(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
10 November 2016 (10.11.2016)

WIPO | PCT

(10) International Publication Number
WO 2016/179203 A1

(51) International Patent Classification:
G06Q 20/22 (2012.01) *G06Q 20/08* (2012.01)

(21) International Application Number:
PCT/US2016/030629

(22) International Filing Date:
4 May 2016 (04.05.2016)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
14/704,598 5 May 2015 (05.05.2015) US

(71) Applicant: **MASTERCARD INTERNATIONAL INCORPORATED** [US/US]; 2000 Purchase Street, Purchase, NY 10577 (US).

(72) Inventors: **ATWAL, Gurpreet**; 561a Heritage Hills, Somers, NY 10589 (US). **JACKSON, Richard, Lee**; 20 Bridhton Drive, Newburgh, NY 12550 (US).

(74) Agent: **DOBBYN, Colm, J.**; MasterCard International Incorporated, 2000 Purchase Street, Purchase, NY 10577 (US).

(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, SYSTEMS, AND COMPUTER READABLE MEDIA FOR INTEGRATING PAYMENTS

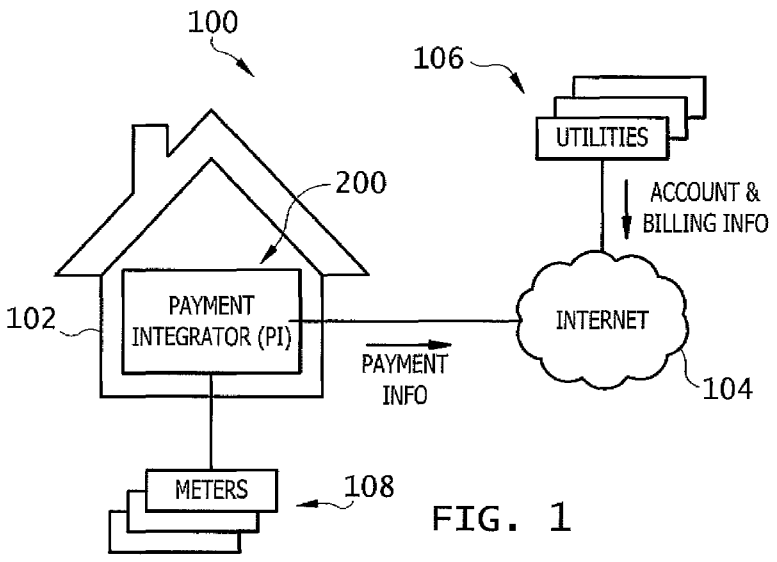


FIG. 1

(57) Abstract: Methods, systems, and computer readable media for integrating payments are disclosed. An exemplary method includes a payment integrator device including at least one processor for receiving instructions to connect to a plurality of privately hosted servers associated with a plurality of different third- party providers and receiving, from the plurality of privately hosted servers, billing information associated with a plurality of different accounts. The method further includes, at the payment integrator, prompting a user to select a payment type for use in paying a first bill associated with a first account of the plurality of different accounts and sending a first payment to the first account according to the first payment type.

WO 2016/179203 A1

METHODS, SYSTEMS, AND COMPUTER READABLE MEDIA FOR INTEGRATING PAYMENTS

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application claims priority to U.S. Patent Application No. 14/704,598 filed May 5, 2015, the contents of which is incorporated by reference in its entirety herein.

TECHNICAL FIELD

The subject matter described herein relates to improved methods and systems for billings and payments. More particularly, the subject matter described herein relates to systems, methods, and computer readable media for integrating multiple payments.

BACKGROUND

Currently, various billing and payment services and/or products exist for processing payments sent to merchants and/or service providers. Current billing and payment implementations require a customer to log in to a specific account, view the account statement, specify a payment type, and authorize a payment to the specific merchant or service provider. Credit or debit card account information may then be stored on the merchant or service provider's server for processing future payments. This is problematic, as the server may experience outages and/or become susceptible to security breaches (e.g., the TARGET® data breach compromised millions of credit card numbers as well as direct deposit accounts (DDAs).). Moreover, the customer must log in to multiple accounts for processing payments to multiple different service providers; this is especially true for residential utilities such as gas, electric, and water services that are provided by different entities. This process is both time consuming and tedious, as a customer must recall multiple usernames and/or passwords to pay bills via multiple online accounts. The customer must also mentally or manually keep track of when a payment for a bill is due.

Other exemplary billing and payment implementations and/or products enable banking account users or customers to make multiple payments online via their banking account, without having to log in to multiple merchant or service provider websites. This is problematic, as the user's bank account must be linked directly to the multiple service providers, which increases the risk of account fraud and/or hacking. Similar to the case above, a user must also mentally and/or manually keep track of the multiple payment due dates.

Accordingly, there exists a need for improved methods, systems, and computer readable media for integrating multiple different payments, for example, including but not limited to payments for receiving utilities or services.

SUMMARY

According to one aspect, the subject matter described herein relates to, methods, systems, and computer readable media for integrating payments. An exemplary method for integrating payments includes, at a payment integrator (e.g., device or system) including at least one processor, receiving instructions for connecting to a plurality of privately hosted servers associated with a plurality of different third-party providers. The method further comprises receiving, from the plurality of privately hosted servers, billing information associated with a plurality of different accounts. The method further comprises, in response to receiving the billing information, prompting a user to select a payment type for use in paying a first bill associated with a first account of the plurality of different accounts. The method further comprises sending a first payment to the first account according to the first payment type.

In some embodiments, an exemplary system for integrating payments includes a payment integrator comprising at least one processor and a communications interface. The payment integrator is configured to receive, via the communications interface, instructions for connecting to a plurality of privately hosted servers associated with a plurality of different third-party providers. The payment integrator is further configured to and receive, from the plurality of privately hosted servers, billing information associated with a

plurality of different accounts. In response to receiving the billing information, the payment integrator prompts a user, via the communications interface, to select a payment type for paying a first bill associated with a first account of the plurality of different accounts. The payment integrator electronically sends a first payment to the first account according to the first payment type. .

The subject matter described herein may be implemented in hardware, software, firmware, or any combination thereof. As such, the terms "function", "node", or "module" as used herein refer to hardware, which may also include software and/or firmware components, for implementing the features being described. In one exemplary implementation, the subject matter described herein may be implemented using a non-transitory computer readable medium having stored thereon computer executable instructions that when executed by the processor and memory of a computer control the computer to perform steps. Exemplary computer readable media suitable for implementing the subject matter described herein include non-transitory computer-readable media, such as disk memory devices, chip memory devices, programmable logic devices, and application specific integrated circuits. In addition, a computer readable medium that implements the subject matter described herein may be located on a single device or computing platform or may be distributed across multiple devices or computing platforms.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the subject matter described herein will now be explained with reference to the accompanying drawings, wherein like reference numerals represent like parts, of which:

Figure 1 is a schematic diagram illustrating an exemplary network in which payments may be integrated according to an embodiment of the subject matter described herein;

Figure 2 is a block diagram illustrating an exemplary system for integrating payments according to an embodiment of the subject matter described herein;

Figure 3 is a flow chart illustrating an exemplary process flow for integrating payments according to an embodiment of the subject matter described herein;

Figures 4A and 4B are block diagrams illustrating exemplary systems for integrating payments according to further embodiments of the subject matter described herein; and

Figure 5 is a schematic block diagram illustrating an exemplary process for capturing and storing a web page screenshot according to an embodiment of the subject matter described herein.

DETAILED DESCRIPTION

In accordance with the subject matter disclosed herein, methods, systems, and computer readable media for integrating multiple payments are provided. In some embodiments, multiple utility payments (e.g., payments for personal, residential, and/or commercial services) may be integrated for processing and payment via systems and methods disclosed herein. A customer may optionally be notified or alerted as to when a payment is due, prompted for payment, and receive a communication that one or more utility payments were made. Integrating multiple payments advantageously obviates the need for a customer to log in to multiple accounts and/or set reminders for when bills are due.

Methods and systems provided herein also advantageously allow a customer to complete multiple payment transactions either individually or simultaneously, thereby simplifying and improving the efficiency of completing multiple payment transactions. Notably, unencrypted payment information (e.g., a credit card or account number) is not required to be stored on either on a local or remote server, rather, encrypted (e.g., hashed or tokenized) payment information is locally stored at the customer's location or site on a payment integrator. Notably, methods, systems, and computer readable media described herein include agnostic payment integration technology, which can

be generalized for interoperability among various vendors, merchants, and/or service providers and/or equipment associated therewith.

The term "payment integrator" refers to module on which multiple bills are integrated for payment processing, and may include hardware, software, and/or firmware components.

The term "utility" refers to a good and/or a service obtained from any and all residential, commercial, private, or public service providers, including but not limited to, for example, electricity or electrical power, gas, wired or wireless telephone, television (TV) service (e.g., via cable, satellite, streaming, fiber, etc.), Internet, water, sewage, trash and/or recycling collection, home security monitoring, lawn care, etc., and the like.

Figure 1 depicts a schematic diagram illustrating an exemplary environment or network **100** in which multiple bills and/or payments may be integrated according to an embodiment of the subject matter described herein. Network **100** includes a customer site **102**, which may include a private residence, any individual location, a commercial business location, or the like. Customer site **102** may interface with one or more third-party goods or service providers via the Internet **104**. In some embodiments, the service providers may include multiple public or private utility companies, generally designated "utilities" **106**. Utilities **106** may include a vendor specific account and/or billing server configured to maintain billing and account information associated with providing a public or private service utility (e.g., gas, water, heat, electrical power, etc.) to customer site **102** as described herein.

In some embodiments, utilities **106** are configured to send online billing and/or account information to customer site **102** via Internet **104**. Account and/or billing information may include any information associated with a specific customer account not limited to, for example, a customer account number, an account balance, a minimum payment amount, an account statement, a payment due date, etc. Account and/or billing information may be received at a Payment Integrator (PI), generally designated **200**, which is described in more

detail in Figure 2. Notably, PI **200** includes agnostic technology configured to interoperate with multiple different vendor-specific utilities **106**.

Still referring to Figure 1 and in some embodiments, PI **200** is located, installed, provided, and/or otherwise disposed at customer site **102**. PI **200** is configured to receive account and billing information from a plurality of multiple, different utilities **106** and integrate the account and billing information at one specific device, system, and/or location. PI **200** is configured to transmit payment information to utilities **106** via the Internet **104**. Payment information may include encrypted account numbers, encrypted banking information, encrypted credit or debit card information, a payment amount, a payment date, etc. In some embodiments, utilities **106** (e.g., specific utility billing and/or account server) and PI **200** exchange billing and payment information, respectively, via an application programming interface (API) configured to assist otherwise distinct applications with sharing data. Notably, PI **200** includes an agnostic device or system including functionality for integrating data and exchanging information with a variety of different service provider (e.g., vendor specific) technology or equipment.

In some embodiments, PI **200** includes functionality for monitoring the usage of multiple utilities **106** either by leveraging existing API information (e.g., via polling APIs) to poll utilities **106** for specific account and/or billing information. In other embodiments, PI **200** includes functionality for monitoring the usage of multiple utilities via receiving utility usage information directly from one or more utility meters, generally designated **108**. When a payment for a utility is due, PI **200** is configured to make a noise, vibration, sound, or visually display the payment information to a customer at customer site **102**. In some embodiments, PI **200** includes functionality for integrating multiple bills, so that a customer may make one or more tap-and-go payments to pay one or more utility bills. In other embodiments, PI **200** includes functionality for integrating multiple bills and payments, and providing the customer with the option to pay one bill at a time, for example, via multiple tap-and-go payments. Alternatively, a customer may pay multiple bills or payments simultaneously via a single tap-

and-go payment. Payments are not limited to contactless tap-and-go payments, but may include any type of payment (e.g., swiping magnetic readable cards, etc.).

PI **200** includes functionality for receiving (reading) a contactless or tap-and-go payment from the customer via a contactless Near Field Communication (NFC) type of reader or any other suitable payment interface disposed thereon (e.g. magnetic card reader, NFC reader, barcode reader, etc.). PI **200** is configured to transmit or send confirmation that a payment was made directly to the customer via an electronic message (e.g., via email), a Short Message Service (SMS) message, a Multimedia Message Service (MMS) message, combinations thereof, and/or any other suitable messaging technology. Notably, PI **200** includes functionality for providing a Point of Sale (POS) system directly within customer site **102** thereby exchanging and integrating billing and payment information associated with a variety of different, remote vendors or utilities **106**. PI **200** also includes functionality for storing encrypted payment information locally thereon, for example, via a memory element or storage device. This obviates the need for a customer to either link a bank account to a payment server and/or remotely store credit card information on a remote utility (vendor or merchant) server. Methods and systems herein provide for more secure transactions, and a more robust payment option.

It will be appreciated that Figure 1 is for illustrative purposes only and that various components, their locations, and/or their functions described above in relation to Figure 1 may be changed, altered, added, or removed. For example, some components and/or functions may be separated or combined into one entity, e.g., PI **200** or some functionality thereof may be segregated from customer site **102** and/or integrated with any other entities associated with system **100**.

Figure 2 is a block diagram illustrating an exemplary system for integrating payments according to an embodiment of the subject matter described herein. Figure 2 illustrates PI **200**, which includes a system or device for payment integration. In some embodiments, PI **200** includes a dockable or

mountable system or device that is installed within a customer's residence or place of business (e.g., customer site **102**, FIG. 1) for providing a local payment interface by which multiple different payments can be initiated and processed. In some embodiments, a customer may interface with PI **200** to initiate and process a plurality of integrated utility bills and/or payments.

PI **200** may include a computing platform, node, module, computing device (e.g., a computer, mobile phone, tablet, etc.), etc., that is configured to receive billing information from a plurality of different sources stored on a plurality of different, third-party remote servers via the Internet, and integrate the bills for payment locally thereon. Notably, payments may be integrated locally on one device, thereby enabling a customer to view multiple bills and complete multiple payment transactions. In some embodiments, PI **200** includes a computing device configured to visibly display multiple payments (e.g., via a graphical user interface (GUI), monitor, screen, etc.) integrated therewith and optionally audibly, visibly, or physically (e.g., vibration) alert the customer, in real time, when a payment is due for each account. Once the customer is aware of a payment, the customer, or a proxy for the customer, may interface with PI **200** for transacting a payment to satisfy one or more bills.

In some embodiments, PI **200** includes a processor **202** and memory **204** (e.g., a memory element or device) for executing software to exchange information (e.g., via an API-API exchange), for example, to receive billing and/or account information and transmit payment information. In some embodiments, processor **202** includes a microprocessor, a central processing unit (CPU), or any other similar hardware-based processor unit that is configured to execute and/or utilize software to communicate with multiple third-party providers (e.g., or servers associated therewith) for initiating and processing multiple payments.

In still further embodiments, PI **200** includes a hardware computing device including a communications interface **206** by which a customer makes a payment to one or more utility providers. Communications interface **206** may include a visual display, a keypad, a keyboard, a touchscreen, a speaker, a

mouse, and/or any other type of interface having functionality for visibly, audibly, or physically alerting the customer when a payment is due, where desired. Thus, PI **200** is configured to receive an indication that a customer owes a payment, and to receive an indication form the customer to initiate and process at least one payment. Communications interface **206** may also include functionality for sending details (e.g., confirmation of the payment amount and/or date) associated with each payment transaction directly to the customer via an electronic message (e.g., email), an SMS (text) message, a MMS message, or the like.

In some embodiments, communications interface **206** includes a management console by which billing or account information is visually displayed and identified or selected (e.g., via a keyboard, mouse, touchscreen, etc.) to initiate payment. Upon receiving an indication to pay a bill from the customer via communications interface **206**, PI **200** is configured to complete one or more payment transactions integrated thereon. In some embodiments, a customer may make one or more one-time payments via a touchscreen (e.g., communications interface **206**) to select the amount, date, and payment method (e.g., entered or stored) used to process one or more given bills. Confirmation of the payment(s) may then be visually displayed to the customer via communications interface **206**, or optionally sent to the customer according to a preferred communication method (e.g., email, text message, etc.). Although only one communications interface **206** is illustrated in Figure 2, one or more additional communications interfaces **206** may be provided whereby connections to the Internet and other remote servicers are established. That is, communications interface **206** may include an Internet connection, or an interface whereby a connection to the Internet is facilitated.

In some embodiments, PI **200** includes functionality for actively reading or polling a plurality of utility APIs to determine a date of when a payment is due and a billed amount thereby replacing standard billing methods and systems (e.g., paper or emailed billing methods). Notably, PI **200** is configured to leverage existing utility APIs for reading, polling, and/or parsing information

from third-party servers to obtain specific account and billing information as well as convey payment information to the various third-party servers. PI **200** includes functionality for connecting to the Internet (e.g., **104**, Fig. 1) and exchanging information with any third-party server, and is not limited to communication with one specific third-party server.

Still referring to Figure 2 and in some embodiments, PI **200** includes a reader **208**. Reader **208** may include a NFC reader for reading NFC enabled payment devices, a magnetic card stripe reader, a wireless smartcard reader, a wireless device reader, or the like. Reader **208** is configured to read payment information or signals transmitted by a payment card, instrument, or element **210** and/or any type of suitable payment object (e.g., a magnetic stripe card, a wireless smartcard, a NFC enabled device or application, a NFC fob, etc.) for initiating and processing payments from the customer to one or more third-party providers (e.g., utility providers). In some embodiments, reader **208** includes a contactless, tap-and-go NFC chip reader.

In some embodiments, payment information **212** and integrated billing information **214** may be stored in memory **204** (e.g., a memory element or device) of PI **200**, such as a random access memory (RAM), a read only memory (ROM), an optical read/write memory, a cache memory, a magnetic read/write memory, a flash memory, or any other non-transitory storage media. In one embodiment, processor **202** and memory **204** may be used to execute and manage the operation of PI **200**. In some embodiments, memory **204** includes any medium that is configured to locally store customer profile and/or payment data used in initiating and processing payments to multiple different third-party providers (e.g., utility providers). In some embodiments, payment information includes a customer identifier (e.g., a name or code), a customer account number, a payment type and/or a payment identifier (e.g., a payment card or account number), a payment amount, etc.

Notably, the payment identifier (e.g., a credit card number, an account number, or banking information) may be locally read, encrypted, and stored on PI **200** as payment information **212** to minimize account hacking or fraud

associated with a security breach. A payment identifier (e.g., a card number, an account number, etc.) may be encrypted via hashing (e.g., localized, one-way hashing), tokenization, or the like, and stored in memory **204** as payment information **212**. Thus, PI **200** obviates the need to remotely store sensitive, private payment or account information. In addition to this, payments may be made using the encrypted information so that actual (e.g., unencrypted) account numbers and/or banking information is not transmitted to the remote servers. The encrypted information may be locally stored as payment information **212** in memory **204** of PI **200**.

In some embodiments, account and/or billing information **214** may be integrated and stored in memory **204** for more efficient payment of bills. A user does not have to log into an account and/or link banking information in order to pay one or more bills. PI **200** is configured to receive electronic billing information directly from one or more remote servers associated with multiple third-party providers, integrate and store the received billing information **214**, and present the billing information to a customer. The customer may make one or more one-time contactless payments in response to being prompted or PI **200** may pay bills on behalf of the customer, where desired.

In some embodiments, PI **200** includes a hardware unit configured to monitor, receive, read, process, and/or complete multiple transactions including, *inter alia*, purchases for various public, private, and/or residential utilities not limited to services for gas, power, water, sewer, television, Internet, telephone, mobile telephone, lawn care, etc. One non-limiting example of PI **200** includes a MasterCard® PayPass™ enabled device, system, or network element associated with MasterCard International Incorporated of Purchase, N.Y., USA, which facilitates the implementation of contactless readers to monitor and/or manage payments made to various third-party providers. In some embodiments, PI **200** is configured to monitor customer accounts via leveraging APIs and automatically submit payments on a customer's behalf. In other embodiments, a customer instructs PI **200** to initiate one-time payments via

interfacing a payment instrument or element **210** with reader **208** to conduct a payment.

In some embodiments, PayPass™ technology, when utilized by PI **200**, includes a radio frequency (RF) enabled contactless payment platform, which allows customers to tap or wave a device in front of a special reader in order to process a transaction, or in the instant case, multiple integrated payments either individually to simultaneously. PayPass™ implementations are consistent with the ISO/IEC 14443 Standards and provide a convenient method for incorporation within PI **200**.

Although Figures 1 and 2 depict PI **200** as a single node or network element, PI **200** may further include a plurality of network elements, a plurality of network components, etc., without departing from the scope of the present subject matter. In some embodiments, PI **200** includes a payment integration system, which may be incorporated with any suitable component or multiple hardware components.

Further, it will be appreciated that Figure 2 is for illustrative purposes only and that various components, their locations, and/or their functions described above in relation to Figure 2 may be changed, altered, added, integrated, segregated, or removed. For example, some components and/or functions may be separated or combined into more than one entity.

Notably, PI **200** comprises a special purpose computer device or machine that includes hardware components (e.g., one or more processor units, memory, and network interfaces) configured to execute hardware and software elements (e.g., APIs, modules, etc.) for the purposes of performing one or more aspects of the disclosed subject matter herein. In addition, it should be noted that PI **200** and its components and/or functionality described herein constitute a special purpose computer that improves the technological field pertaining to billing and payment systems by providing mechanisms for integrating multiple payments and enabling payment of multiple bills directly from a customer's business, residence, or the like, without having to actually transmit or send actual (unencrypted) account information. Rather, PI **200**

utilizes encrypted payment information that is stored locally on PI **200** for making multiple payments which is more efficient and secure.

Figure 3 is a flow chart illustrating an exemplary process flow **300** for integrating payments according to an embodiment of the subject matter described herein. Process flow **300** includes an exemplary process that for integrating utility bills and/or payments, however, the process may be applied to any service provider or billing entity. In block **302**, a customer obtains a payment integrator (PI) device or system (e.g., PI **200**, FIG. 2) and connects the PI to the Internet. The PI system may include a wireless interface, a WAN interface, a LAN interface, or the like. The system may include a freestanding device or system, a dockable PI device or system, a mounted device or system, etc., which is provided within a customer's home, residence, place of business, car, etc.

In some embodiments and upon connection to the Internet, the PI may automatically detect or recognize local utility companies or service providers via the Internet. In block **304**, the customer may specify or select (e.g., via a console, mouse, touchscreen, map, etc.) one or more providers from a list or map of providers for which they would like to set up billing and payment via the PI. Once a customer selects all of the utility services for which to use the PI, the PI starts the setup process in block **306**. In some embodiments, setup includes acquiring the account information (e.g., an account number, a customer identifier, a billing cycle or due date, etc.) for each utility or service provider and determining how to initiate payment of the bills (e.g., automatically or via receipt of contactless, magnetic cards from the customer).

In block **308**, the PI prompts the user (customer) for payment information. Payment information may include credit card information, debit card information, prepaid card information, banking account information, etc., or the like. Payment information may be encrypted and stored, or the customer may set up receipt of tap-and-go payments via interfacing a NFC enabled device with a contactless reader.

In block **310**, the customer may specify and set a preferred payment method. The PI allows the customer to have a choice in regards to making automatic payments or multiple one-time payments for each utility. The customer also has a choice in regard to a preferred payment method. That is, the customer may prefer to pay using a card (e.g., debit, credit, prepaid, etc.) or banking account information that is encrypted and stored locally on the PI. In further embodiments, the customer may prefer to make multiple spontaneous tap-and-go contactless payments.

The payment information is verified in step **312**. In some embodiments, the PI verifies payments using a test payment and reversal.

In block **314**, the PI determines whether the payment information is valid. If the payment information is valid, then it is encrypted and stored in step **316**. If the information is invalid, then the customer is re-prompted to enter a valid payment type and information again in step **308**.

In block **318**, the PI monitors all utilities for which it is set up to monitor. The PI may monitor account and/or billing information via polling APIs, interfacing with meters inside or outside the home, or the like.

In block **320**, the PI determines if a payment is due. If a payment is due, the PI determines whether to automatically make the payment for the user via the stored payment information or whether to alert and prompt the user for a one-time tap-and-go payment according to block **322**. The PI may be preconfigured or programmed for determining whether or not to automatically conduct payment transactions on a customer's behalf. In some embodiments, payments are made according to instructions received from the customer during the setup phase of the PI. The settings may be changed in accordance with ongoing customer needs.

After determining how to process the payment, the PI may prompt the customer to make a one-time, tap-and-go payment according to block **324A**. Alternatively, the PI may submit a payment on the customer's behalf according to block **324B**.

In block **326**, a customer may cancel out a payment if needed (e.g., if an error occurs or a wrong payment method is used). If the customer cancels out the payment, then the PI continues monitoring the various utility accounts according to block **310**. If the customer does not cancel the payment, then the PI determines whether the user tapped a payment instrument (e.g., an NFC-enabled device, a fob, a phone, etc.) or interfaced a payment card (e.g., via sliding or the like) in block **328**. After the user taps the device or initiates a payment via a card, then the payment is submitted on behalf of the customer in block **324B**.

In block **330**, the PI is configured to display confirmation of a payment, and optionally send a message to the customer including the payment confirmation. The PI may include a monitoring console or communications interface including a GUI, a screen, a touchscreen, a mouse, a keyboard, etc., for use in processing payments.

It will be appreciated that the exemplary process flow illustrated in Figure 3 is for illustrative purposes only, and that different and/or additional process flows may be used to perform the actions and/or invoke the functionality illustrated by Figure 3.

Figures 4A and 4B are block diagrams illustrating exemplary systems **400** and **410**, respectively, for integrating payments according to further embodiments of the subject matter described herein. System **400** in Figure 4A illustrates a PI **200** (FIG. 2) placed inside of a television system. PI **200** may be disposed within a television **402** or a remote controller **404** for a television. PI **200** includes functionality for integrating and processing multiple payments via the television **402** or the remote controller **404**. PI **200** can be mounted or installed within television **402** or controller **404** and include functionality for reading a customer's payment and sending the payment information to a remote server for making a purchase. Payments made via television **402** or remote **404** may include those for the purchase for an item for sale on the television (e.g., via a home shopping network, or the like) or for a television service, program, network, channel, or pay per view (PPV) access.

In some embodiments, television **402** and/or remote **404** is enabled with a contactless (e.g., NFC) reader and/or any other suitable type of payment interface (e.g., magnetic card reader, wireless smartcard reader, etc.). Television **402** and/or remote **404** may include PayPass™ technology available from MasterCard®. In some embodiments, a customer may interface their credit cards or contactless NFC enabled devices (e.g., phones, key fobs, etc.), on an Internet enabled television **402** or remote **404** for making secure purchases. In addition to television **402**, PI **200** may also be disposed within any Internet enabled device such as a tablet, mobile phone, touch screen system within a vehicle, etc.

Notably, PI **200** locally stores encrypted information, so that a customer's account information is not communicated to and/or stored on a remote server. As PI **200** stores encrypted account or payment information, payment transactions are more secure. In some embodiments, a customer may watch television **402** and interface with the television **402** or remote **404** to initiate a payment for goods, services, intangible items (e.g., movies, shows, programming, etc.), food (e.g., ordering a pizza as seen on television **402**), etc.

Figure 4B depicts a payment integration system **410** including PI **200** (e.g., FIG. 2) disposed directly within a home security system control panel **412**. In some embodiments, when a bill is due, the customer receives an audible or visual alert. The customer may then walk over to control panel **412** and tap or otherwise interface with PI **200** to pay the bill directly to the service provider. The customer also has the ability to schedule a payment in case they are away on vacation or away from home via control panel **412**. PI **200** includes functionality for paying multiple bills, not just bills associated with the home security service received. Notably, anyone other than customer can also initiate and pay the bills on a customer's behalf. PI **200** is functional to receive any type of payment from any account user or cardholder.

Further, it will be appreciated that Figures 4A and 4B are for illustrative purposes only and that various components, their locations, and/or their

functions described above may be changed, altered, added, integrated, segregated, or removed.

Figure 5 is a schematic block diagram illustrating an exemplary process **500** for integrating payments according to an embodiment of the subject matter described herein. The process may occur at a payment integrator device or system (e.g., PI **200**, FIG. 2) and advantageously obviate the need for a customer to log in to multiple accounts, a banking account, and/or any other password protected account. This advantageously allows bill payment by any user that is the customer or any user on behalf of the customer. In some embodiments, payment integrators described herein include a single device for integrating billing information, integrating payment information, and displaying the integrated information to a customer for direct bill payment thereby bypassing the need to manually log in to any account. As any person (e.g., other than the customer) may make a payment on behalf of the customer, notably, the payment integrator as described herein allows for automatic bill payment without having to log in to any account, and without having to pay by any specific method.

In block **500**, a payment integrator (e.g., PI **200**, FIG. 2) receives instructions for connecting to a plurality of privately hosted servers associated with a plurality of different third-party providers. The privately hosted servers may be remotely disposed from the payment integrator. The payment integrator may integrate billing and/or payment information for simplifying the payment of multiple bills, and obviating the need to maintain multiple accounts. The third-party providers may include utility (public or private) companies for providing electricity, water, gas, etc. to a customer.

In block **502**, the payment integrator is configured to receive, from the plurality of privately hosted servers, billing information associated with a plurality of different accounts. Billing information may be integrated and optionally stored within the payment integrator, so that the payment integrator can notify a customer when a bill is due. Billing information may include an

electronic indication of an amount billed, a due date, an account number, a customer number, etc., or the like.

In block **506** and in response to receiving the billing information, the payment integrator is configured to prompt a customer to select a payment type for use in paying a first bill associated with a first account of the plurality of different accounts. The prompt may include a one-time prompt so that the customer may store encrypted payment information within the payment integrator for making automatic payments. In other embodiments, the prompt may be associated with a predetermined date or billing cycle for prompting the customer to make a one-time payment via a contactless payment method, a magnetic stripe card, or using the encrypted payment information. In some embodiments, the prompt occurs on the due date of the respective bill.

In block **508**, the payment integrator sends a first payment to the first account in response to receiving the first bill according to the first payment type. The payment may be electronic, and include payment information such as an encrypted account number, encrypted credit card number, a customer identifier, a customer account number, a due date, the amount being paid, etc., or the like. The payment integrator may send the payment via the Internet for immediate delivery to the third-party provider.

It will be appreciated that exemplary process **500** is for illustrative purposes and that different and/or additional actions may be used. It will also be appreciated that various actions associated with exemplary process **500** may occur in a different order or sequence.

It will be appreciated that payment integrator (e.g., PI **200**, FIG. 2) and/or functionality described herein constitute a special purpose computer. Further, it will be appreciated that payment integrator (e.g., PI **200**, FIG. 2) and/or functionality described herein can improve the technological field pertaining to electronically issuing bills, collecting payments, and/or security or authentication thereof. Payment integration advantageously obviates the need to remotely store private, secure information and/or the need for a customer to pay an electronic bill via logging in to any account and/or specify any password. This

advantageously allows any person to pay a bill on behalf of a user, and allows a user to be prompted to automatically pay a bill on the due date, thereby preventing late payments.

Systems, methods, and computer readable media for integrating payments can provide, for example and without limitation, one or more of the following beneficial technical effects: more secure payments and transactions; minimized account fraud; more efficient electronic billing systems and bill payments; agnostic methods and systems for interaction with any service provider; less waste associated with paper bills; allowing any user to pay a bill on behalf of a customer; and/or obviate the need to create, log in, and/or maintain an account to pay bills.

While the subject matter has been has been described herein in reference to specific aspects, embodiments, features, and illustrative embodiments, it will be appreciated that the utility of the subject matter is not thus limited, but rather extends to and encompasses numerous other variations, modifications and alternative embodiments, as will suggest themselves to those of ordinary skill in the field of the present subject matter, based on the disclosure herein.

Various combinations and sub-combinations of the structures and features described herein are contemplated and will be apparent to a skilled person having knowledge of this disclosure. Any of the various features and elements as disclosed herein can be combined with one or more other disclosed features and elements unless indicated to the contrary herein. Correspondingly, the subject matter as hereinafter claimed is intended to be broadly construed and interpreted, as including all such variations, modifications and alternative embodiments, within its scope and including equivalents of the claims.

CLAIMS

What is claimed is:

1. A method for integrating multiple payments, the method comprising:

at a payment integrator device including at least one processor:

receiving instructions for connecting to a plurality of privately hosted servers associated with a plurality of different third-party providers;

receiving, from the plurality of privately hosted servers, billing information associated with a plurality of different accounts;

in response to receiving the billing information, prompting a user to select a payment type for use in paying a first bill associated with a first account of the plurality of different accounts; and

sending a first payment to the first account according to the first payment type.

2. The method according to claim 1, wherein a step of logging into a password protected account is obviated.

3. The method according to claim 1, wherein the payment integrator connects to the plurality of privately hosted servers via the Internet.

4. The method according to claim 1, wherein the third-party providers include utility companies.

5. The method according to claim 1, wherein the billing information includes an indication of a billed amount and a due date.

6. The method according to claim 1, wherein prompting the user to select the payment type includes automatically prompting the user according to a predetermined billing cycle.

7. The method according to claim 1, wherein prompting the user to select the payment type includes prompting the user on the due date associated with the first bill.

8. The method according to claim 1, wherein prompting the user to select the payment type includes providing a visual prompt or an audible prompt.

9. The method according to claim 1, wherein sending the first payment includes sending a one-time payment.

10. The method according to claim 1, further comprising interfacing a near field communications (NFC) payment device with a contactless reader to obtain payment information for paying the first bill.

11. The method according to claim 1, further comprising swiping a magnetic stripe card with a magnetic card reader to obtain payment information for paying the first bill.

12. The method according to claim 1, further comprising automatically sending a second payment to the first account on behalf of the user via sending encrypted payment information that is stored locally on the payment integrator.

13. The method according to claim 1, further comprising providing the payment integrator in a mountable device, a dockable device, a television, a remote control, or a home security system console.

14. A system for integrating multiple payments, the system comprising:

a payment integrator comprising at least one processor and a communications interface, wherein:

the payment integrator receives, via the communications interface, instructions for connecting to a plurality of privately hosted servers associated with a plurality of different third-party providers, and receive, from the plurality of privately hosted servers, billing information associated with a plurality of different accounts;

in response to receiving the billing information, the payment integrator prompts a user, via the communications interface, to select a payment type for paying a first bill associated with a first account of the plurality of different accounts; and

the payment integrator electronically sends a first payment to the first account according to the first payment type.

15. The system according to claim 14, wherein the payment integrator connects to the plurality of privately hosted servers via the Internet.

16. The system according to claim 14, wherein the third-party providers include utility companies.

17. The system according to claim 14, wherein the billing information includes an indication of a billed amount and a due date.

18. The system according to claim 14, wherein the user is automatically prompted to pay the first bill according to a predetermined billing cycle.

19. The system according to claim 14, wherein the user is prompted to pay the first bill on the that the first bill is due.

20. The system according to claim 14, wherein the communications interface is configured to provide a visual prompt or an audible prompt.

21. The system according to claim 14, wherein the first payment is a one-time payment to the first account.

22. The system according to claim 14, wherein the first payment includes payment information for sending a payment to multiple third-party providers.

23. The system according to claim 14, wherein the payment integrator comprises a contactless reader configured to obtain payment information from a near field communications (NFC) enabled payment device for paying the first bill.

24. The method according to claim 14, wherein the payment integrator comprises a magnetic card reader configured to obtain payment information from a magnetic stripe card for paying the first bill.

25. The system according to claim 14, wherein the payment integrator includes a mountable device, a dockable device, a television, a remote control, or a home security system console.

26. A non-transitory computer readable medium having stored thereon executable instructions for controlling a computer to perform steps comprising:

receiving instructions for connecting to a plurality of privately hosted servers associated with a plurality of different third-party providers;

receiving, from the plurality of privately hosted servers, billing information associated with a plurality of different accounts;

in response to receiving the billing information, prompting a user to select a payment type for use in paying a first bill associated with a first account of the plurality of different accounts; and

sending a first payment to the first account according to the first payment type.

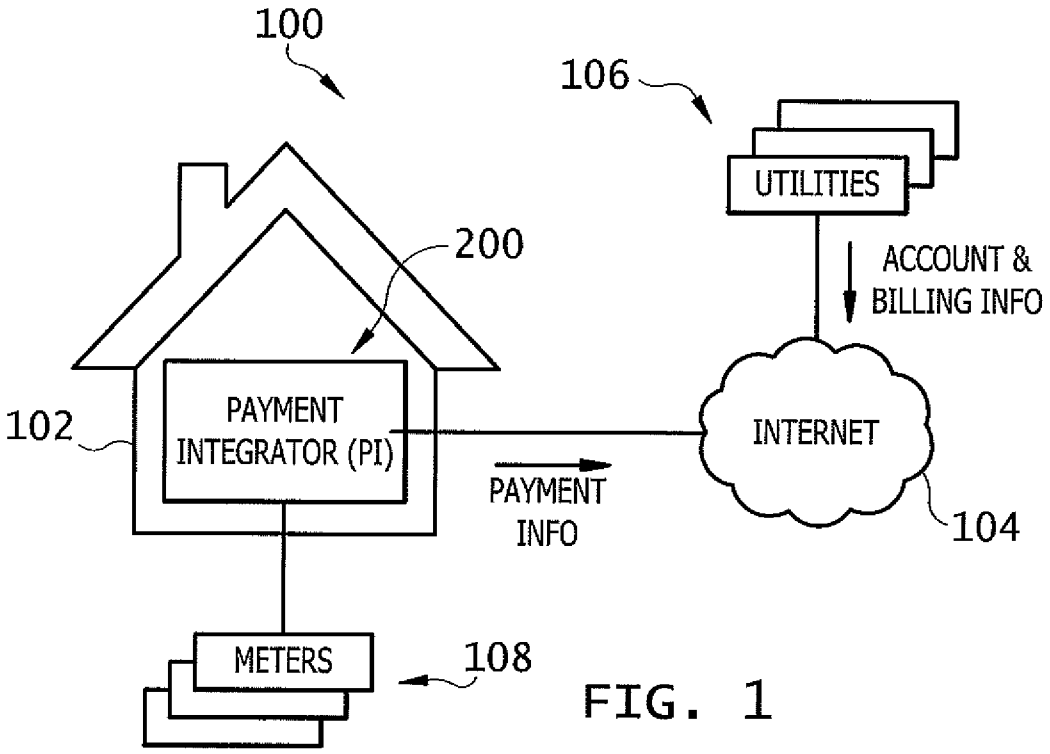

100
106
UTILITIES
ACCOUNT &
BILLING INFO
200
PAYMENT
INTEGRATOR (PI)
102
INTERNET
PAYMENT
INFO
104
METERS
108

FIG. 1

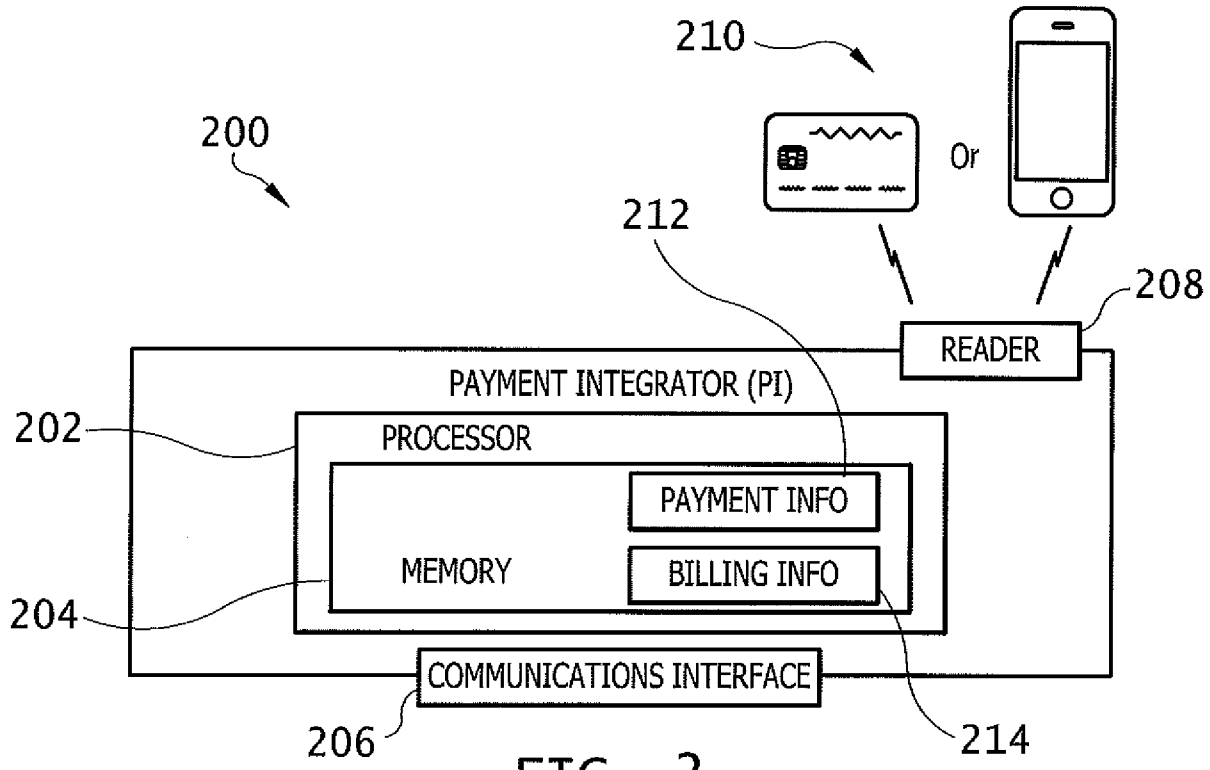

210
200
Or
212
208
READER
PAYMENT INTEGRATOR (PI)
202
PROCESSOR
PAYMENT INFO
MEMORY
BILLING INFO
204
COMMUNICATIONS INTERFACE
206
214

FIG. 2

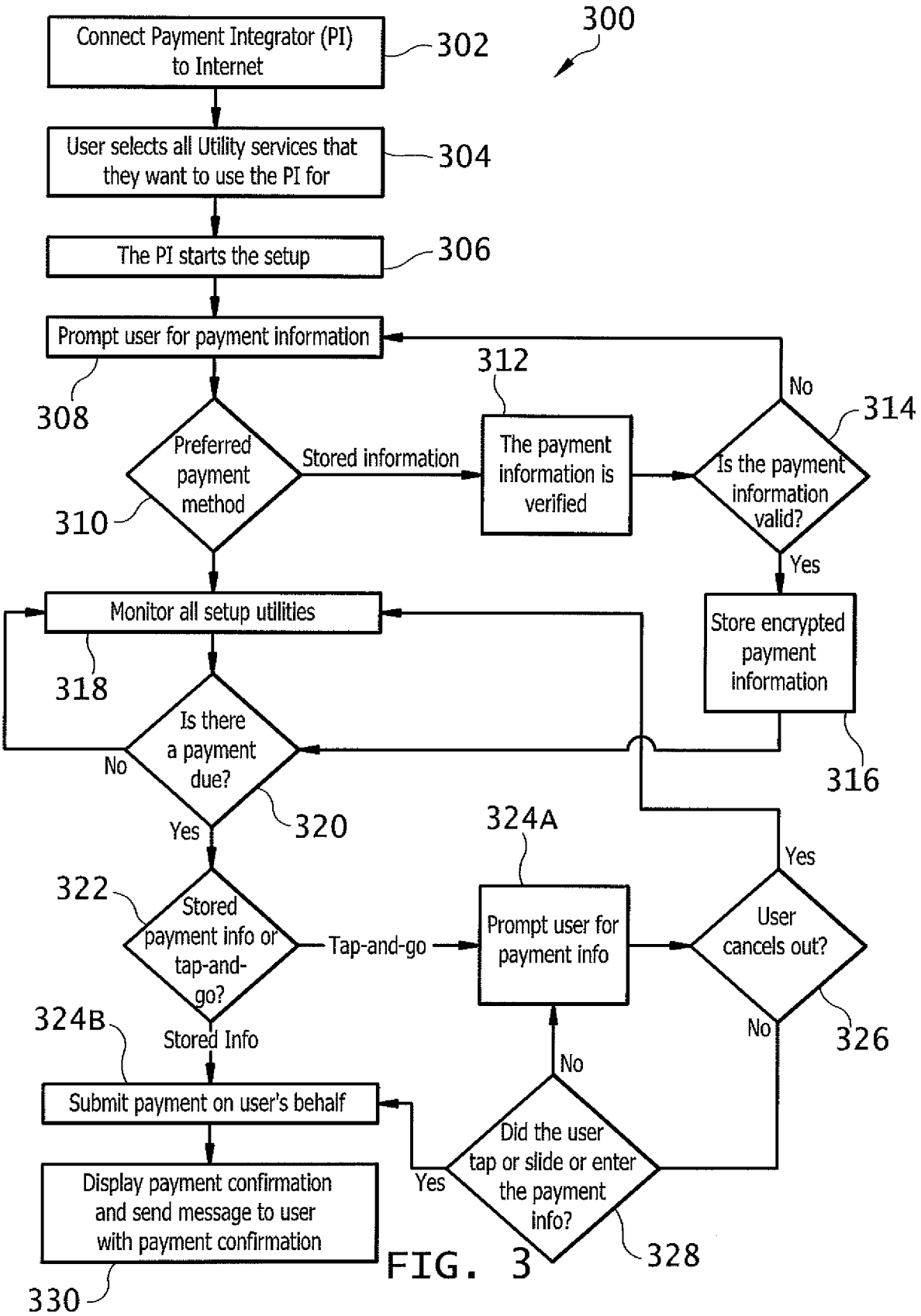

300
Connect Payment Integrator (PI) to Internet
302
User selects all Utility services that they want to use the PI for
304
The PI starts the setup
306
Prompt user for payment information
308
Preferred payment method
310
Stored information
312
The payment information is verified
Is the payment information valid?
314
No
Yes
Store encrypted payment information
316
Monitor all setup utilities
318
Is there a payment due?
320
No
Yes
Stored payment info or tap-and-go?
322
Tap-and-go
Prompt user for payment info
324A
User cancels out?
326
Yes
No
Stored Info
324B
Submit payment on user's behalf
Display payment confirmation and send message to user with payment confirmation
330
Did the user tap or slide or enter the payment info?
328
Yes
No

FIG. 3

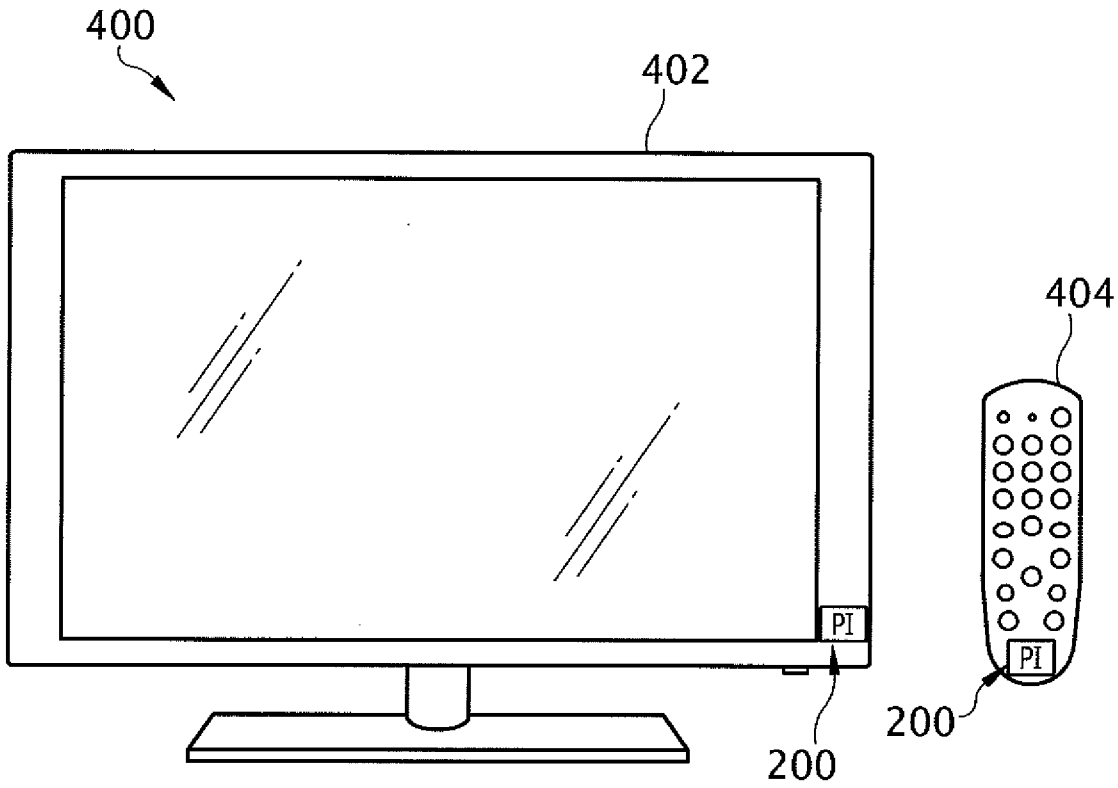


FIG. 4A

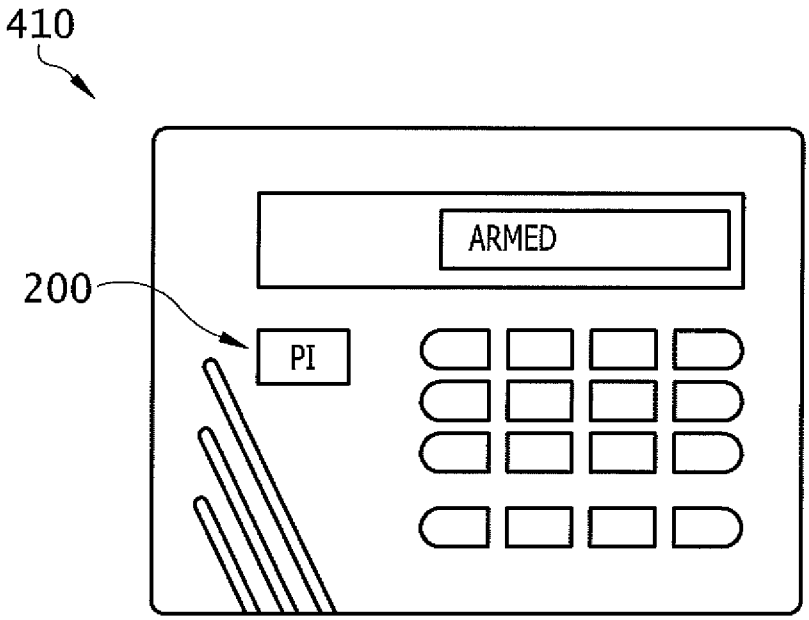


FIG. 4B

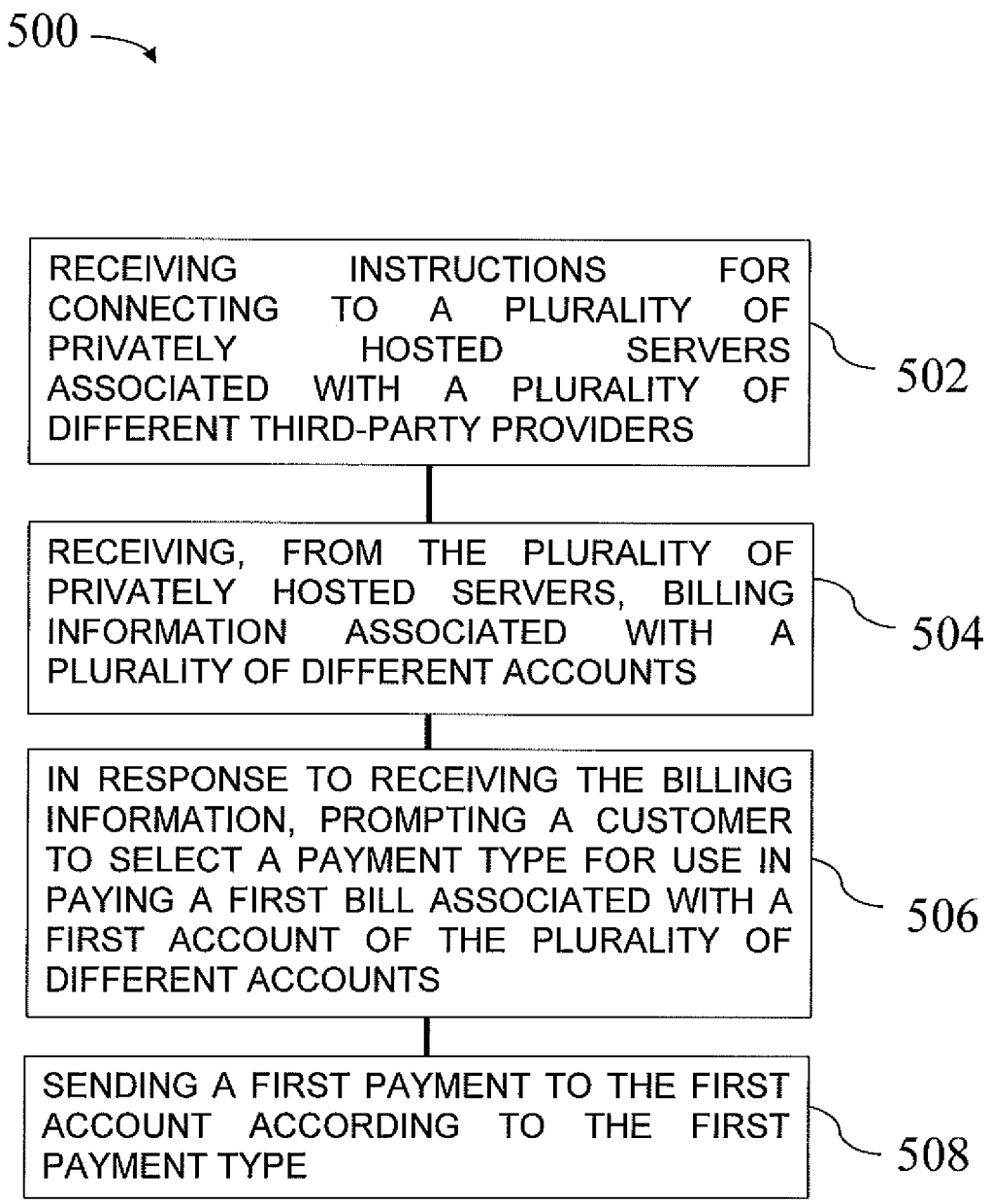

500
RECEIVING INSTRUCTIONS FOR CONNECTING TO A PLURALITY OF PRIVATELY HOSTED SERVERS ASSOCIATED WITH A PLURALITY OF DIFFERENT THIRD-PARTY PROVIDERS
502
RECEIVING, FROM THE PLURALITY OF PRIVATELY HOSTED SERVERS, BILLING INFORMATION ASSOCIATED WITH A PLURALITY OF DIFFERENT ACCOUNTS
504
IN RESPONSE TO RECEIVING THE BILLING INFORMATION, PROMPTING A CUSTOMER TO SELECT A PAYMENT TYPE FOR USE IN PAYING A FIRST BILL ASSOCIATED WITH A FIRST ACCOUNT OF THE PLURALITY OF DIFFERENT ACCOUNTS
506
SENDING A FIRST PAYMENT TO THE FIRST ACCOUNT ACCORDING TO THE FIRST PAYMENT TYPE
508

FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2016/030629

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl. G06Q20/22(2012.01)i, G06Q20/08(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. G06Q20/22, G06Q20/08

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.
X Y	JP 2004-139255 A (NRI & NCC CO LTD) 2004.05.13, pars.[0002],[0017],[0023]-[0031],[0040] (No Family)	1-5,9,12-17, 21-22,25-26 6-8,10-11,18 -20,23-24
Y	US 2007/0083465 A1 (VISA USA INC) 2007.04.12, par.[0015] & JP 2009-512026 A & WO 2007/044654 A2 & CA 2625167 A1 & CN 101322150 A	6-7,18-19
Y	JP 2014-135036 A (MRS HOLDINGS CO LTD) 2014.07.24, par.[0060] & JP 2014-135713 A	8,20
Y	JP 2000-276531 A (DENTSU INC) 2000.10.06, par.[0008] (No Family)	10-11,23-24

☐ 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
11.07.2016	19.07.2016

Name and mailing address of the ISA/JP	Authorized officer
Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	OHNO, Tomonari Telephone No. +81-3-3581-1101 Ext. 3562

5L 4534

Form PCT/ISA/210 (second sheet) (January 2015)