). **GOOG-1006**, 15 ("[T]he data processing unit 301 transmits the payment completion information to the POS terminal 27 (S907).").

FIG. 22



GOOG-1006, Fig. 22 (annotated)

Below is an enlarged version of the pertinent portion of Fig. 22:



GOOG-1006, Fig. 22 (enlarged, annotated excerpt)

2. Claim 8

a. [8.0] The method as recited in claim 7, wherein said displaying the electronic invoice on the display of the mobile device comprises:

386. With reference to Figure 7 below, Moshal discloses that the mobile device displays the electronic invoice (see Fig. 8) on the display of the mobile device (step 712). **GOOG-1005**, ¶ 55.

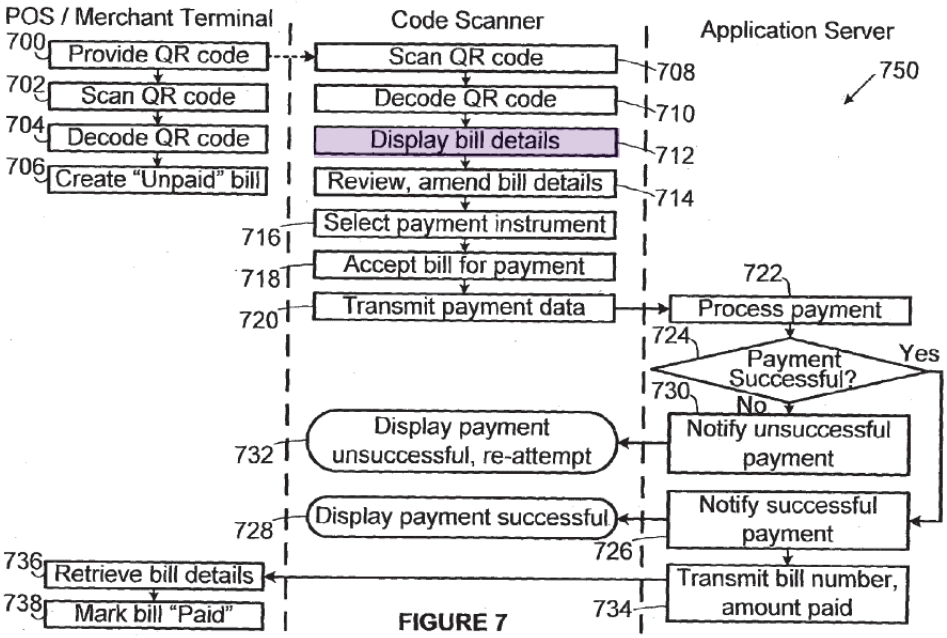
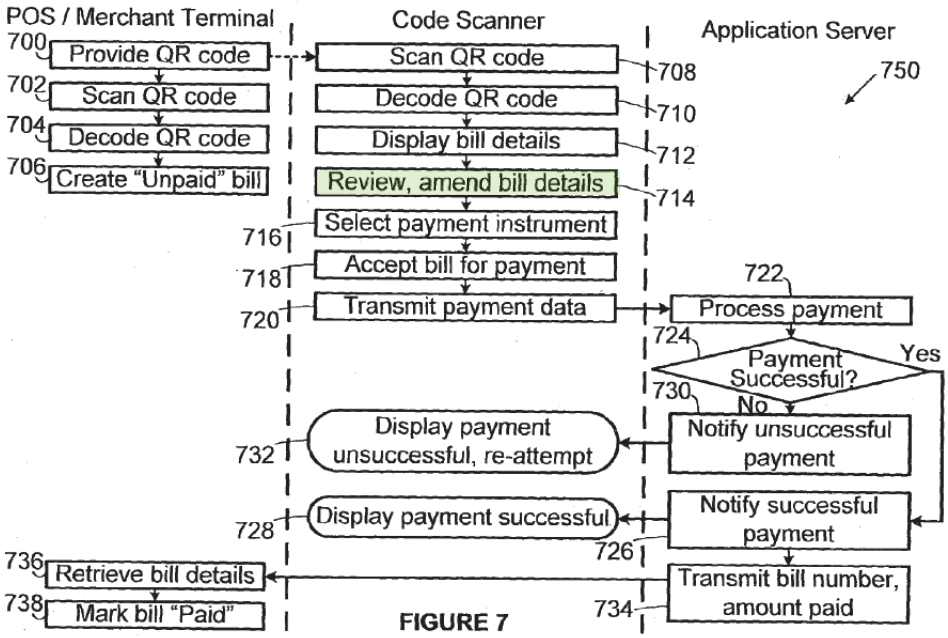


FIGURE 7

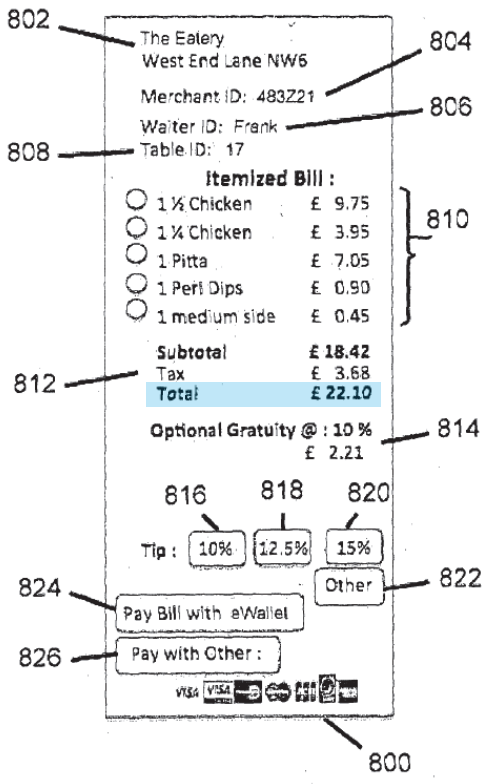
GOOG-1005, Fig. 7 (annotated)

b. [8.1] allowing the user to modify the amount in the electronic invoice when needed;

387. With reference to Figures 7 and 8 below, Moshal discloses allowing the user of the mobile device to modify the amount in the electronic invoice when needed (step 714). **GOOG-1005**, ¶ 55 ("At block 714 of FIG. 7 the user can review the bill details displayed on page 800 and amend the displayed data, if necessary."). As shown in Figure 8, the bill details include the original (pre-tip) amount of the invoice (£ 22.10).



GOOG-1005, Fig. 7 (annotated)



GOOG-1005, Fig. 8 (annotated)

c. [8.2] paying the total amount with an electronic payment provided by an installed module in the mobile device,

388. As shown in Figure 7 below, Moshal discloses that after the user has selected a payment instrument (step 716), the scanner app (installed module) of the mobile device pays the total amount (original invoice amount plus any tip added using icons 816, 818, 820, 822 in Fig. 8) by transmitting the "payment data" to the application server (payment gateway). **GOOG-1005**, ¶ 55 ("The scanner app then transmits to the [payment gateway] 102, at block 720, the merchant identification code, the bill identification number, **the amount due** and the details of a payment

instrument to be used for payment....") (emphasis added). By transmitting the "amount due" and the details of the payment instrument to be used for payment, the scanner app of Moshal's mobile device pays the total amount with an electronic payment, as confirmed by the notification of successful payment in step 726.

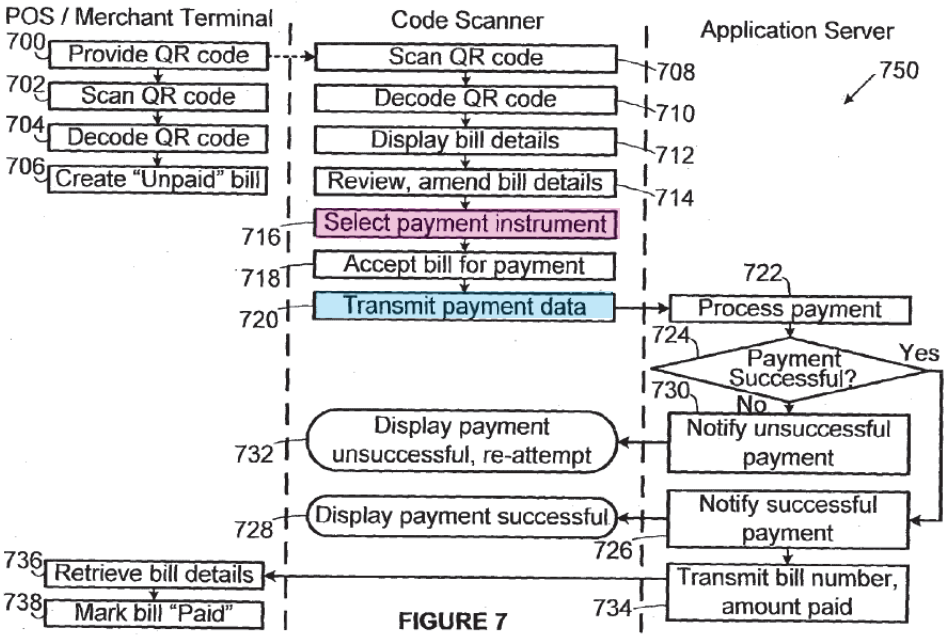


FIGURE 7

GOOG-1005, Fig. 7 (annotated)

d. [8.3] wherein the installed module in the mobile device is configured to generate the payment request including the data pertaining to the electronic invoice to the payment gateway for processing.

389. As described above with respect to [8.2], the mobile device user selects a payment instrument (step 716 in Fig. 7), and the scanner app (installed module) transmits a payment request (step 720) to the payment gateway for

processing. **GOOG-1005**, ¶ 55 ("The scanner app then transmits to the application server 102, at block 720, the merchant identification code, the bill identification number, the amount due and the details of a payment instrument to be used for payment."). Thus, the scanner app of Moshal's mobile device generates a payment request that includes data pertaining to the electronic invoice (the merchant identification code, the bill identification number, and the amount due), and transmits the payment request to the payment gateway (step 720). Thus, Moshal teaches [8.3].

3. Claim 9

a. [9.0] The method as recited in claim 8, wherein data exchange between the mobile device and the payment gateway is conducted in a secured channel established therebetween.

390. Limitation [9.0] is substantively similar to limitation [7.1]. As described above with respect to limitation [7.1], Moshal teaches data exchange between the mobile device and the payment gateway (e.g., payment request transmitted from the mobile device to the payment gateway), and Aabye discloses that communications between a mobile device and a payment gateway are conducted in a secured channel established between the mobile device and the payment gateway. **GOOG-1005**, ¶ 83; **GOOG-1009**, ¶ 66. Limitation [9.0] is therefore rendered obvious by Moshal in view of Aabye for the same reasons

presented above with respect to limitation [7.1]. **GOOG-1005**, ¶ 83; **GOOG-1009**, ¶ 66.

4. Claim 10

a. [10.0] The method as recited in claim 9, wherein the mobile device includes a secure element providing security and confidentiality required to support secure data communication between the mobile device and the payment gateway.

391. With reference to Figure 2 below, Aabye discloses that the mobile device includes a contactless element 106, which has a secure data storage element 110. **GOOG-1009**, ¶ 35. Aabye discloses that the secure data storage element 110 provides security and confidentiality required to support secure data communication between the mobile device and the payment gateway. **GOOG-1009**, ¶ 36 ("Secure data storage 110 may also be used to store other data for which enhanced security is desired, for example, transaction data, personal account data, identification data, authentication data, access control data for an application or device function, etc."). As described above with respect to [7.1], Aabye discloses that communications between the mobile device 102 and payment gateway 134, 138 are encrypted to provide a secure channel therebetween. **GOOG-1009**, ¶ 66. To perform this encryption, Aabye discloses that encryption keys are distributed between the mobile device and the payment gateway 134, 138. **GOOG-1009**, ¶¶ 57-59. Aabye discloses that "secure data storage 110 may contain authentication

data, user identification data, transaction record data, account balance data, etc." GOOG-1009, ¶ 37. Thus, Aabye teaches [10.0].

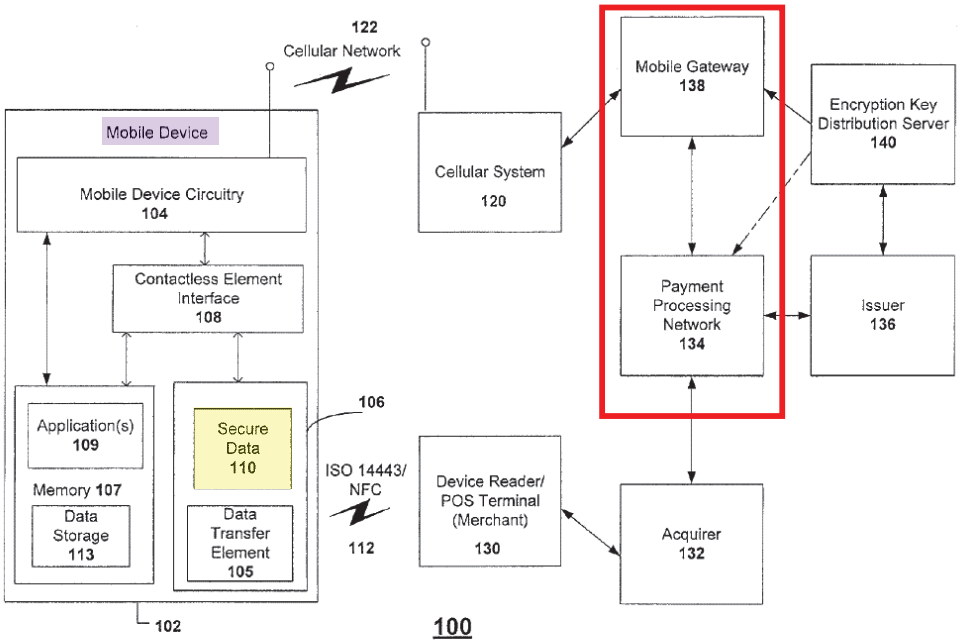


Figure 2

GOOG-1009, Fig. 2 (annotated)

392. As described above in Section XII.A, a POSITA would have been motivated to modify Moshal to provide such a secure channel between the mobile device and the payment gateway, as taught by Aabye, and storing encryption keys in a secure data storage of the mobile device would promote the integrity of the secure channel. **GOOG-1009**, ¶ 54 (encryption prevents unauthorized access to data "either on the phone or while the data is in transit over a communications network.").

5. Claim 11

a. [11.0] The method as recited in claim 9, wherein said displaying a confirmation in the mobile device that the balance in the e-purse has been reduced by the total amount comprises: sending a notification of successful payment to the merchant of the POS device.

393. As described above with respect to [1.11], a POSITA would have been motivated to modify Moshal to incorporate the conventional features of an e-wallet having an updatable balance and the mobile device with the e-wallet receiving notification of a balance reduction when a payment is successful, as disclosed by Jogu. Further, as described below with reference to Figure 7, Moshal discloses that when payment is successful (step 726), the payment gateway sends a notification of successful payment to the merchant of the POS device (steps 734-738). **GOOG-1005**, ¶¶ 56-57.

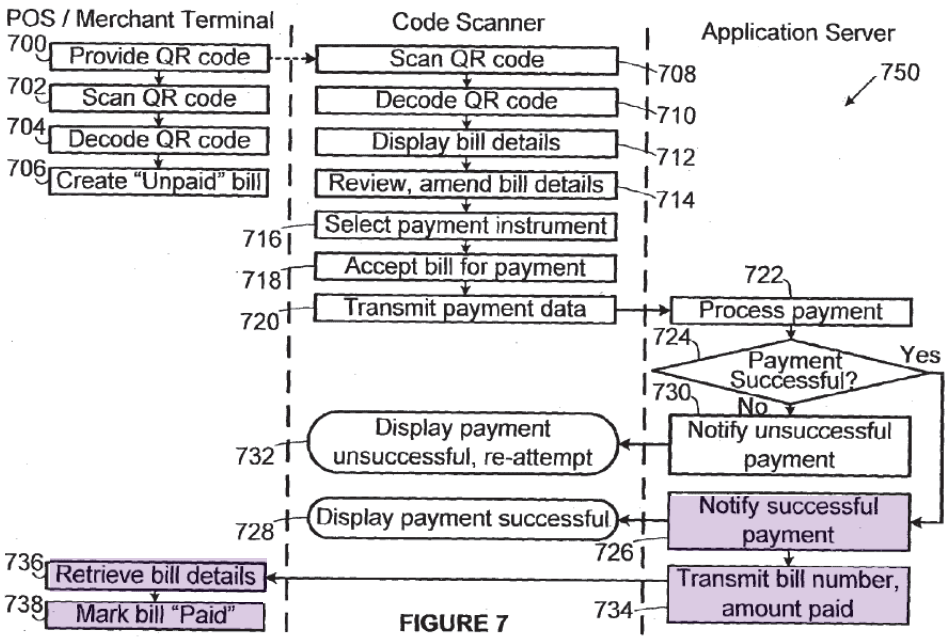


FIGURE 7

GOOG-1007, Fig. 7 (annotated)

6. Claim 17

a. [17.0] The method as recited in claim 12, wherein data exchange between the mobile device and the payment gateway is conducted in a secured channel established between the mobile device and the payment gateway.

394. Limitation [17.0] is substantively similar to limitation [7.1].

Limitation [9.0] is substantively similar to limitation [7.1]. As described above with respect to limitation [7.1], Moshal teaches data exchange between the mobile device and the payment gateway (e.g., payment request transmitted from the mobile device to the payment gateway), and Aabye discloses that communications between a mobile device and a payment gateway are conducted in a secured channel established between the mobile device and the payment gateway. **GOOG-**

1005, ¶ 83; **GOOG-1009**, ¶ 66. Limitation [9.0] is therefore rendered obvious by Moshal in view of Aabye for the same reasons presented above with respect to limitation [7.1]. **GOOG-1005**, ¶ 83; **GOOG-1009**, ¶ 66.

XIII. DECLARATION

395. 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 Section 1001 or Title 18 of the United States Code.

Date: December 23, 2020

Stephen Gray