



- (51) International Patent Classification:
G06Q 20/02 (2012.01)
- (21) International Application Number:
PCT/US2016/042751
- (22) International Filing Date:
18 July 2016 (18.07.2016)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
10201505803Q 24 July 2015 (24.07.2015) SG
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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: METHODS AND APPARATUS FOR PROCESSING A PAYMENT-ON-DELIVERY (POD) TRANSACTION

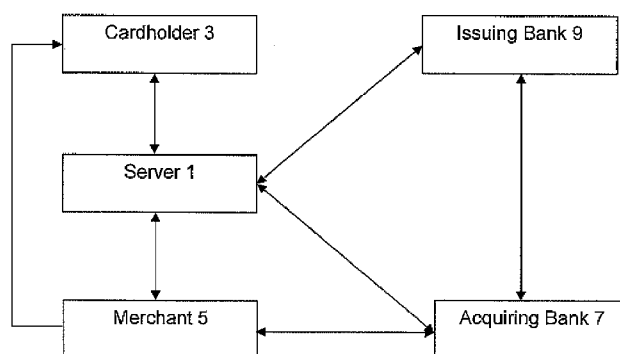


FIG. 1

(57) Abstract: A computer-implemented method for processing a payment-on-delivery (POD) transaction is provided. The method comprising (a) obtaining transaction information in respect of an order placed by a cardholder with a merchant, said transaction information comprising payment account information associated with the cardholder; (b) transmitting a pre-payment authorization code associated with the order to the cardholder; (c) receiving a payment authorization request from a communication device of the cardholder, said payment authorization request having been sent upon delivery of order merchandise, wherein the payment authorization request comprises a candidate pre-payment authorization code; (d) verifying the candidate pre-payment authorization code using the pre-payment authorization code; and (e) upon successful verification, transmitting a transaction request for effecting a payment from an issuing bank associated with the payment account, the transaction request comprising the payment account information. An apparatus is also proposed.



METHODS AND APPARATUS FOR PROCESSING A PAYMENT-ON-DELIVERY (POD) TRANSACTION

5 CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority to and the benefit of the filing date of Singapore Patent Application No. 10201505803Q filed on July 24, 2015, which is hereby incorporated by reference in its entirety.

10 TECHNICAL FIELD AND BACKGROUND

The present disclosure relates to a method and system for processing a payment-on-delivery (POD) transaction. In particular, it provides a method and system for processing a POD transaction involving a payment using a cashless payment device.

15 A payment-on-delivery (POD) transaction is a type of transaction in which payment for an order of a good or service is made at the time of delivery. POD transactions are especially popular for purchases carried out in a context of a remote transaction such as via mail order, fax or the internet. Upon delivery of the goods or services in good order, the courier collects cash from the buyer on behalf of the seller
20 to complete the transaction and the courier releases control of the goods to the buyer. However, it is inconvenient to carry out the transactions in cash, especially when the payment amount is substantial; for example, there may be security and safety concerns for the courier to handle the cash.

In some cases, a payment by a credit card may be accepted for POD
25 transactions. The courier carries a portable point-of-sales (POS) terminal along with him and swipes the credit card to process the payment upon delivery. However, this mandates the courier to carry the POS terminal in addition to the goods to be delivered, which is cumbersome. Moreover, such POS terminals can be costly.

Therefore, it is desirable to provide an improved method and apparatus
30 for processing a POD transaction.

SUMMARY

In general terms, the present disclosure proposes a method and apparatus for processing a POD transaction carried out using a payment card in a more convenient yet secure way. In particular, the method proposes using a server
5 (such as a third party server) to withhold a payment transaction from being processed (e.g. by withholding the payment account information of the cardholder) until the cardholder confirms that an order (i.e. the ordered merchandise) is received in good condition thereby authorizing the transaction to be effected.

According to a first expression, there is provided a computer-
10 implemented method for processing a payment-on-delivery (POD) transaction. The method comprises:

(a) obtaining, by a transaction management component of a server, transaction information in respect of an order placed by a cardholder with a merchant, said transaction information comprising payment account information associated with
15 the cardholder;

(b) transmitting, by the transaction management component, a pre-payment authorization code associated with the order to the cardholder;

(c) receiving, by a payment authorization component of the server, a payment authorization request from a communication device of the cardholder, said
20 payment authorization request having been sent upon delivery of ordered merchandise, wherein the payment authorization request comprises a candidate pre-payment authorization code;

(d) verifying, by the payment authorization component, the candidate pre-payment authorization code using the pre-payment authorization code; and
25

(e) upon successful verification, transmitting a transaction request for effecting a payment from an issuing bank associated with the payment account, the transaction request comprising the payment account information.

This method may be implemented by, for example, a server having a computer processor and data storage device storing software components or
30 instructions to carry out the operations disclosed above.

Advantageously, the above method allows a POD transaction to be carried out by a payment card without requiring a POS terminal. Instead, it allows the payment account information such as payment card details to be withheld by a third party (i.e. the server, which is not controlled by the cardholder or the merchant)

before ordered merchandise is delivered, and the payment is not processed until the third party receives an authorization from the cardholder. The authorization can be simply made by the cardholder sending the pre-payment authorization code to the server which the cardholder received from the server upon placing the order. Note that
5 it does not require a payment transaction between the cardholder and the third party when the cardholder places the order. In other words, no payment in any form is required from the cardholder until the ordered goods and/or services have been delivered.

The method may further comprise receiving, by a transaction
10 notification component, a notification representing an outcome of the transaction request from at least one of the following: (i) the merchant, (ii) the acquiring bank, and (iii) the issuing bank. The server may send a confirmation message, upon the payment being approved, to cause control of the ordered merchandise to be relinquished to the cardholder. In one example, the confirmation message is sent to a
15 delivery service provider associated with the delivery of the ordered merchandise, such as a courier. In another example, the confirmation message is sent to the merchant, who in turn sends a message to the delivery service provider.

The method may comprise obtaining the payment account information from a payment system at which the cardholder has previously registered. The
20 payment system typically stores the payment account information associated with the cardholder. This allows the payment account information to be obtained without requiring the user to input all the information, such as the card details, manually. For example, a cardholder may cause the payment account information to be obtained from his or her MasterPass™ data.

25 In some embodiments, prior to operation (a), the cardholder is registered with the server. The server may receive cardholder registration information comprising at least one of (i) identity data of the cardholder, (ii) the associated payment account information, and (iii) a mobile number of a mobile phone associated with the cardholder.

30 The method may further comprise registering the merchant with the server. The server may receive merchant registration information comprising at least one of (i) identity data of the merchant, (ii) an acquiring bank of the merchant, and (iii) a terminal device of the merchant for communication with the server.

The method may comprise transmitting the pre-payment authorization code to the communication device of the cardholder. In one example, the communication device is a mobile phone associated with the cardholder. The mobile phone may be a smartphone, i.e. a phone with advanced computing capabilities and connectivity, in addition to what is provided by a feature phone, i.e. a phone with only basic features such as making or receiving calls, and sending or receiving text messages.

In some embodiments, the pre-payment authorization code is encrypted. In one example, the pre-payment authorization code itself is a cryptogram. Additionally or alternatively, the transmission of the code is via an encrypted pipe (such as the VPN).

The method may further comprise transmitting the candidate pre-payment authorization code via a protocol selected from one of: (i) Short Message Service (SMS), (ii) Unstructured Supplementary Service Data (USSD) and (iii) a software application installed on the communication device of the cardholder.

In some embodiments, the candidate pre-payment authorization code is encrypted. In one example, the candidate pre-payment authorization code itself is a cryptogram. Additionally or alternatively, the transmission of the code is via an encrypted pipe (such as the VPN).

The transaction information may further comprise a transaction amount of the order.

According to a second expression, there is provided an apparatus for processing a payment-on-delivery (POD) transaction. The apparatus comprises a computer processor and a data storage device. The data storage device has a transaction management component and a payment authorization component comprising non-transitory instructions operative by the processor to perform a method disclosed above.

According to a third expression, there is provided a non-transitory computer-readable medium. The computer-readable medium has stored thereon program instructions for causing at least one processor to perform operations of a method disclosed above.

According to another expression, there is provided another computer-implemented method for processing a payment-on-delivery (POD) transaction. The method comprises:

(a) receiving, by an order processing component, an order from a cardholder;

(b) receiving, by the order processing component, a notification from a payment management system confirming an availability of payment account information associated with the cardholder in respect of the order;

(c) processing, by the order processing component, the order to arrange for delivery of ordered merchandise to the cardholder;

(d) receiving, by a payment processing component, the payment account information from the payment management system upon the ordered merchandise having been delivered to the cardholder; and

(e) causing an acquiring bank of the merchant to effect a payment from an issuing bank associated with the payment account using the payment account information.

This method may be implemented by a server or any other terminal of the merchant.

The method may further comprise sending a confirmation message, upon the payment being approved, to cause control of the ordered merchandise to be relinquished to the cardholder. In one example, the confirmation message is sent to a delivery service provider associated with the delivery of the ordered merchandise. The confirmation message may additionally or alternatively be sent to the payment management system. The payment management system may be a system described above with respect to the first expression.

According to a further expression, there is provided an apparatus for processing a payment-on-delivery (POD) transaction. The apparatus comprises a computer processor and a data storage device, the data storage device having an order management component and a payment processing component comprising non-transitory instructions operative by the processor to perform a method disclosed above.

According to a yet further expression, there is provided a non-transitory computer-readable medium. The computer-readable medium has stored thereon program instructions for causing at least one processor to perform operations of a method disclosed above.

The term "payment card" referred to in this document may include but is not limited to a physical (e.g. plastic) card. Rather, the term refers to a bank account such as a credit card, a debit card, loan, checking, and/or savings account, having a

primary account number (PAN) maintained by a bank ("the card issuing bank"). The PAN functions as payment credentials used when making a payment. Conventionally, the PAN is a 16-digit PAN number, which, if a physical card exists, is printed on the card. However, a payment card can be used in the present invention irrespective of whether a physical card bearing the payment credentials exists. Non exhaustive examples of payment cards include a credit card, a debit card, a prepaid card, a charge card, a membership card, a promotional card, a frequent flyer card, an identification card, a prepaid card, a gift card. A payment card may also be embodied in another device that may hold payment card information (including bank account information associated with the card such as the PAN, or a token representing the PAN which serves as a pointer to the actual PAN), such as mobile phones, smartphones, personal digital assistants (PDAs), key fobs, transponder devices, NFC-enabled devices, and/or computers.

Accordingly, the term "payment account information" represents bank accounts information associated with a payment card, such as a primary account number (PAN) of a credit card holder.

The term "communication device" refers a piece of equipment or hardware which is capable of transmitting and receiving data electronically. It may be a computer device such as a mobile phone (e.g. smartphones or conventional/feature phones), a tablet, a desktop computer, a laptop computer or a smart watch etc.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the invention will now be described for the sake of non-limiting example only, with reference to the following drawings in which:

Fig. 1 illustrates an apparatus according to an embodiment;

Fig. 2 is a block diagram illustrating a technical architecture of the apparatus according to an embodiment;

Fig. 3 illustrates process steps which are performed by the system of Fig. 1 during a POD transaction;

Fig. 4 is a flow diagram of operations according to an embodiment;

and

Fig. 5 is a flow diagram of operations according to another embodiment.

DETAILED DESCRIPTION

Fig. 1 illustrates an apparatus 1 for processing a payment-on-delivery (POD) transaction between a cardholder 3 and a merchant 5, for example, in respect of a remote purchase, such as for goods and servers that are ordered via phone, mail order, fax or the Internet.

A server 1 is provided to communicate with the cardholder 3 and the merchant 5. Optionally, as described below, the server 1 may be also in communication with an issuing bank 9 of the cardholder 3 and an acquiring bank 7 of the merchant 5. Generally, the server 1 may be configured to handle requests and/or communications from terminals associated with parties involved in a transaction carried out over a payment network. The payment network can be any electronic payment network which connects, directly and/or indirectly payers (consumers and/or their banks or similar financial institutions) with payees (the merchants and/or their banks or similar financial institutions). Non-limiting examples of the payment network are a payment card type of network such as the payment processing network operated by MasterCard, Inc.,. The various communication may take place via any types of network, for example, virtual private network (VPN), the Internet, a local area and/or wide area network (LAN and/or WAN), and so on.

Fig. 2 is a block diagram showing a technical architecture of the server 1 for performing an exemplary method 100 which is described below with reference to Figs. 3 and 4. Typically, the method 100 is implemented by a computer having a data-processing unit. The block diagram as shown Fig. 2 illustrates a technical architecture 220 of a computer which is suitable for implementing one or more embodiments herein.

The technical architecture 220 includes a processor 222 (which may be referred to as a central processor unit or CPU) that is in communication with memory devices including secondary storage 224 (such as disk drives), read only memory (ROM) 226, random access memory (RAM) 228. The processor 222 may be implemented as one or more CPU chips. The technical architecture 220 may further comprise input/output (I/O) devices 230, and network connectivity devices 232.

The secondary storage 224 is typically comprised of one or more disk drives or tape drives and is used for non-volatile storage of data and as an over-flow data storage device if RAM 228 is not large enough to hold all working data. Secondary storage 224 may be used to store programs which are loaded into RAM

228 when such programs are selected for execution. In this embodiment, the secondary storage 224 has a transaction management component 224a, a payment authorization component 224b and a transaction notification component 224c comprising non-transitory instructions operative by the processor 222 to perform various operations of the method of the present disclosure. The ROM 226 is used to store instructions and perhaps data which are read during program execution. The secondary storage 224, the RAM 228, and/or the ROM 226 may be referred to in some contexts as computer readable storage media and/or non-transitory computer readable media.

10 I/O devices 230 may include printers, video monitors, liquid crystal displays (LCDs), plasma displays, touch screen displays, keyboards, keypads, switches, dials, mice, track balls, voice recognizers, card readers, paper tape readers, or other well-known input devices.

The network connectivity devices 232 may take the form of modems, modem banks, Ethernet cards, universal serial bus (USB) interface cards, serial interfaces, token ring cards, fiber distributed data interface (FDDI) cards, wireless local area network (WLAN) cards, radio transceiver cards that promote radio communications using protocols such as code division multiple access (CDMA), global system for mobile communications (GSM), long-term evolution (LTE), worldwide interoperability for microwave access (WiMAX), near field communications (NFC), radio frequency identity (RFID), and/or other air interface protocol radio transceiver cards, and other well-known network devices. These network connectivity devices 232 may enable the processor 222 to communicate with the Internet or one or more intranets. With such a network connection, it is contemplated that the processor 222 might receive information from the network, or might output information to the network in the course of performing the above-described method operations. Such information, which is often represented as a sequence of instructions to be executed using processor 222, may be received from and outputted to the network, for example, in the form of a computer data signal embodied in a carrier wave.

The processor 222 executes instructions, codes, computer programs, scripts which it accesses from hard disk, floppy disk, optical disk (these various disk based systems may all be considered secondary storage 224), flash drive, ROM 226, RAM 228, or the network connectivity devices 232. While only one processor 222 is

shown, multiple processors may be present. Thus, while instructions may be discussed as executed by a processor, the instructions may be executed simultaneously, serially, or otherwise executed by one or multiple processors.

Although the technical architecture 220 is described with reference to a
5 computer, it should be appreciated that the technical architecture may be formed by two or more computers in communication with each other that collaborate to perform a task. For example, but not by way of limitation, an application may be partitioned in such a way as to permit concurrent and/or parallel processing of the instructions of the application. Alternatively, the data processed by the application may be
10 partitioned in such a way as to permit concurrent and/or parallel processing of different portions of a data set by the two or more computers. In an embodiment, virtualization software may be employed by the technical architecture 220 to provide the functionality of a number of servers that is not directly bound to the number of computers in the technical architecture 220. In an embodiment, the functionality
15 disclosed above may be provided by executing the application and/or applications in a cloud computing environment. Cloud computing may comprise providing computing services via a network connection using dynamically scalable computing resources. A cloud computing environment may be established by an enterprise and/or may be hired on an as-needed basis from a third party provider.

20 It is understood that by programming and/or loading executable instructions onto the technical architecture 220, at least one of the CPU 222, the RAM 228, and the ROM 226 are changed, transforming the technical architecture 220 in part into a specific purpose machine or apparatus having the novel functionality taught by the present disclosure. It is fundamental to the electrical engineering and
25 software engineering arts that functionality that can be implemented by loading executable software into a computer can be converted to a hardware implementation by well-known design rules.

Various operations of the exemplary method 100 will now be described with reference to Figs. 3 and 4 in respect of a transaction carried out
30 between a cardholder and a merchant. It will be understood that the method 100 can accommodate multiple cardholders and merchants. It should be noted that enumeration of operations is for purposes of clarity and that the operations need not be performed in the order implied by the enumeration.

At step 10, a cardholder places an order with a merchant. The order may be placed via the Internet, phone, fax, mail or any other remote means. For example, the cardholder 3 uses his or her computer device to make an order of merchandise online via a website of the merchant 5. Note that the ordered merchandise may be goods and/or services. In case of the ordered merchandise is a service, the merchant could be a service provider. In one example, the merchant may be a barber shop, and the service delivered is hair dressing of a customer in the home of the customer. In another example, a plumber may go to a house to deliver plumbing services.

At step 20, the transaction management component 224a of the server 1 obtains transaction information in respect of the order. For example, when the order is made, the cardholder may be prompted to use a system of the present disclosure to complete the order. In particular, the cardholder 3 may input payment account information which he or she intends to use for paying the merchant 5 upon receipt of the ordered merchandise. The transaction information may further include the transaction amount of the order, which may be provided by the merchant 5 to the server 1 at step 20a. The transaction information may be saved on a database (not shown) which is accessible by the CPU 222. The database may be stored on the secondary storage device 224 of the server 1 itself or any other data storage medium. The database may further store payment account information for one or more payment cards associated with the cardholder 3.

At step 30, the payment authorization component 224b of the server 1 generates a pre-payment authorization code associated with the order, and transmits the code to a communication device of the cardholder 3, for example, to a mobile phone or a tablet computer of the cardholder 3. The pre-payment authorization code is used for authorizing a payment to the merchant 5 in the subsequent operations, as will be described in detail later. In some embodiments, the pre-payment authorization code may be generated by a specialized security system in communication with the server 1. The pre-payment authorization code is typically encrypted during transmission for security purposes.

Upon the cardholder receiving the ordered goods and/or services in good order, a payment authorization request is transmitted to the server 1 from a cardholder's communication device at step 40 to authorize a payment to be processed. The payment authorization request comprises information associated with the pre-

payment authorization code received from the server 1 at step 30. This communication device may be the same or different from the device which receives the pre-payment authorization code from the server 1. For example, the pre-payment authorization code could be received via a laptop of the cardholder 3 while the
5 payment authorization request is sent via a mobile phone of the cardholder 3. The payment authorization request may be encrypted before transmission.

The pre-payment authorization code may be sent by the communication device via a protocol selected from one of: (i) Short Message Service (SMS), (ii) Unstructured Supplementary Service Data (USSD) and (iii) a software
10 application installed on the communication device of the cardholder. The use of USSD allows a cardholder who uses a feature phone (as compared to a smartphone) to communicate with the server 1.

In one example, the cardholder sends the encrypted pre-payment authorization code he previously received to the server 1 by sending the code as the
15 text of an SMS. However, it will be understood that the encrypted pre-payment authorization code could simply be a "reference number" contained in an SMS or other messages sent from the server, such that merely replying to the SMS or other messages performs the present method (i.e. without consciously sending the code as the text of the SMS or other messages to the server 1).

At step 50, the server 1 performs a verification of the payment authorization request using the pre-payment authorization code, before causing the transaction request to be processed at the issuing bank 9. The verification may further include an operation of verifying an identity of the communication device. For example, the server 1 may determine if the communication device from which it
20 receives the payment authorization request is consistent with the one to which the pre-payment authorization code was sent. For example, whether both devices were previously registered with the server 1 or otherwise determined to be associated with the same user. In one particular example, the server 1 may verify if the pre-payment authorization code was sent to a mobile phone number which is the same as the one
25 from which the server 1 receives the payment authorization request. The method may allow a payment authorization request, which is sent from a communication device/a mobile number that is different from the one to which the pre-payment authorization code was sent, to be successfully verified by the server 1.
30

At step 60, the server 1 causes a transaction request to be transmitted to effect the payment upon the verification being successful. For example, the server 1 may send the payment account information to the merchant 5 for its acquiring bank 7 to prepare and submit a payment request to the relevant issuing bank 9.

5 At step 70, the transaction notification component 224c of the server 1 receives a notification regarding an outcome of the transaction request. Although this example illustrates that the notification is sent to the server 1 from the issuing bank 9, it will be understood that the notification may be received from the acquiring bank 7.

 At step 80, the server 1 transmits a confirmation message to the
10 merchant 5 upon the transaction being approved. In one example, the merchant 5 notifies the courier to release the ordered goods and/or services to the cardholder 3. It will be understood that the confirmation message may be sent by the server 1 directly to the courier. In another example, the confirmation message may be sent to the cardholder 3 who then requests the courier to release the ordered goods and/or services to
15 complete the transaction at step 90.

 In some embodiments, before initiating a POD transaction, the method 100 further includes a registration phase for the cardholder 3 and/or the merchant 5. The cardholder 3 may provide registration information to the server 1, which may include his/her identity data, the associated payment account information, and/or a
20 mobile number of his/her mobile phone. Similarly, the merchant 5 may register with the server 1 by providing registration information such as identity data of the merchant, its acquiring bank and/or a terminal device (such as a mobile phone) of the merchant 5 for communication with the server 1. The information may be stored and made accessible to the server 1.

25 As noted above, the server 1 may be able to communicate with the acquiring bank 7 and/or the issuing bank 9. In such embodiments, upon the verification being successful, the server 1 may communicate directly with the acquiring bank 7 (step 60a of Fig. 3) to effect the payment, instead of sending the payment account information for processing via the merchant 5. Alternatively, the
30 server may be arranged to communicate directly with the issuing bank 9 and receive the notification regarding the outcome of the transaction directly from the issuing bank 9.

 In some embodiments, the outcome of the transaction request is sent to the merchant 5, for example, from its acquiring bank 7. The merchant 5 may then

notify the delivery service provider to release the ordered merchandise to the cardholder 3 without reverting back to the server 1, as will be described later with respect to a method 200.

Fig. 5 illustrates a method 200 carried out by a server of the merchant
5 5 in accordance with one embodiment. Similarly, the method 200 is typically implemented by a computer having a processing unit, for example, whose architecture is similar to the architecture 220 of the server 1.

At step 110, an order processing component of the merchant's server receives an order from a cardholder, for example, in respect of a remote purchase.

10 At step 120, the order processing component of the merchant server receives a notification from a third-party payment management system confirming an availability of payment account information associated with the cardholder in respect of the order, before processing the order at step 130. For example, the merchant arranges for delivery of order only if the payment management system confirm that
15 the cardholder has provided relevant payment information. In one example, the payment management system may further confirm to the merchant if the payment information is valid, before the merchant arranging for shipping of the order. The payment management system is, for example, the server 1 which carries out the operations (in part or all) of the method 100 described above.

20 At step 130, the merchant processes the order to arrange for delivery to the cardholder. The merchant may engage an external delivery service provider or arrange the delivery to be made by an employee of the merchant itself.

Upon the ordered merchandise being delivered to the cardholder, payment account information of the cardholder is received by the merchant from the
25 third-party payment management system upon the cardholder's authorization at step 140.

At step 150, the merchant forwards the payment account information together with other transaction detail such as the transaction amount to cause the payment to be effected at the issuing bank. Upon a confirmation message (e.g.
30 "transaction approved") being received at the merchant, the merchant notifies the delivery service provider to release the ordered merchandise to the cardholder to complete the POD transaction at step 160. In a variant, the merchant may notify the delivery service provider by sending a notification to the payment management

system regarding a successful outcome of transaction, which then requests the delivery service provider to release the ordered merchandise to the cardholder.

Whilst the foregoing description has described exemplary embodiments, it will be understood by those skilled in the art that many variations of the embodiment can be made within the scope and spirit of the present invention. For example, the method 100 may be operated by acquiring banks or issuing banks, in this case, the server may be arranged to process the transaction request straightaway and/or notify the delivery service provider to release the ordered merchandise, without reverting to the merchant.

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Claims

1. A computer-implemented method for processing a payment-on-delivery (POD) transaction, the method comprising:

5 (a) obtaining, by a transaction management component of a server, transaction information in respect of an order placed by a cardholder with a merchant, said transaction information comprising payment account information associated with the cardholder;

(b) transmitting, by the transaction management component, a pre-payment authorization code associated with the order to the cardholder;

10 (c) receiving, by a payment authorization component of the server, a payment authorization request from a communication device of the cardholder, said payment authorization request having been sent upon delivery of ordered merchandise, wherein the payment authorization request comprises a candidate pre-payment authorization code;

15 (d) verifying, by the payment authorization component, the candidate pre-payment authorization code using the pre-payment authorization code; and

(e) upon successful verification, transmitting a transaction request for effecting a payment from an issuing bank associated with the payment account, the transaction request comprising the payment account information.

20 2. A computer-implemented method according to claim 1 further comprising receiving, by a transaction notification component, a notification representing an outcome of the transaction request from at least one of (i) the merchant, (ii) the acquiring bank, and (iii) the issuing bank.

25 3. A computer-implemented method according to claim 1 or claim 2 further comprising sending a confirmation message by the transaction notification component, upon the payment being approved, thereby causing control of the ordered merchandise to be relinquished to the cardholder.

30 4. A computer-implemented method according to claim 3 comprising sending the confirmation message to at least one of (i) the merchant, (ii) the cardholder and (iii) a delivery service provider associated with the delivery of the ordered merchandise.

5. A computer-implemented method according to any preceding claim comprising obtaining the payment account information from a payment

system at which the cardholder has previously registered, said payment system storing the payment account information associated with the cardholder.

5 6. A computer-implemented method according to any preceding claim comprising, prior to operation (a), registering the cardholder with the server, in which the server receives cardholder registration information comprising at least one of (i) identity data of the cardholder, (ii) the associated payment account information, and (iii) a mobile number of a mobile phone associated with the cardholder.

10 7. A computer-implemented method according to any preceding claim further comprising registering the merchant with the server, in which the server receives merchant registration information comprising at least one of (i) identity data of the merchant, (ii) an acquiring bank of the merchant, and (iii) a device of the merchant for communication with the server.

15 8. A computer-implemented method according to any preceding claim in which the pre-payment authorization code is encrypted.

9. A computer-implemented method according to any preceding claim comprising transmitting the pre-payment authorization code to the communication device of the cardholder.

20 10. A computer-implemented method according to any preceding claim in which the communication device is a mobile phone of the cardholder.

11. A computer-implemented method according to any preceding claim in which the candidate pre-payment authorization code is encrypted.

25 12. A computer-implemented method according to any preceding claim comprising transmitting the candidate pre-payment authorization code via a protocol selected from one of: (i) Short Message Service (SMS), (ii) Unstructured Supplementary Service Data (USSD) and (iii) a software application installed on the communication device of the cardholder.

30 13. A computer-implemented method according to any preceding claim, wherein the transaction information further comprising a transaction amount of the order.

14. An apparatus for processing a payment-on-delivery (POD) transaction comprising:

a computer processor and a data storage device, the data storage device having a transaction management component and a payment authorization component comprising non-transitory instructions operative by the processor to:

5 (a) obtain transaction information in respect of an order placed by a cardholder with a merchant, said transaction information comprising payment account information associated with the cardholder;

(b) transmit a pre-payment authorization code associated with the order to the cardholder;

10 (c) receive a payment authorization request from a communication device of the cardholder, said payment authorization request having been sent upon delivery of ordered merchandise, wherein the payment authorization request comprises a candidate pre-payment authorization code;

(d) verify the candidate pre-payment authorization code using the pre-payment authorization code; and

15 (e) upon successful verification, transmit a transaction request for effecting a payment from an issuing bank associated with the payment account, the transaction request comprising the payment account information.

20 15. An apparatus according to claim 14, wherein the data storage device further comprises a transaction notification component having non-transitory instructions operative by the processor to receive a notification representing an outcome of the transaction request from at least one of (i) the merchant, (ii) the acquiring bank, and (iii) the issuing bank.

25 16. An apparatus according to claim 14 or claim 15, wherein the transaction notification component further comprises non-transitory instructions operative by the processor to send a confirmation message, upon the payment being approved, thereby causing control of the ordered merchandise to be relinquished to the cardholder.

30 17. An apparatus according to claim 16, wherein the transaction notification component further comprises non-transitory instructions operative by the processor to send the confirmation message to at least one of (i) the merchant, (ii) the cardholder and (iii) a delivery service provider associated with the delivery of the ordered merchandise.

18. An apparatus according to any of claims 14-17, wherein the data storage device further comprises non-transitory instructions operative by the

processor to obtain the payment account information from a payment system at which the cardholder has previously registered, said payment system storing the payment account information associated with the cardholder.

5 19. An apparatus according to any of claims 14-18, wherein the data storage device further comprises non-transitory instructions operative by the processor to, prior to operation (a), register the cardholder with the server, in which the server receives cardholder registration information comprising at least one of (i) identity data of the cardholder, (ii) the associated payment account information, and (iii) a mobile number of a mobile phone associated with the
10 cardholder.

20. An apparatus according to any of claims 14-19, wherein the data storage device further comprises non-transitory instructions operative by the processor to register the merchant with the server, in which the server receives merchant registration information comprising at least one of (i) identity data of the
15 merchant, (ii) an acquiring bank of the merchant, and (iii) a terminal device of the merchant for communication with the server.

21. An apparatus according to any of claims 14-20, wherein the pre-payment authorization code is encrypted.

20 22. An apparatus according to any of claims 14-21, wherein the data storage device further comprises non-transitory instructions operative by the processor to transmit the pre-payment authorization code to the communication device of the cardholder.

23. An apparatus according to any of claims 14-22, wherein the communication device is a mobile phone of the cardholder.

25 24. An apparatus according to any of claims 14-23, wherein the candidate pre-payment authorization code is encrypted.

25. An apparatus according to any of claims 14-24, wherein the data storage device further comprises non-transitory instructions operative by the processor to transmit the candidate pre-payment authorization code via a protocol
30 selected from one of: (i) Short Message Service (SMS), (ii) Unstructured Supplementary Service Data (USSD) and (iii) a software application installed on the communication device of the cardholder.

26. An apparatus according to any of claims 14-23, wherein the transaction information further comprising a transaction amount of the order.

27. A non-transitory computer-readable medium, the computer-readable medium having stored thereon program instructions for causing at least one processor to perform operations of:

5 (a) obtaining transaction information in respect of an order placed by a cardholder with a merchant, said transaction information comprising payment account information associated with the cardholder;

(b) transmitting a pre-payment authorization code associated with the order to the cardholder;

10 (c) receiving a payment authorization request from a communication device of the cardholder, said payment authorization request having been sent upon delivery of ordered merchandise, wherein the payment authorization request comprises a candidate pre-payment authorization code;

(d) verifying the candidate pre-payment authorization code using the pre-payment authorization code; and

15 (e) upon successful verification, transmitting a transaction request for effecting a payment from an issuing bank associated with the payment account, the transaction request comprising the payment account information.

28. A computer-implemented method for processing a payment-on-delivery (POD) transaction, the method comprising:

20 (a) receiving, by an order processing component, an order from a cardholder;

(b) receiving, by the order processing component, a notification from a payment management system confirming an availability of payment account information associated with the cardholder in respect of the order;

25 (c) processing, by the order processing component, the order to arrange for delivery of ordered merchandise to the cardholder;

(d) receiving, by a payment processing component, the payment account information from the payment management system upon the ordered merchandise having been delivered to the cardholder; and

30 (e) causing an acquiring bank of the merchant to effect a payment from an issuing bank associated with the payment account using the payment account information.

29. A computer-implemented method according to claim 28, the method further comprising: sending a confirmation message, upon the payment

being approved, thereby causing control of the ordered merchandise to be relinquished to the cardholder.

30. A computer-implemented method according to claim 29 comprising sending the confirmation message to a delivery service provider associated with the delivery of the order.

31. A computer-implemented method according to claim 29 or claim 30 comprising sending the confirmation message to the payment management system.

32. An apparatus for processing a payment-on-delivery (POD) transaction comprising:

a computer processor and a data storage device, the data storage device having an order management component and a payment processing component comprising non-transitory instructions operative by the processor to:

(a) receive an order from a cardholder;

(b) receive a notification from a payment management system confirming an availability of payment account information associated with the cardholder in respect of the order;

(c) process the order to arrange for delivery of the order to the cardholder;

(d) receive the payment account information from the payment management system upon the ordered merchandise having been delivered to the cardholder; and

(e) cause an acquiring bank of the merchant to receive a payment from an issuing bank associated with the payment account using the payment account information.

33. An apparatus according to claim 32, wherein the data storage device further comprises non-transitory instructions operative by the processor to send a confirmation message, upon the payment being approved, to cause control of the ordered merchandise to be relinquished to the cardholder.

34. A non-transitory computer-readable medium, the computer-readable medium having stored thereon program instructions for causing at least one processor to perform operations of:

(a) receiving an order from a cardholder;

(b) receiving a notification from a payment management system confirming an availability of payment account information associated with the cardholder in respect of the order;

5 (c) processing the order to arrange for delivery of order merchandise to the cardholder;

(d) receiving the payment account information from the payment management system upon the ordered merchandise having been delivered to the cardholder; and

10 (e) causing an acquiring bank of the merchant to effect the transaction with an issuing bank associated with the payment account using the payment account information.

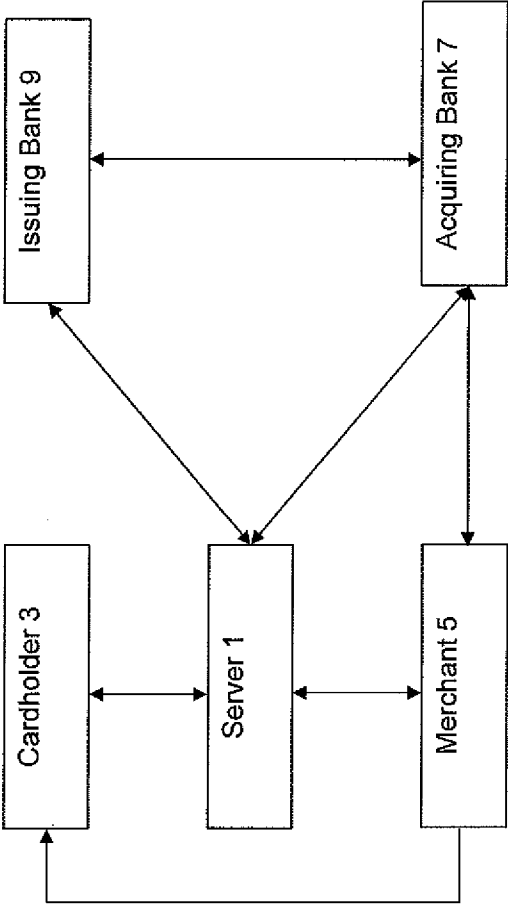


FIG. 1

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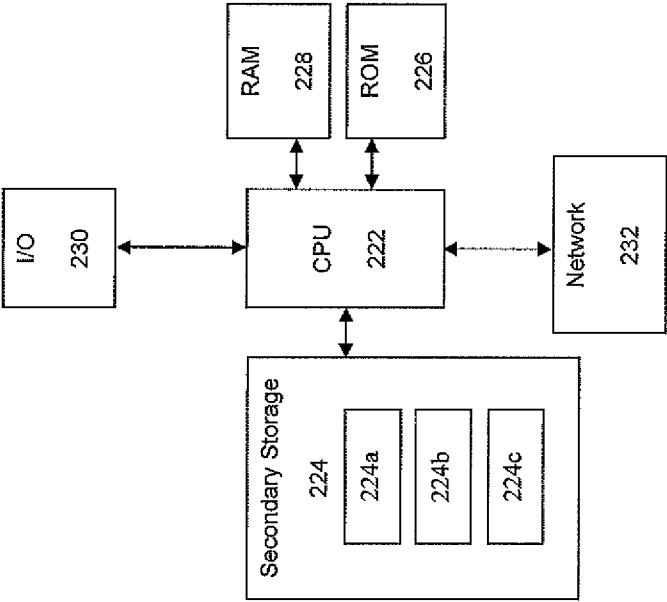


FIG. 2

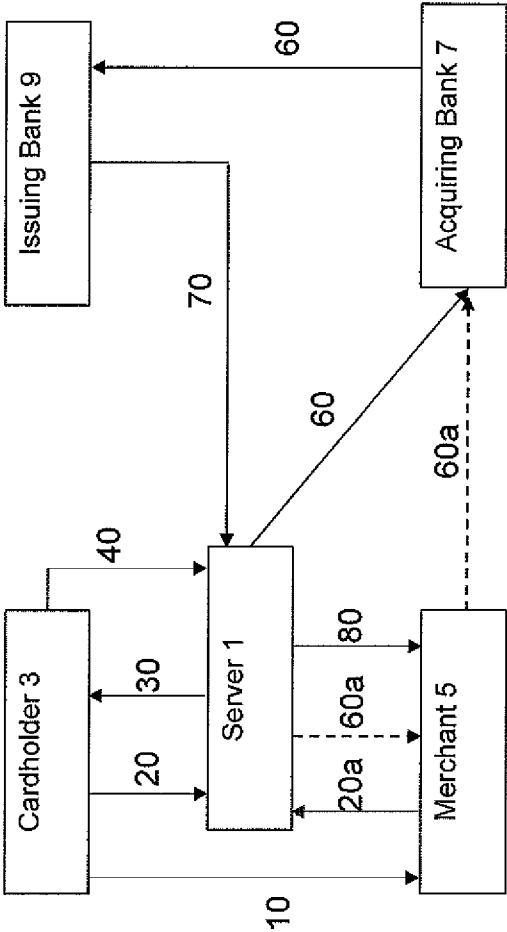


FIG. 3

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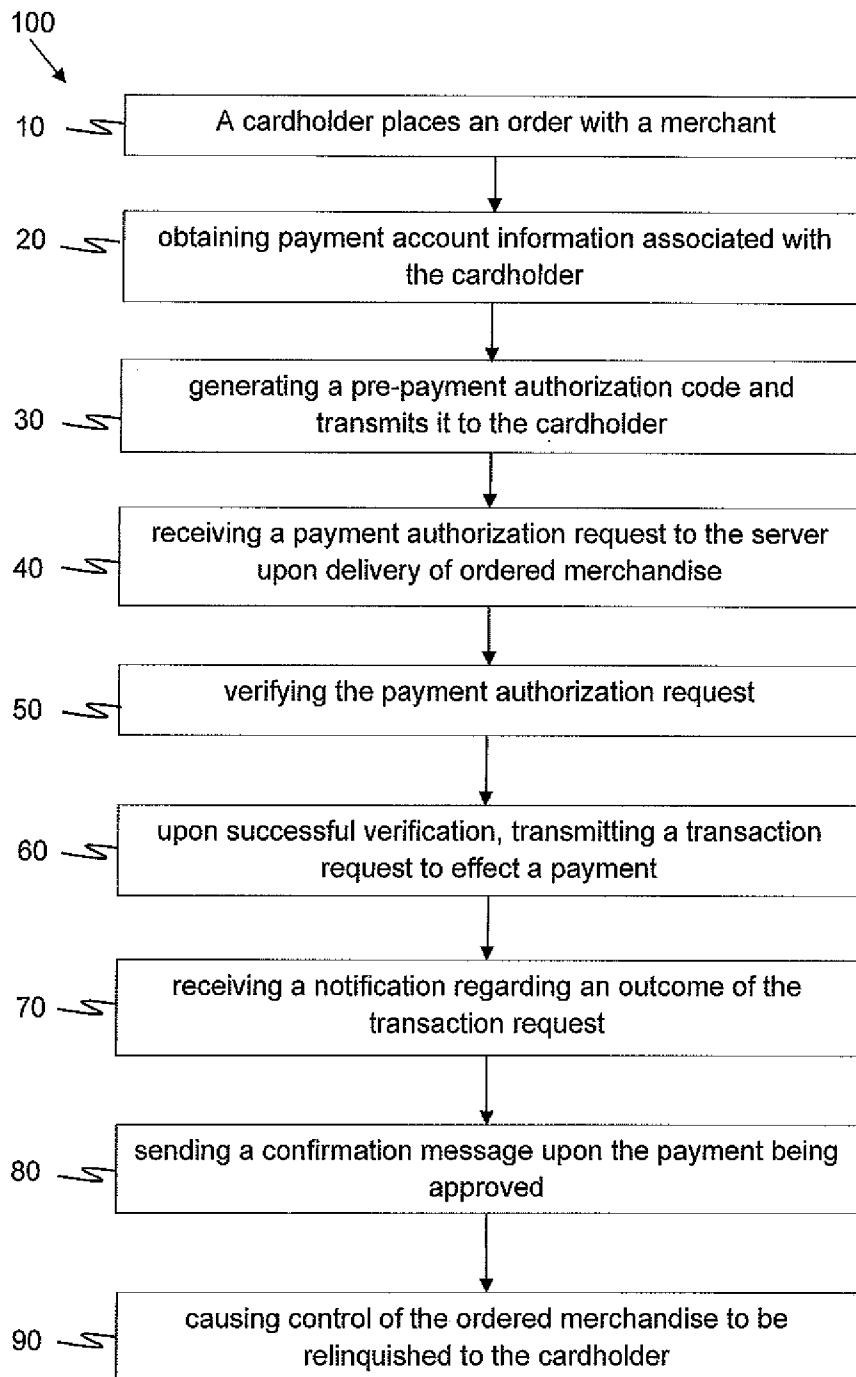


FIG. 4

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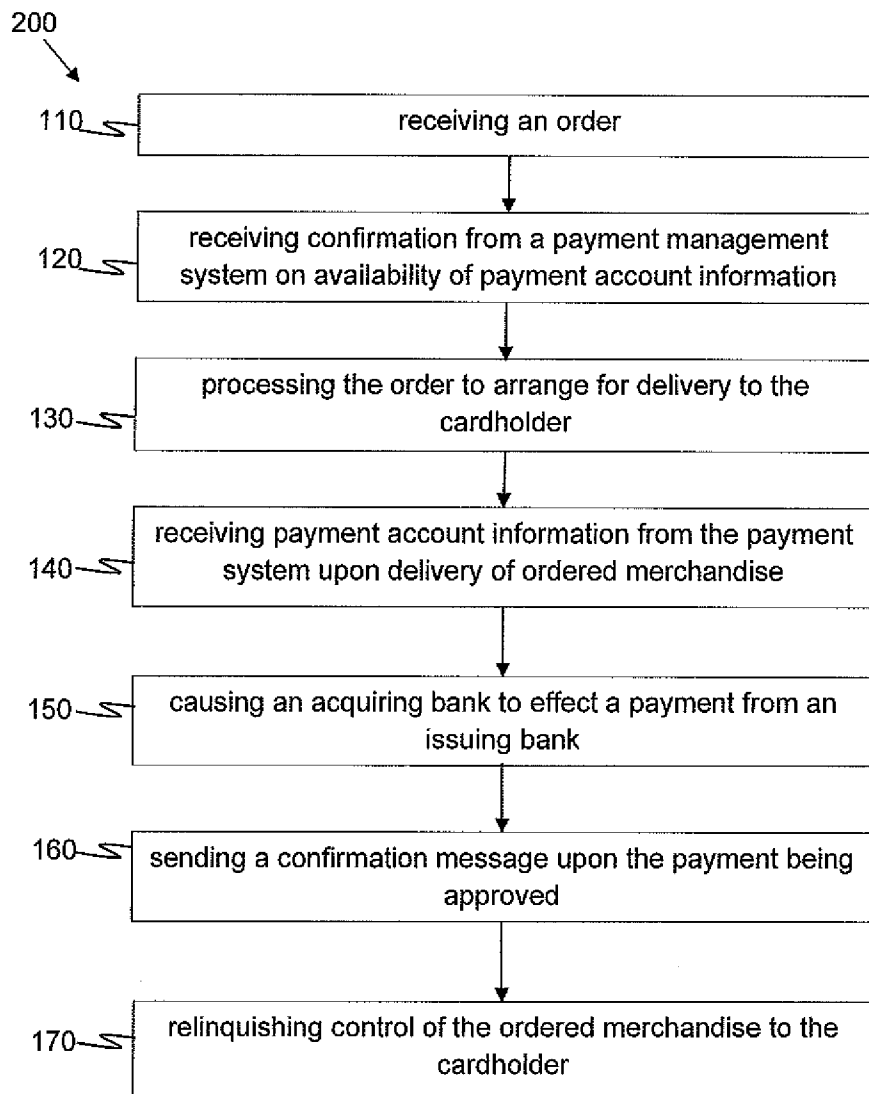


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2016/042751

A. CLASSIFICATION OF SUBJECT MATTER		
Int.Cl. G06Q20/02 (2012.01) i		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
Int.Cl. G06Q20/02		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Published examined utility model applications of Japan 1922-1996 Published unexamined utility model applications of Japan 1971-2016 Registered utility model specifications of Japan 1996-2016 Published registered utility model applications of Japan 1994-2016		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2009/087916 A1 (APLICO SYSTEM CO., LTD.) 2009.07.16, paragraphs [0016] to [0082], figures 1-8 (Family: none)	1-34
Y	JP 2002-279225 A (MIZUHO CORPORATE BANK LTD.) 2002.09.27, paragraphs [0058] to [0063] (Family: none)	1-27
Y	US 2007/0250392 A1 (UC GROUP LIMITED) 2007.10.25, paragraphs [0047] to [0149], figures 1-18 & JP 2009-541818 A & WO 2007/125316 A2 & EP 2365468 A1 & CN 101490704 A	1-34
☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
12.10.2016		25.10.2016
Name and mailing address of the ISA/JP		Authorized officer
Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan		MATSUNO, Hirokazu Telephone No. +81-3-3581-1101 Ext. 3562
		5L 3658

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2016/042751

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6085168 A (FUJITSU LIMITED) 2000.07.04, column 23 line 57 to column 26 line 23, column 32 line 27 to column 33 line 11, figures 5,14 & JP 11-3387 A & EP 1378846 A1 & SG 79268 A1	1-34
Y	JP 2005-284907 A (MIZUHO BANK LTD.) 2005.10.13, paragraphs [0023] to [0089], figure 7 (Family: none)	28-34
A	JP 2001-167163 A (TELECOM SYSTEM INTERNATIONAL KK) 2001.06.22, paragraphs [0008] to [0021], figure 1 (Family: none)	1-34
A	JP 2004-21629 A (MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.) 2004.01.22, the whole document, the whole figures (Family: none)	1-34
A	JP 2002-83229 A (IINO, Shuichi) 2002.03.22, the whole document, the whole figures (Family: none)	1-34
A	JP 2002-74219 A (DIGITAL CHECK KK) 2002.03.15, the whole document, the whole figures (Family: none)	1-34