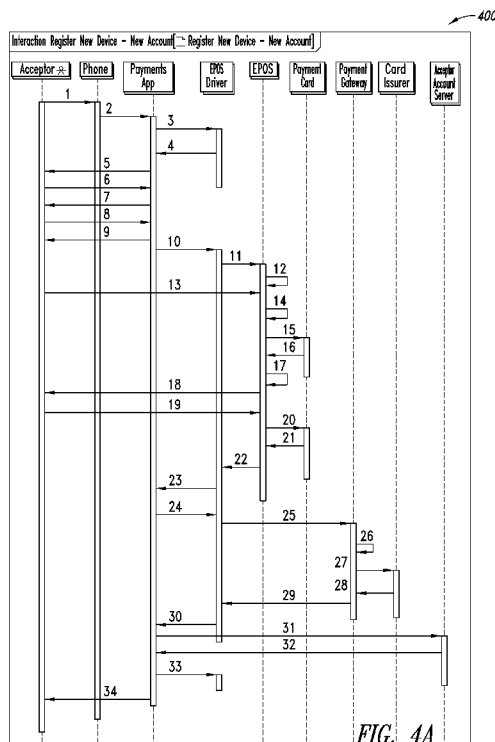




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[Continued on next page]

(54) **Title:** SYSTEM AND METHOD FOR AUTHORIZING PAYMENT ACCEPTOR DEVICES

(57) **Abstract:** A hybrid terminal device includes a payment card reader and smart phone and is configured to facilitate financial transactions. The hybrid terminal may receive a request related to an acceptor account with an acceptor account service, determines whether a received personal identification number (PIN) matches a PIN extracted from a payment card, determines whether received address information matches address information associated with the payment card, and when it is determined that the PIN matches the extracted PIN and the received address information matches the address information associated with the payment card, the hybrid terminal facilitates performance of the request. The hybrid terminal may receive a request related to an acceptor account with an acceptor account service, determine whether a received personal identification number (PIN) matches a PIN extracted from a payment card, and when it is determined that the received PIN matches the extracted PIN, facilitate performance of the request.



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SYSTEM AND METHOD FOR AUTHORIZING PAYMENT ACCEPTOR DEVICES

CROSS-REFERENCE TO RELATED APPLICATION

This application claims the benefit under 35 U.S.C. § 119(e) of U.S. Provisional Patent Application No. 61/452,560 filed March 14, 2011, where this provisional application is incorporated herein by reference in its entirety.

BACKGROUND

Technical Field

The present disclosure relates to systems, methods and articles for authorizing payment acceptor devices.

Description of the Related-Art

Credit and debit card financial transactions may occur using a payment acceptance device coupled to a plain-old-telephone system (POTS). The card is read by the payment acceptance device, which contacts a financial institution through the POTS to obtain authorization for the transaction. Acceptor account set-up in many payment markets around the world is traditionally a very slow and largely manual process.

BRIEF SUMMARY

In an embodiment, a hybrid terminal device comprises: one or more memories; and one or more processing devices configured to implement one or more manager modules to: manage wireless communications with one or more remote devices; receive a request related to an acceptor account of an acceptor account service; selectively obtain a payment card long number (PAN) of a payment card associated with a card holder of the payment card; and selectively facilitate performance of the request using the obtained PAN. In an embodiment, the request is a request to set up the acceptor account and the

one or more manager modules are configured to associate the acceptor account with the hybrid terminal device. In an embodiment, the one or more manager modules are configured to associate a payment account associated with the payment card with the acceptor account. In an embodiment, the one or more manager modules are configured to receive an indication of information associated with the payment card and initiate transmission of a verification request of the received information. In an embodiment, the received indication includes address information, the verification request includes the address information, the one or more manager modules are configured to initiate transmission of the verification request to a card issuer server, and the selectively facilitating performance of the request comprises facilitating performance of the request based on a response to the verification request by the card issuer server. In an embodiment, the one or more manager modules are configured to provide notification of performance of the request. In an embodiment, the hybrid terminal device comprises a smart phone including at least one of the one or more processing devices. In an embodiment, the hybrid terminal device comprises a payment card terminal communicatively and moveably coupled to the smart phone and configured to read payment cards. In an embodiment, the payment card terminal is configured to extract the PAN from the payment card. In an embodiment, the at least one manager module is configured to initiate performance of the request using on the extracted PAN. In an embodiment, the smart phone is configured to communicatively couple the hybrid terminal device to one or more remote servers to facilitate performance of the request. In an embodiment, the request is a request to associate an existing acceptor account with the hybrid terminal device and the one or more manager modules are configured to associate the existing acceptor account with the hybrid terminal device. In an embodiment, the one or more manager modules include: an electronic point-of-sale manager; and a sales application manager. In an embodiment, the one or more manager modules are configured to: obtain a personal identification number (PIN) associated with the payment card; and determine whether a received PIN

matches the obtained PIN. In an embodiment, the one or more manager modules are configured to obtain the PAN when it is determined that a received PIN matches the obtained PIN. In an embodiment, the hybrid terminal comprises a display, wherein the one or more manager modules are configured to control the display. In an embodiment, the one or more manager modules include a short-message-service manager module. In an embodiment, the at least one manager module is configured to facilitate performance of financial transactions associated with the acceptor account by the hybrid terminal device.

In an embodiment, a method comprises receiving a request related to an acceptor account with an acceptor account service; receiving a payment card long number (PAN) of a payment card associated with a card holder of the payment card; and selectively facilitating performance of the request using the PAN. In an embodiment, the request is a request to set up the acceptor account. In an embodiment, facilitating the request comprises associating the acceptor account with a hybrid terminal device. In an embodiment, facilitating the request comprises associating a payment account associated with the payment card with the acceptor account. In an embodiment, facilitating the request comprises receiving an indication of information associated with the payment card and requesting verification of the received information through an issuer of the payment card. In an embodiment, the indication of information associated with the payment card includes an indication of an address, the method comprises initiating transmission of a verification request including the indication of the address to a card issuer server, and the selectively facilitating performance of the request comprising selectively facilitating performance of the request based on a response of the card issuer server. In an embodiment, the method comprises providing notification of performance of the request to the card holder. In an embodiment, the request is a request to set up the acceptor account and facilitating the request comprises associating the acceptor account with a hybrid terminal device. In an embodiment, the method comprises: automatically

extracting information from the payment card. In an embodiment, the method comprises extracting the PAN from the payment card. In an embodiment, the method comprises communicatively coupling a hybrid terminal device to one or more remote servers to facilitate performance of the request. In an embodiment, the request is a request to associate an existing acceptor account with a hybrid terminal device and facilitating the request comprises associating the existing acceptor account with the hybrid terminal device. In an embodiment, the method comprises facilitating electronic point-of-sale transactions. In an embodiment, the method comprises: obtaining a personal identification number (PIN) associated with the payment card; and determine whether a received PIN matches the obtained PIN. In an embodiment, obtaining the PAN comprises obtaining the PAN when it is determined that the received PIN matches the obtained PIN. In an embodiment, facilitating performance of the request comprises initiating the request when the received PIN matches the obtained PIN. In an embodiment, the method comprises facilitating performance of financial transactions associated with the acceptor account by a hybrid terminal device. In an embodiment, a method comprises: receiving a request related to an acceptor account with an acceptor account service; determining whether a received personal identification number (PIN) matches a PIN extracted from a payment card; determining whether received address information matches address information associated with the payment card; and when it is determined that the PIN matches the extracted PIN and the received address information matches the address information associated with the payment card, facilitating performance of the request. In an embodiment, determining whether the received address information matches address information associated with the payment card comprises extracting a payment long card number (PAN) from the payment card and transmitting a verification request including the received address information and the extracted PAN to a card issuer server. In an embodiment, a method comprises receiving a request related to an acceptor account with an acceptor account service; determining whether a received personal identification number (PIN) matches a PIN

extracted from a payment card; and when it is determined that the received PIN matches the extracted PIN, facilitating performance of the request. In an embodiment, facilitating the performance of the request comprises associating the acceptor account with a hybrid terminal device. In an embodiment, facilitating the performance of the request comprises limiting a functionality of the hybrid device related to the acceptor account. In an embodiment, a hybrid terminal device is configured to perform any of the methods disclosed herein. In an embodiment, the device comprises a card terminal. In an embodiment, the device comprises a smart phone.

In an embodiment, a system comprises: one or more servers configured to facilitate completion of financial transactions; and a hybrid terminal device configured to communicatively couple to the one or more servers, wherein the system is configured to perform the method disclosed herein. In an embodiment, a system comprises one or more servers configured to provide financial transaction related services; and a hybrid terminal device as disclosed herein.

In an embodiment, a hybrid terminal device comprises: means for extracting cardholder identification information from a payment card; and means for responding to a request related to an acceptor account with an acceptor account service using identification information extracted by the means for extracting. In an embodiment, the means for extracting comprises a payment card reader of the hybrid terminal device. In an embodiment, the means for responding comprises a smart phone module of the hybrid terminal device. In an embodiment, the extracted information includes a personal identification number (PIN). In an embodiment, the extracted information includes a payment card long number (PAN). In an embodiment, a non-transitory computer-readable medium's contents cause a hybrid terminal device to perform a method according to any of the embodiments disclosed herein.

In an embodiment, a method comprises receiving a request related to an acceptor account with an acceptor account service, the request including a PAN of a payment card associated with a card holder of the

payment card, and facilitating performance of the request. In an embodiment, the request is a request to set up the acceptor account and facilitating the request comprises associating the acceptor account with a device. In an embodiment, facilitating the request comprises associating a payment account associated with the payment card with the acceptor account. In an embodiment, facilitating the request comprises receiving an indication of information associated with a payment card and requesting verification of the received information through an issuer of the payment card. In an embodiment, the method comprises providing notification of performance of the request to the card holder. In an embodiment, the method comprising associating the acceptor account with a payment acceptance device. In an embodiment, a device is configured to perform all or part of the methods described herein. In an embodiment, the device comprises a card terminal. In an embodiment, the device comprises a smart phone.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

Figure 1 shows an embodiment of a hybrid terminal device from several perspectives.

Figure 2 is a functional block diagram of an embodiment of an environment suitable for providing transaction services according to at least one illustrated embodiment.

Figure 3 is a functional block diagram of an embodiment of a system to handle financial transactions.

Figures 4A-E are a flow chart illustrating an embodiment of a method of establishing an account with an Acceptor Account Service using a PED device.

Figures 5A-E illustrates an embodiment of a method of setting up a PED device to use an existing account with an Acceptor Account Service.

DETAILED DESCRIPTION

In the following description, certain details are set forth in order to provide a thorough understanding of various embodiments of devices, systems, methods and articles. However, one of skill in the art will understand that other embodiments may be practiced without these details. In other instances, well-known structures and methods associated with, for example, mobile devices such as smart phones, card readers, point-of-sale systems, computing systems, virtual computing systems, telecommunication networks, web browsers, web servers, etc., have not been shown or described in detail in some figures to avoid unnecessarily obscuring descriptions of the embodiments.

Unless the context requires otherwise, throughout the specification and claims which follow, the word “comprise” and variations thereof, such as “comprising,” and “comprises,” are to be construed in an open, inclusive sense, that is, as “including, but not limited to.”

Reference throughout this specification to “one embodiment,” or “an embodiment” means that a particular feature, structure or characteristic described in connection with the embodiment is included in at least one embodiment. Thus, the appearances of the phrases “in one embodiment,” or “in an embodiment” in various places throughout this specification are not necessarily referring to the same embodiment, or to all embodiments. Furthermore, the particular features, structures, or characteristics may be combined in any suitable manner in one or more embodiments to obtain further embodiments.

The headings are provided for convenience only, and do not interpret the scope or meaning of this disclosure or the claimed invention.

The sizes and relative positions of elements in the drawings are not necessarily drawn to scale. For example, the shapes of various elements and angles are not drawn to scale, and some of these elements are enlarged and positioned to improve drawing legibility. Further, the particular shapes of the elements as drawn are not necessarily intended to convey any information

regarding the actual shape of particular elements, and have been selected solely for ease of recognition in the drawings.

In an embodiment, a method comprises allowing a provider of goods or services such as a merchant (generally referred to herein as an acceptor) or a customer of such a provider (generally referred to herein as a card holder) to conduct financial transactions.

In an embodiment, a hybrid terminal device that is part smart phone and part credit card terminal facilitates attended face-to-face transactions. In an embodiment, the hybrid terminal device is communicatively coupled with remote servers to manage and carry out payment transactions with online and/or real time verification. In an embodiment, hybrid device and server side elements/functionality support invoicing aspects of payment transaction sequences. In an embodiment, a conventional dedicated card terminal unit may be employed. In an embodiment, online (for example, web-based) card payment transactions may be employed.

Figure 1 shows various perspective views of an embodiment of a hybrid terminal device (SP/PED) 100 that includes a wireless communication device, as illustrated a smart phone, and provides electronic point-of-sale functionality. As illustrated, the hybrid terminal device SP/PED 100 is part smart phone 102 and part credit card terminal 104. As discussed in more detail herein, embodiments of the hybrid terminal device SP/PED 100 are configured to communicatively couple to remote servers to facilitate face-to-face financial transactions, including transactions with online and real time verification. As illustrated, the hybrid terminal device 100 comprises a two-part body with the parts moveably coupled together. As illustrated, a hinge 106 is employed to moveably couple the two-part body together. Other mechanical coupling systems may be employed. In some embodiments, one part of the two-part body may comprise a smart phone (SP) 102 and the other part may comprise a credit card terminal (PED) 104. In another example, one part may comprise a card reader and another part may comprise a computing and

telecommunications system. In some embodiments, the hybrid terminal device SP/PED 100 may comprise a one part main body.

The following discussion provides a brief, general description of a suitable computing environment in which the embodiments described herein may be implemented. Although not required, various embodiments will be described in the general context of computer-executable instructions, such as program application modules, objects, or macros being executed by one or more electronic devices, such as a smart phone, a credit card terminal, a hybrid smart phone/point-of-sale system, a personal computer, a server, etc., and various combinations thereof. Those skilled in the relevant art will appreciate that various embodiments can be practiced with other computing system configurations, including other handheld devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, networked personal computers (PCs), minicomputers, mainframe computers, virtual systems, and the like. Various embodiments can be practiced in distributed computing environments where tasks or modules are performed by remote processing devices, which are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

Figure 2 shows an embodiment of an environment 200 that may be employed to facilitate financial transactions as described herein. The environment 200 includes a computing system 10. For example, the computing system 10 may be configured as a smart phone, a point-of-sale terminal, a hybrid smart phone/point-of-sale terminal (See SP/PED 100 of Figure 1), a host server, such as a financial transactions server, a communications server, etc. The computing system 10 may, for example, be operated by a business providing goods or services to a consumer (commonly referred to as an acceptor), by a consumer purchasing goods or services from a business (commonly referred to as a cardholder), by a vendor, such as a financial institution, a communication service provider (for example, a financial institution or financial transaction service provider, a telecom service provider, an Internet

service provider), etc. The computing system 10 may take the form of any of the variety of types discussed above, which may run a networking client, for example a server, a Web browser, etc. The computing system 10 comprises a processor unit 12, a system memory 14 and a system bus 16 that couples various system components including the system memory 14 to the processing unit 12. The processing unit 12 may be any logical processing unit, such as one or more central processing units (CPUs), digital signal processors (DSPs), application-specific integrated circuits (ASIC), etc. Unless described otherwise, the construction and operation of the various blocks shown in Figure 2 are of conventional design. As a result, such blocks need not be described in further detail herein, as they will be understood by those skilled in the relevant art.

The system bus 16 can employ any known bus structures or architectures, including a memory bus with memory controller, a peripheral bus, and/or a local bus. The system memory 14 includes read-only memory ("ROM") 18 and random access memory ("RAM") 20. A basic input/output system ("BIOS") 22, which can form part of the ROM 18, contains basic routines that help transfer information between elements within the computing system 10, such as during startup.

The computing system 10 also includes one or more optional spinning media memories such as a hard disk drive 24 for reading from and writing to a hard disk 25, and an optical disk drive 26 and a magnetic disk drive 28 for reading from and writing to removable optical disks 30 and magnetic disks 32, respectively. The optical disk 30 can be a CD-ROM, while the magnetic disk 32 can be a magnetic floppy disk or diskette. The hard disk drive 24, optical disk drive 26 and magnetic disk drive 28 communicate with the processing unit 12 via the bus 16. The hard disk drive 24, optical disk drive 26 and magnetic disk drive 28 may include interfaces or controllers coupled between such drives and the bus 16, as is known by those skilled in the relevant art, for example via an IDE (Integrated Drive Electronics) interface. The drives 24, 26 and 28, and their associated computer-readable media, provide nonvolatile storage of computer-readable instructions, data structures,

program modules and other data for the computing system 10. Although the depicted computing system 10 employs hard disk 25, optical disk 30 and magnetic disk 32, those skilled in the relevant art will appreciate that other types of spinning media memory computer-readable media may be employed, such as, digital video disks (DVD), Bernoulli cartridges, etc. Those skilled in the relevant art will also appreciate that other types of computer-readable media that can store data accessible by a computer may be employed, for example, non-spinning media memories such as magnetic cassettes, flash memory cards, RAMs, ROMs, smart cards, etc.

Program modules can be stored in the system memory 14, such as an operating system 34 (for example, Windows, Android, etc), one or more application programs 36, other programs or modules 38, and program data 40. The system memory 14 also includes a server 41 for permitting the computing system 10 to exchange data with sources such as Websites of the Internet, corporate intranets, or other networks, as well as other server applications on server computers. The server 41 may be markup language based, such as hypertext markup language (HTML), and operate with markup languages that use syntactically delimited characters added to the data of a document to represent the structure of the document, etc.

While shown in Figure 2 as being stored in the system memory 14, the operating system 34, application programs 36, other program modules 38, program data 40 and server 41 can be stored on the hard disk 25 of the hard disk drive 24, the optical disk 30 and the optical disk drive 26 and/or the magnetic disk 32 of the magnetic disk drive 28. A user can enter commands and information to the computing system 10 through input devices such as a keypad or keyboard 42 and a pointing device such as a mouse 44. Other input devices can include a microphone, joystick, game pad, scanner, touch screen, card reader, chip reader, etc. These and other input devices as illustrated are connected to the processing unit 12 through an interface 46 such as a serial port interface that couples to the bus 16, although other interfaces such as a parallel port, a game port or a universal serial bus (USB) can be used. A

display or monitor 48 or other display devices may be coupled to the bus 16 via video interface 50, such as a video adapter. The computing system 10 can include other output devices such as speakers, printers, etc.

The computing system 10 can operate in a networked environment using logical connections to one or more repositories 6 and/or other computing systems 8a-8n. The computer system 10 may employ any known means of communications, such as through a local area network (LAN) 52 or a wide area network (WAN), a telecommunications network or the Internet 54. Such networking environments are well known and may include, for example, any type of telecommunications network or other network, such as CDMA, OFDMA, GSM, WiMAX, VoIP, WiFi, Internet Protocol, various IEEE standard protocols, etc.

When used in a LAN networking environment, the computing system 10 may be coupled to the LAN 52 through an adapter or network interface 56 (communicatively linked to the bus 16). When used in a WAN networking environment, the computing system 10 often includes a device, such as a modem 57, a mobile phone communication module or other device for establishing communications over the WAN/Internet 54. As illustrated, a modem 57 is shown in Figure 2 as communicatively linked between the interface 46 and the WAN/Internet/Telecommunications network 54. In a networked environment, program modules, application programs, or data, or portions thereof, can be stored in a server computer (for example, another configured computing system similar to the computing system 10). Those skilled in the relevant art will readily recognize that the network connections shown in Figure 2 a are only some examples of establishing communication links between computers and/or other systems and devices 60, and other links may be used, including wireless links.

The computing system 10 may include one or more interfaces such as slot 58 to allow the addition of devices either internally or externally to the computing system 10. For example, suitable interfaces may include ISA (Industry Standard Architecture), IDE, PCI (Personal Computer Interface)

and/or AGP (Advance Graphics Processor) slot connectors for option cards, serial and/or parallel ports, USB ports (Universal Serial Bus), audio input/output (I/O) and MIDI/joystick connectors, slots for memory, credit card readers, scanners, bar code readers, RFID readers, etc., collectively referenced as 60.

The term computer-readable medium as used herein refers to any medium that participates in providing instructions to processor unit 12 for execution. Such a medium may take many forms, including but not limited to, non-volatile media, and volatile media. Non-volatile media includes, for example, hard, optical or magnetic disks 25, 30, 32, respectively. Volatile media includes dynamic memory, such as system memory 14.

Common forms of computer-readable media include, for example, a floppy disk, a flexible disk, hard disk, magnetic tape, or any other magnetic medium, a CD-ROM, any other optical medium, punch cards, paper tape, any other physical medium with patterns of holes, a RAM, a PROM, and EPROM, a FLASH-EPROM, any other memory chip or cartridge, as described hereinafter, or any other medium from which a computer can read.

Various forms of computer readable media may be involved in carrying one or more sequences of one or more instructions to processor unit 12 for execution. For example, the instructions may initially be carried on a magnetic disk of a remote computer. The remote computer can load the instructions into its dynamic memory and send the instructions over a telephone line using a modem. A modem 57 local to computer system 10 can receive the data on the telephone line and use an infrared transmitter to convert the data to an infrared signal. An infrared detector coupled to the system bus 16 can receive the data carried in the infrared signal and place the data on system bus 16. The system bus 16 carries the data to system memory 14, from which processor unit 12 retrieves and executes the instructions. The instructions received by system memory 14 may optionally be stored on storage device either before or after execution by processor unit 12.

The repository 6 is a permanent storage medium for data. The repository 6 may be specific to each end user, or shared between some or all

end users. For example, different financial services vendors (for example, banks or bank exchanges, VISA, Mastercard) may have separate repositories or may share repositories. The repository 6 (only one illustrated) may run on the same computing system as an application accessing the repository, or on another computing system accessible over the network 52, 54.

Embodiments of the computing system 10 of Figure 2 may not include all of the illustrated components of the computing system 10, may contain additional components not shown in Figure 10, and may not be configured as shown in Figure 10. For example, a computing system 10 configured as hybrid smart phone/point-of-sale system (see Figure 3), may not include an optical disk drive and may include an application specific integrated circuit or a digital signal processor (not shown) to perform one or more of the functions of the hybrid smart phone/point-of-sale system. In another example, a hybrid smart phone/point of sale system may include one or more telecommunications modules to handle call processing, such as CDMA, OFDMA, GSM, etc., call processing.

Figure 3 is a functional block diagram of an embodiment of a system 300 for handling financial transactions. The system 300 includes a hybrid smart phone/point-of-sale device (SP/PED) 302 and one or more servers 304, which may typically be remote from the SP/PED 302. A provider of goods or services (an acceptor) may use the SP/PED 302 in communication with the one or more servers 304 to conduct financial transactions with a customer (a cardholder) or vendor. For example, a customer may purchase goods from the provider and pay for the goods by presenting a credit card to the provider. The provider may use the SP/PED 302 in communication with the one or more servers 304 to process the payment and provide notifications, invoices, etc., to the customer. The servers may include, for example, an acceptor account server, a card issuer server, a payment gateway server, etc. In another example, a customer may return an item and the provider may use the SP/PED 302 to process a credit to the customer. Processing of the transaction may include online and/or real time verification of the transaction. The SP/PED 302

may comprise one or more configured computing systems, such as an embodiment of the computing system 10 of Figure 2. Similarly, the one or more servers 304 may comprise one or more configured computing systems, such as an embodiment of the computing system 10 of Figure 2.

As illustrated, the SP/PED 302 comprises a smart phone module 306 and a point-of-sale module, credit card terminal, etc. (PED) 308 communicatively coupled together through an interface 307, which as illustrated is serial interface such as a USB interface, an RS232 interface, etc., exchanging messages in, for example, an ISO 8583 financial transaction card message format.

As illustrated, the smart phone module 306 comprises an operating system 310 (for example, a Windows™ or Android™ operating system), and application modules 312 (for example, in a system memory, see system memory 14 of Figure 2). As illustrated, the application modules include a sales application manager, an electronic-point-of-sale manager, and a serial device driver, which may, for example, control the serial interface 307.

As illustrated, the PED module 308 comprises an operating system 314 shown with drivers and configured to support for example, EMV L1 smart card reader standards and devices, such as the Financial Application Specification for SCF Compliant EMV Terminals (SEPA-FAST) standards. Other standards may be employed and supported. The PED module 308 as illustrated also includes an EMV L1 Kernel 316, configured to manage and/or perform various functions associated with financial transactions, such as language selection, personal identification number (PIN) prompting, payment card long number (PAN) reading, PIN and/or PAN verifying, encoding, encryption, decryption, transmitting, authorizing, etc. The PED module 308 includes a card applications module to manage card applications 318 and a communications manager 320 to manage communications between the PED module 308 and cards or other payment devices and between the PED module 308 and the smart phone module 306. The PED module 308 includes an update manager 322 to manage and/or perform updates, for example updates

to the operating system, drivers, kernels, card applications and communications manager. As illustrated the PED module comprises a module or reader interface 324 configured to read data from chips, such as smart micro chips on credit cards or RFID devices, and a module or reader interface 326 configured to read magnetic data, for example data stored in a magnetic strip on a credit card. The interface or module 326 may comprise a slot into which a credit card may be inserted, a slot through which a credit card may be swiped, etc. As illustrated, a card 328 with a smart chip is being read using the interface 324 and a card 330 with a magnetic strip is being read using interface 326. In some embodiments, a single module or reader interface may perform the functionality of the illustrated reader interfaces 324, 326. In some embodiments, all or part of the server functions (for example, the payment gateway, the service center, the terminal host, etc.) may be incorporated into or performed by the SP/PED 302. In some embodiments, the interface 324 may be configured to wirelessly read the card 328.

As previously mentioned, acceptor account set-up in many payment markets around the world is traditionally a very slow and largely manual process. This is due to a combination of the stringent background checks that are typically carried out on the acceptor (a feature of the card schemes to ensure their merchant network meets a minimum standard and to reduce the risk of merchant fraud) and the nature of the systems and associated processes operated by the acquiring banks that are creating the accounts.

In some cases the time taken from an initial application made by the prospective acceptor to the point the prospective acceptor is issued a payment terminal and is able to start taking payments can run to many weeks.

An embodiment of the present disclosure facilitates the possibility for a prospective card acceptor to get a payment terminal "off the shelf" without any required pre-approvals. On receipt of the terminal the prospective acceptor can initiate their own account creation process by means of a self-serve function on the device.

The self-serve feature may invoke basic checks to verify the authenticity of the prospective acceptor. An example check described here is that the prospective acceptor is requested to key in their postal address details. Other checks may be employed. The prospective acceptor is then requested to insert a payment card issued to the prospective acceptor into the reader, and provide evidence they are actually the person the card was issued to by entering their PIN code or other information that can be used to verify the identity of the prospective acceptor. The device may then read the long card number (PAN) from the payment card and the system then contacts the card issuer and requests an address verification on the card (for example, using previously manually typed postal address details). A positive response may result in the prospective acceptor being granted a limited "instant" approval to start using the device, although certain restrictions may typically be applied at this stage (e.g. a cap on the size of transactions, no or limited rights to withdraw the funds that have been received, e.g., the funds are placed in escrow until further background checks have been completed, etc.). The order may be modified. For example, card may be read and then verification information provided.

Figures 4A-4E illustrate an embodiment of a method 400 of setting up a new account associated with a service on a PED device, such as an Acceptor Account Service. For example, setting up an off-the-shelf PED device to accept payments through an Acceptor Account Service. For convenience, the method 400 will be described with reference to the embodiment of a system 300 of Figure 3. The method 400 may be performed by embodiments other than the system 300 of Figure 3. The method 400 may be incorporated into other methods, such as methods of processing a payment transaction and/or methods such as the methods disclosed in PCT Application No. PCT/US2011/068107 filed December 30, 2011 and entitled System and Method for Providing Paperless Transactions.

At act 1 of Figures 4A-4E, an Acceptor starts the method 400, for example by clicking on a payments application icon on a display of an SP/PED,

such as the SP/PED 302 of Figure 3. At act 2 of Figures 4A-4E, the SP/PED 302 launches a payments application or module. For example, a payments application module of the application modules 312 of Figure 3, a payments application module of the card applications 318 of Figure 3, etc. At act 3 of Figures 4A-4E, the payments application asks the EPOS driver to determine whether the device contains valid Acceptor Account details associated with a selected service, such as an Acceptor Account Service. As a new account is being set up in this example, at act 4 of Figures 4A-4E, the EPOS driver returns an indication that the SP/PED 302 does not contain valid account information associated with a selected service.

At act 5 of Figures 4A-4E, the payments application asks the Acceptor if they have an existing account with a service. As a new account is being set up in this example, at act 6 the acceptor provides an indication that the Acceptor does not have an existing account with the service. At act 7, the payments application asks the Acceptor to provide information that may be used to verify the Acceptor. As illustrated, the Acceptor is asked to provide address information associated with payment card, such as a credit card or debit card. The payment card need not be a card that has been previously associated with the service which is being set up. At act 8, the Acceptor provides the requested information, for example by typing in the requested information, saying the requested information (e.g., for interpretation by a voice input application), etc. At act 9, the payments application requests the Acceptor to insert, swipe, tap, present, etc. the payment card so that it can be read by the EPOS, for example the PED of the SP/PED 302 of Figure 3. At act 10, the payments application asks the EPOS driver to retrieve the PAN of the payment card. At act 11, the EPOS driver instructs the EPOS to retrieve the PAN of the payment card. At act 12, the EPOS provides an indication that it is ready to read the payment card, for example, by causing a message to insert the payment card to be displayed. At act 13, the Acceptor inserts, swipes, taps, presents, etc. the payment card so that it can be read by the EPOS. At act 14, the EPOS detects the payment card. At act 15, the EPOS requests, extracts,

etc. payment card scheme information from the payment card. At act 16, payment card scheme information is provided, extracted, etc. from the payment card. At act 17, the EPOS determines whether the payment card provided is compatible, for example with the system or with the service to be authorized, etc.

When it is determined at act 17 that the payment card is compatible, at act 18, the EPOS requests the Acceptor to enter a PIN associated with the payment card. At act 19, the Acceptor provides the requested PIN, for example by entering it on a keypad of the EPOS, etc. At act 20, the EPOS verifies the PIN associated with the payment card, for example by reading the PIN or providing the PIN to a smart payment card for verification. When it is determined at act 21 that the PIN is valid, the EPOS returns the PAN to the EPOS driver at act 22. At act 23, the EPOS driver returns the PAN to the payments application.

At act 24, the payments application requests verification from the EPOS driver that the PAN and the verification information such as the address and the PAN are associated with an account. As previously mentioned, the account need not be an account that has previously been associated with the service to be authorized. At act 25, the EPOS driver passes the verification request to the payment gateway. At act 26, the payment gateway determines the payment card issuer from the PAN. At act 27, the payment gateway passes the verification request to the card issuer, such as a bank.

When the card issuer verifies the provided information is associated with the PAN, at act 28 the card issuer returns an indication to the payment gateway that the provided information is associated with the PAN. At act 29, the payment gateway returns an indication to the EPOS driver that it has been verified that the provided information is associated with the PAN of the payment card. At act 30, the EPOS driver returns an indication to the payments application that it has been verified that the provided information is associated with the PAN of the payment card.

At act 31, the payments application requests the service to set up an account with the selected service. For example, as illustrated the payments application forwards a request to a server of an Acceptor Account Service. At act 32, the server of the Acceptor Account Service returns an account ID to the payments application. At act 33, the payments application registers the account with the EPOS driver. At act 34, the payments application informs the Acceptor that the SP/PED is ready to accept payments.

Embodiments of methods of setting up an account for a PED with a Payment Acceptance Service may contain additional acts not shown in Figures 4A-4E, may not contain all of the acts shown in Figures 4A-4E, may perform acts shown in Figures 4A-4E in various orders, and may be modified in various respects. For example, additional acts such as limiting the services available to an Acceptor until additional verification occurs may be performed in some embodiments. In another example, a card issuer may open up an additional query / response capability beyond the address verification service described above. Such an extended role of the card issuer could involve them providing verification that they have already taken steps to validate the prospective acceptor at an earlier stage (e.g. as part of the background checks carried out by the card issuer before granting them a bank account or a credit line).

An Acceptor may also wish to associate a new payment terminal with an existing acceptor account, such as an account with an Acceptor Account Service. In an embodiment, this may be achieved, for example, by inserting the payment card held on account for the Acceptor into the payment terminal and demonstrating they are the true cardholder by providing a PIN associated with the payment card. The device then retrieves the existing acceptor account details from the network and stores these in the new terminal.

Figures 5A-5E illustrates an embodiment of a method 500 of setting up a new PED device to work with an existing service used by an Acceptor, such as a Acceptor Account Service. For example, setting up an off-

the-shelf PED device to accept payments through an existing account with Acceptor Account Service. For convenience, the method 500 will be described with reference to the embodiment of a system 300 of Figure 3. The method 500 may be performed by embodiments other than the system 300 of Figure 3. The method 500 may be incorporated into other methods, such as methods of processing a payment transaction and/or methods such as those disclosed in PCT Application No. PCT/US2011/068107 filed December 30, 2011 and entitled System and Method for Providing Paperless Transactions.

At act 1 of Figures 5A-5E, an Acceptor starts the method 500, for example by clicking on a payments application icon on a display of an SP/PED, such as the SP/PED 302 of Figure 3. At act 2 of Figures 5A-5E, the SP/PED 302 launches a payments application or module. At act 3 of Figures 5A-5E, the payments application asks the EPOS driver to determine whether the device contains valid Acceptor Account details associated with a selected service, such as an Acceptor Account Service. As a new device is being added to an existing account, at act 4 of Figures 5A-5E, the EPOS driver returns an indication that the SP/PED 302 does not contain valid account information associated with a selected service.

At act 5 of Figure 5A-5E, the payments application asks the Acceptor if they have an existing account with a service. At act 6 of this example, the acceptor provides an indication that the Acceptor does have an existing account with the service. At act 7, the payments application asks the Acceptor to present a payment card for reading, for example by inserting, swiping, tapping, presenting, etc., the card so it can be read by the EPOS. As illustrated, the Acceptor is asked to provide payment card for reading, such as a credit card or debit card. At act 8, the payments application asks the EPOS driver to retrieve the PAN of the payment card. At act 9, the EPOS driver instructs the EPOS to retrieve the PAN of the payment card. At act 10, the EPOS provides an indication that it is ready to read the payment card, for example, by causing a message to insert the payment card to be displayed. At act 13, the Acceptor inserts, swipes, taps, presents, etc. the payment card so

that it can be read by the EPOS. At act 11, the EPOS detects the payment card. At act 12, the EPOS requests, extracts, etc. payment card scheme information from the payment card. At act 14, payment card scheme information is provided, extracted, etc. from the payment card. At act 15, the EPOS determines whether the payment card provided is compatible, for example with the system or with the service to be authorized, etc.

When it is determined at act 15 that the payment card is compatible, at act 16, the EPOS requests the Acceptor to enter a PIN associated with the payment card. At act 17, the Acceptor provides the request PIN, for example by entering it on a keypad of the EPOS, etc. At act 18, the EPOS verifies the PIN associated with the payment card, for example by reading the PIN and/or providing the PIN to a smart payment card for verification. When it is determined (as illustrated at act 19) that the PIN is valid, the EPOS returns the PAN to the EPOS driver at act 20. At act 21, the EPOS driver returns the PAN to the payments application.

At act 22, the payments application requests information associated with the existing acceptor account, such as an acceptor account ID number with the acceptor account service which is associated with the PAN of the bank card provided by the Acceptor, from an Acceptor Account Service, such as by forwarding a request to an Acceptor Account Server. As previously mentioned, the payment account associated with the bank card need not be a payment account associated with the service to be authorized on the device. When the Acceptor Account Server verifies that the PAN of the payment card is associated with an acceptor account with the Acceptor Account Service, at act 23, the Acceptor Account Server returns the account ID number to the payments application. At act 24, the payments application registers the acceptor account ID number account with the EPOS driver. At act 25, the payments application informs the Acceptor that the SP/PED is ready to accept payments.

Embodiments of methods of setting up a new PED to use an existing account with a Payment Acceptance Service may contain additional

acts not shown in Figure 5, may not contain all of the acts shown in Figure 5, may perform acts shown in Figure 5 in various orders, and may be modified in various respects. For example, additional acts such as limiting the services available to an Acceptor until additional verification occurs may be performed in some embodiments. In another example, an Acceptor Account Server may open up an additional query / response capability beyond the PAN verification described above.

Some embodiments may take the form of or comprise computer program products. For example, according to one embodiment there is provided a computer readable medium comprising a computer program adapted to perform one or more of the methods or functions described above. The medium may be a physical storage medium such as for example a Read Only Memory (ROM) chip, or a disk such as a Digital Versatile Disk (DVD-ROM), Compact Disk (CD-ROM), a hard disk, a memory, a network, or a portable media article to be read by an appropriate drive or via an appropriate connection, including as encoded in one or more barcodes or other related codes stored on one or more such computer-readable mediums and being readable by an appropriate reader device.

Furthermore, in some embodiments, some or all of the methods and/or functionality may be implemented or provided in other manners, such as at least partially in firmware and/or hardware, including, but not limited to, one or more application-specific integrated circuits (ASICs), digital signal processors, discrete circuitry, logic gates, standard integrated circuits, controllers (*e.g.*, by executing appropriate instructions, and including microcontrollers and/or embedded controllers), field-programmable gate arrays (FPGAs), complex programmable logic devices (CPLDs), etc., as well as devices that employ RFID technology, and various combinations thereof. For example, embodiments of a hybrid smart phone/point-of-sale terminal may be implemented as discussed above (*e.g.*, partially in hardware, partially with controllers executing instructions, etc.).

The various embodiments described above can be combined to provide further embodiments. All of the US patents, US patent application publications, US patent applications, foreign patents, foreign patent applications and non-patent publications referred to in this specification and/or listed in the Application Data Sheet, including but not limited to U.S. Provisional Patent Application No. 61/460,359, filed December 31, 2011, and U.S. Provisional Patent Application Serial No. 61/452,560, filed March 14, 2011, are incorporated herein by reference, in their entirety. Aspects of the embodiments can be modified, if necessary, to employ systems, circuits and concepts of the various patents, applications and publications to provide yet further embodiments.

These and other changes can be made to the embodiments in light of the above-detailed description. In general, in the following claims, the terms used should not be construed to limit the claims to the specific embodiments disclosed in the specification and the claims, but should be construed to include all possible embodiments along with the full scope of equivalents to which such claims are entitled. Accordingly, the claims are not limited by the disclosure.

CLAIMS

1. A hybrid terminal device, comprising:
one or more memories; and
one or more processing devices configured to implement one or more manager modules to:
manage wireless communications with one or more remote devices;
receive a request related to an acceptor account of an acceptor account service;
selectively obtain a payment card long number (PAN) of a payment card associated with a card holder of the payment card; and
selectively facilitate performance of the request using the obtained PAN.
2. The hybrid terminal device of claim 1 wherein the request is a request to set up the acceptor account and the one or more manager modules are configured to associate the acceptor account with the hybrid terminal device.
3. The hybrid terminal device of claim 2 wherein the one or more manager modules are configured to associate a payment account associated with the payment card with the acceptor account.
4. The hybrid terminal device of claim 1 wherein the one or more manager modules are configured to receive an indication of information associated with the payment card and initiate transmission of a verification request of the received information.
5. The hybrid terminal device of claim 4 wherein the received indication includes address information, the verification request includes the

address information, the one or more manager modules are configured to initiate transmission of the verification request to a card issuer server, and the selectively facilitating performance of the request comprises facilitating performance of the request based on a response to the verification request by the card issuer server.

6. The hybrid terminal of claim 1 wherein the one or more manager modules are configured to provide notification of performance of the request.

7. The hybrid terminal device of claim 1, comprising:
a smart phone including at least one of the one or more processing devices.

8. The hybrid terminal device of claim 7, comprising:
a payment card terminal communicatively and moveably coupled to the smart phone and configured to read payment cards.

9. The hybrid terminal of claim 7 wherein the payment card terminal is configured to extract the PAN from the payment card.

10. The hybrid terminal of claim 9 wherein the at least one manager module is configured to initiate performance of the request using on the extracted PAN.

11. The hybrid terminal device of claim 7 wherein the smart phone is configured to communicatively couple the hybrid terminal device to one or more remote servers to facilitate performance of the request.

12. The hybrid terminal device of claim 1 wherein the request is a request to associate an existing acceptor account with the hybrid terminal device and the one or more manager modules are configured to associate the existing acceptor account with the hybrid terminal device.

13. The hybrid terminal device of claim 1 wherein the one or more manager modules include:

an electronic point-of-sale manager; and
a sales application manager.

14. The hybrid terminal device of claim 1 wherein the one or more manager modules are configured to:

obtain a personal identification number (PIN) associated with the payment card; and
determine whether a received PIN matches the obtained PIN.

15. The hybrid terminal device of claim 14 wherein the one or more manager modules are configured to obtain the PAN when it is determined that a received PIN matches the obtained PIN.

16. The hybrid terminal of claim 1, comprising:
a display, wherein the one or more manager modules are configured to control the display.

17. The hybrid terminal of claim 1 wherein the one or more manager modules include a short-message-service manager module.

18. The hybrid terminal of claim 1 wherein the at least one manager module is configured to facilitate performance of financial transactions associated with the acceptor account by the hybrid terminal device.

19. A method, comprising:
receiving a request related to an acceptor account with an acceptor account service;
receiving a payment card long number (PAN) of a payment card associated with a card holder of the payment card; and
selectively facilitating performance of the request using the PAN.
20. The method of claim 19 wherein the request is a request to set up the acceptor account.
21. The method of claim 19 wherein facilitating the request comprises associating the acceptor account with a hybrid terminal device.
22. The method of claim 19 wherein facilitating the request comprises associating a payment account associated with the payment card with the acceptor account.
23. The method of claim 19 wherein facilitating the request comprises receiving an indication of information associated with the payment card and requesting verification of the received information through an issuer of the payment card.
24. The method of claim 23 wherein the indication of information associated with the payment card includes an indication of an address, the method comprises initiating transmission of a verification request including the indication of the address to a card issuer server, and the selectively facilitating performance of the request comprising selectively facilitating performance of the request based on a response of the card issuer server.

25. The method of claim 19, comprising providing notification of performance of the request to the card holder.

26. The method of claim 19 wherein the request is a request to set up the acceptor account and facilitating the request comprises associating the acceptor account with a hybrid terminal device.

27. The method of claim 19, comprising:
automatically extracting information from the payment card.

28. The method of claim 27 comprising extracting the PAN from the payment card.

29. The method of claim 19 comprising communicatively coupling a hybrid terminal device to one or more remote servers to facilitate performance of the request.

30. The method of claim 19 wherein the request is a request to associate an existing acceptor account with a hybrid terminal device and facilitating the request comprises associating the existing acceptor account with the hybrid terminal device.

31. The method of claim 19, further comprising:
facilitating electronic point-of-sale transactions.

32. The method of claim 19, comprising:
obtaining a personal identification number (PIN) associated with the payment card; and
determine whether a received PIN matches the obtained PIN.

33. The method of claim 32 wherein obtaining the PAN comprises obtaining the PAN when it is determined that the received PIN matches the obtained PIN.

34. The method of claim 32 wherein facilitating performance of the request comprises initiating the request when the received PIN matches the obtained PIN.

35. The method of claim 19 comprising facilitating performance of financial transactions associated with the acceptor account by a hybrid terminal device.

36. A method, comprising:
receiving a request related to an acceptor account with an acceptor account service;
determining whether a received personal identification number (PIN) matches a PIN extracted from a payment card;
determining whether received address information matches address information associated with the payment card; and
when it is determined that the PIN matches the extracted PIN and the received address information matches the address information associated with the payment card, facilitating performance of the request.

37. The method of claim 36 wherein determining whether the received address information matches address information associated with the payment card comprises extracting a payment long card number (PAN) from the payment card and transmitting a verification request including the received address information and the extracted PAN to a card issuer server.

38. A method, comprising:
receiving a request related to an acceptor account with an acceptor account service;
determining whether a received personal identification number (PIN) matches a PIN extracted from a payment card; and
when it is determined that the received PIN matches the extracted PIN, facilitating performance of the request.

39. The method of claim 38 wherein facilitating the performance of the request comprises associating the acceptor account with a hybrid terminal device.

40. The method of claim 39 wherein facilitating the performance of the request comprises limiting a functionality of the hybrid device related to the acceptor account.

41. A hybrid terminal device configured to perform the method of any of claims 19 to 40.

42. The device of claim 41 comprising a card terminal.

43. The device of claim 41 comprising a smart phone.

44. A system, comprising:
one or more servers configured to facilitate completion of financial transactions; and
a hybrid terminal device configured to communicatively couple to the one or more servers, wherein the system is configured to perform the method of any of claims 19 to 40.

45. A system, comprising:
one or more servers configured to provide financial transaction related services; and
a hybrid terminal device according to any of claims 1 to 18.

46. A hybrid terminal device, comprising:
means for extracting cardholder identification information from a payment card; and
means for responding to a request related to an acceptor account with an acceptor account service using identification information extracted by the means for extracting.

47. The hybrid terminal device of claim 46 wherein the means for extracting comprises a payment card reader of the hybrid terminal device.

48. The hybrid terminal device of claim 47 wherein the means for responding comprises a smart phone module of the hybrid terminal device.

49. The hybrid terminal device of claim 46 wherein the extracted information includes a personal identification number (PIN).

50. The hybrid terminal device of claim 46 wherein the extracted information includes a payment card long number (PAN).

51. A non-transitory computer-readable medium whose contents cause a hybrid terminal device to perform a method according to any of claims 19 to 40.

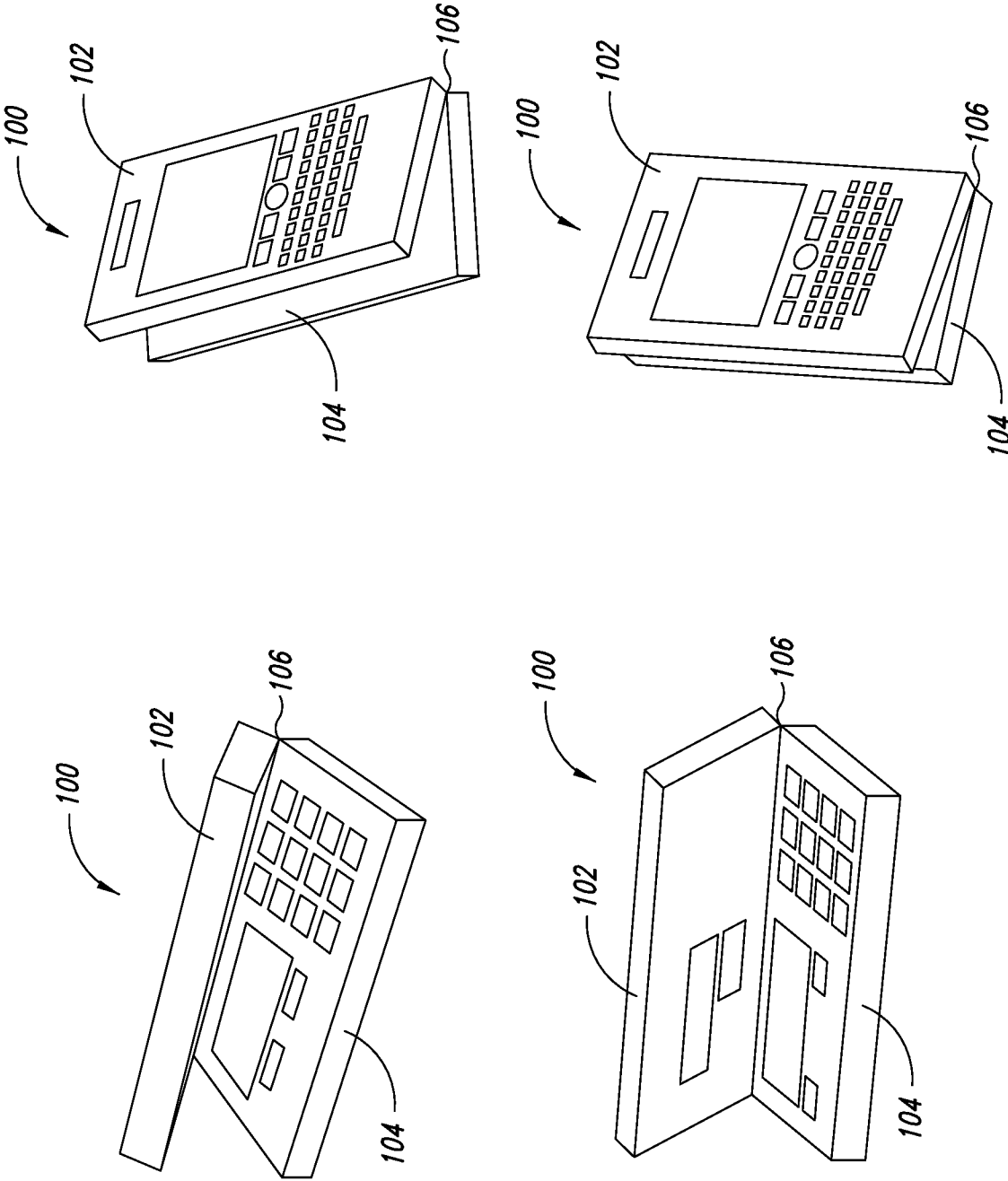


FIG. 1

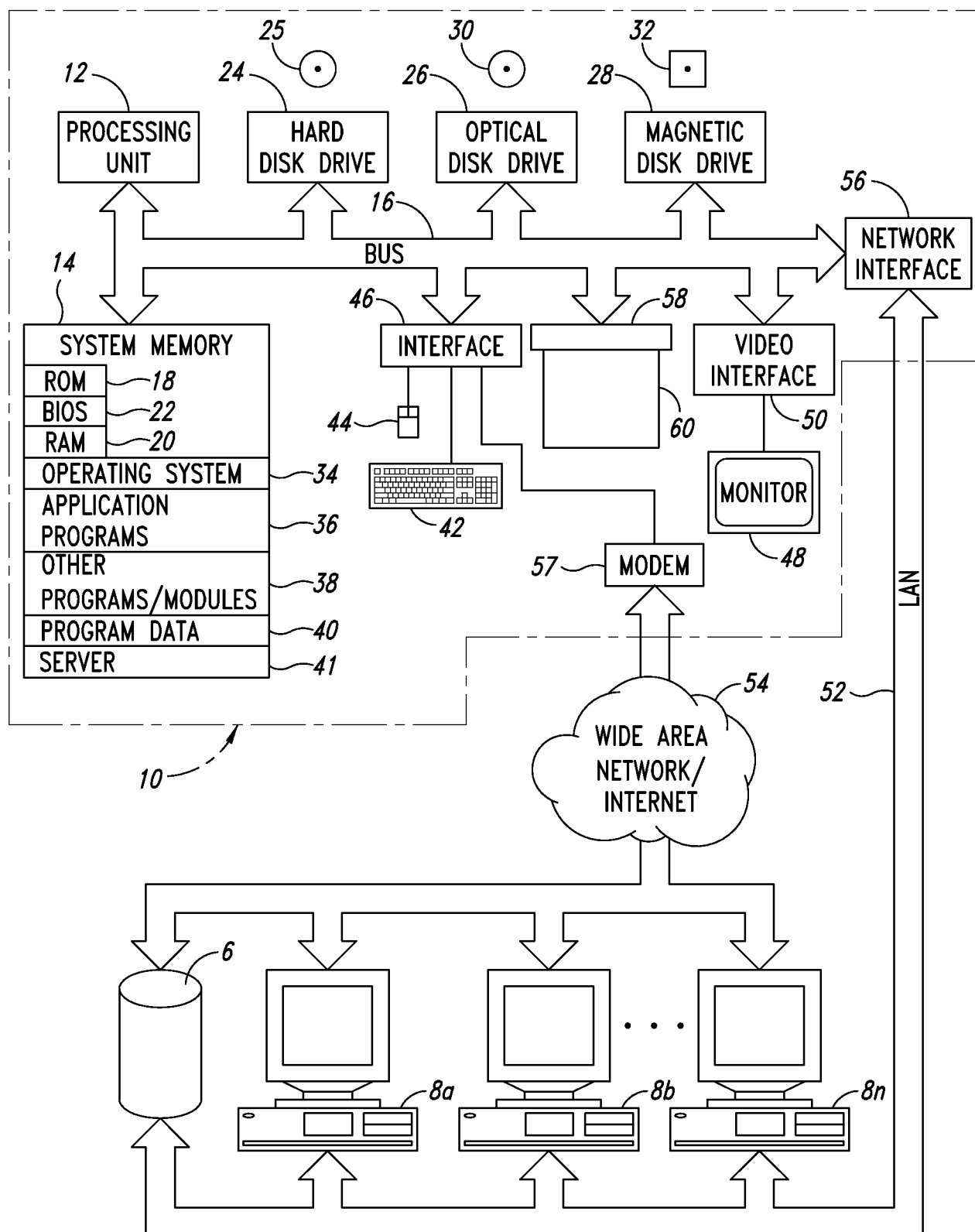
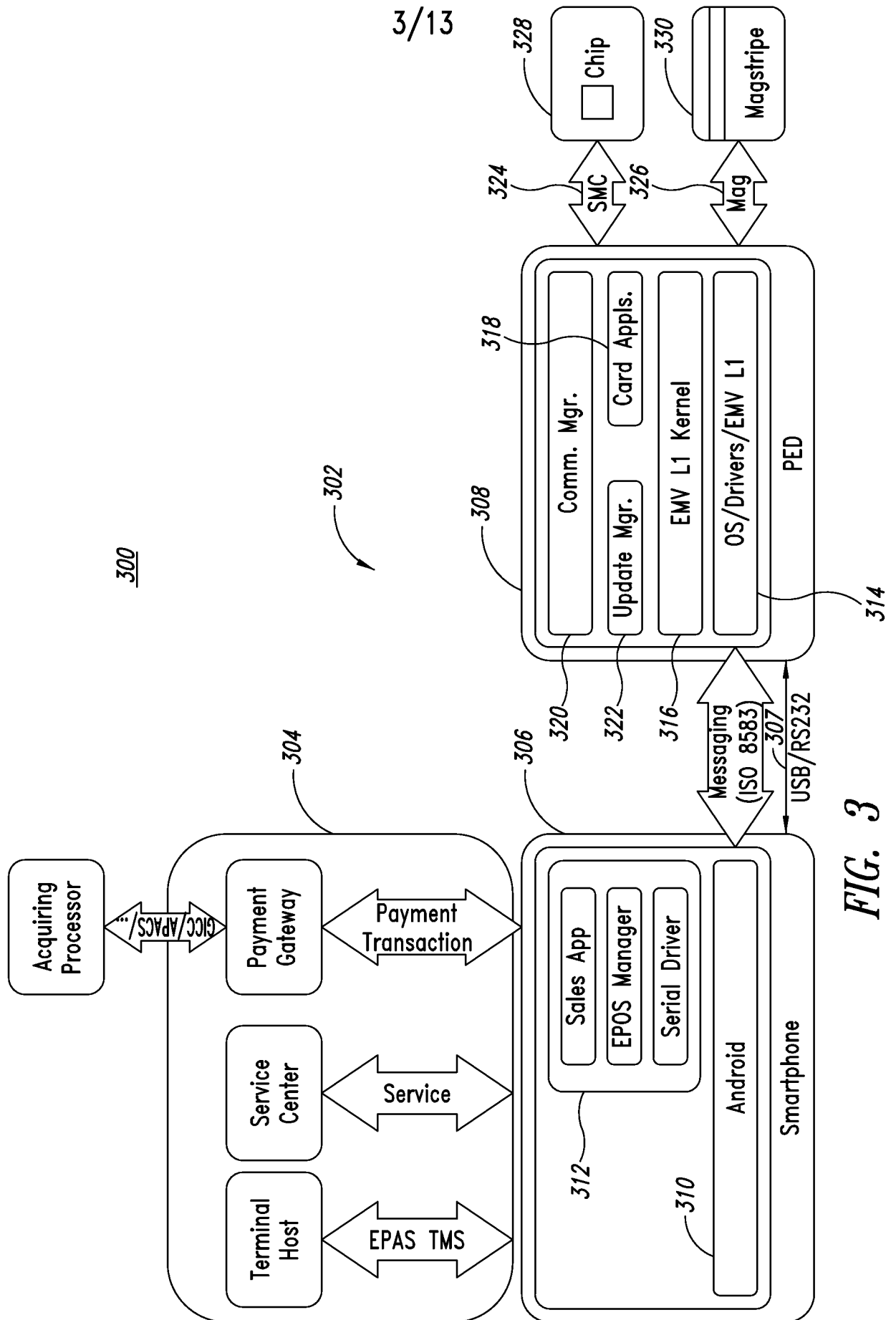
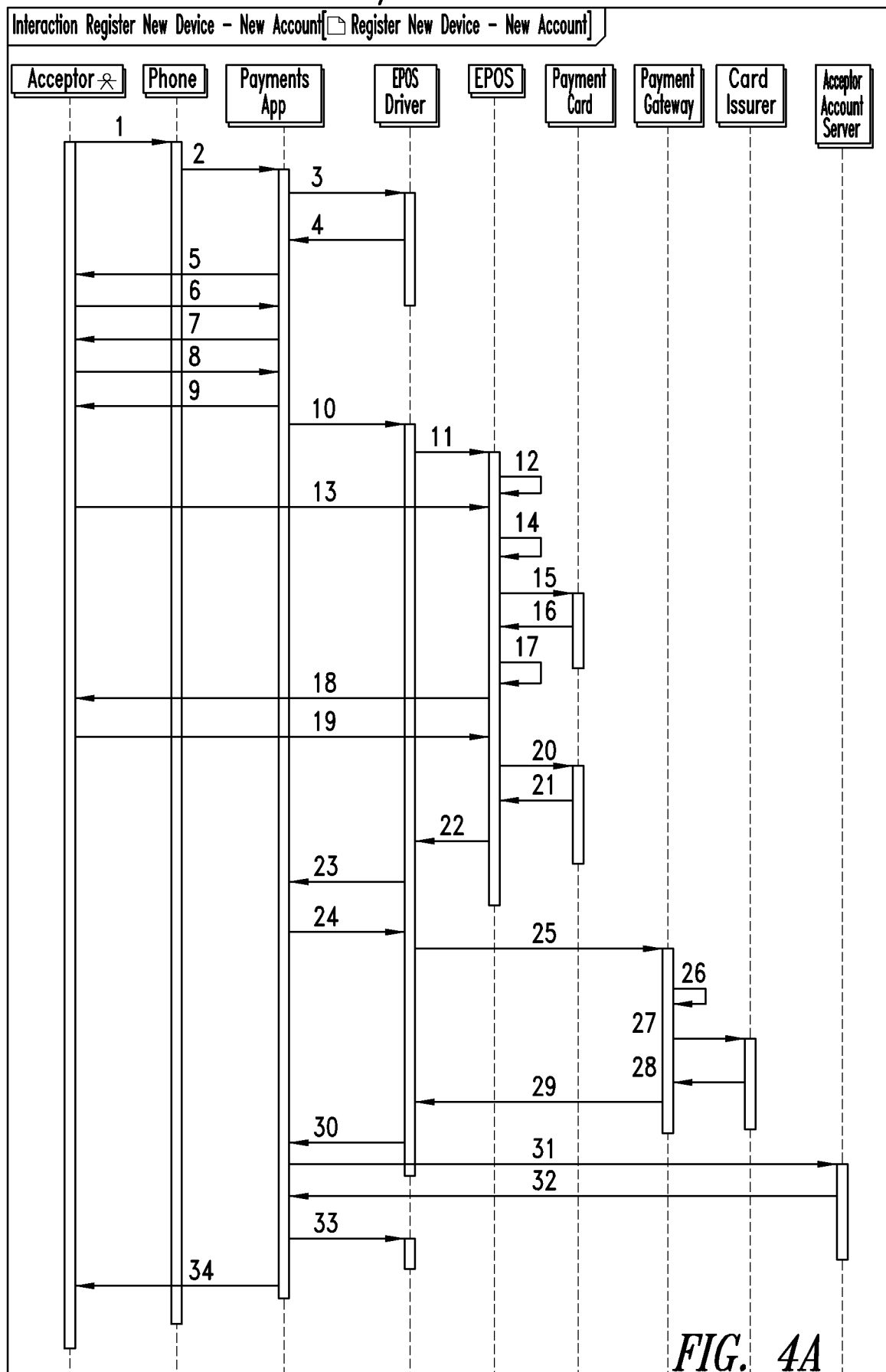


FIG. 2



4/13

400



400

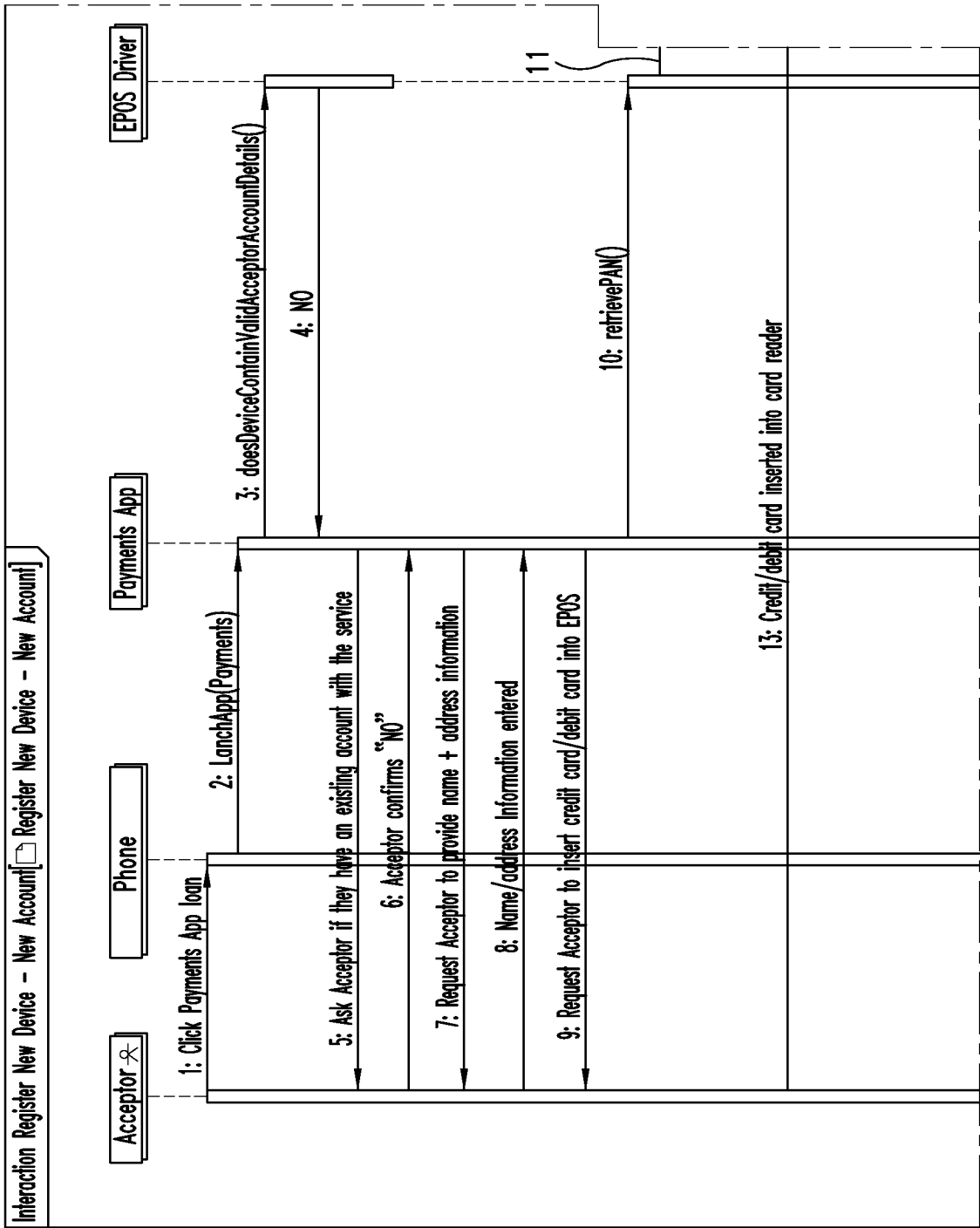


FIG. 4B

400

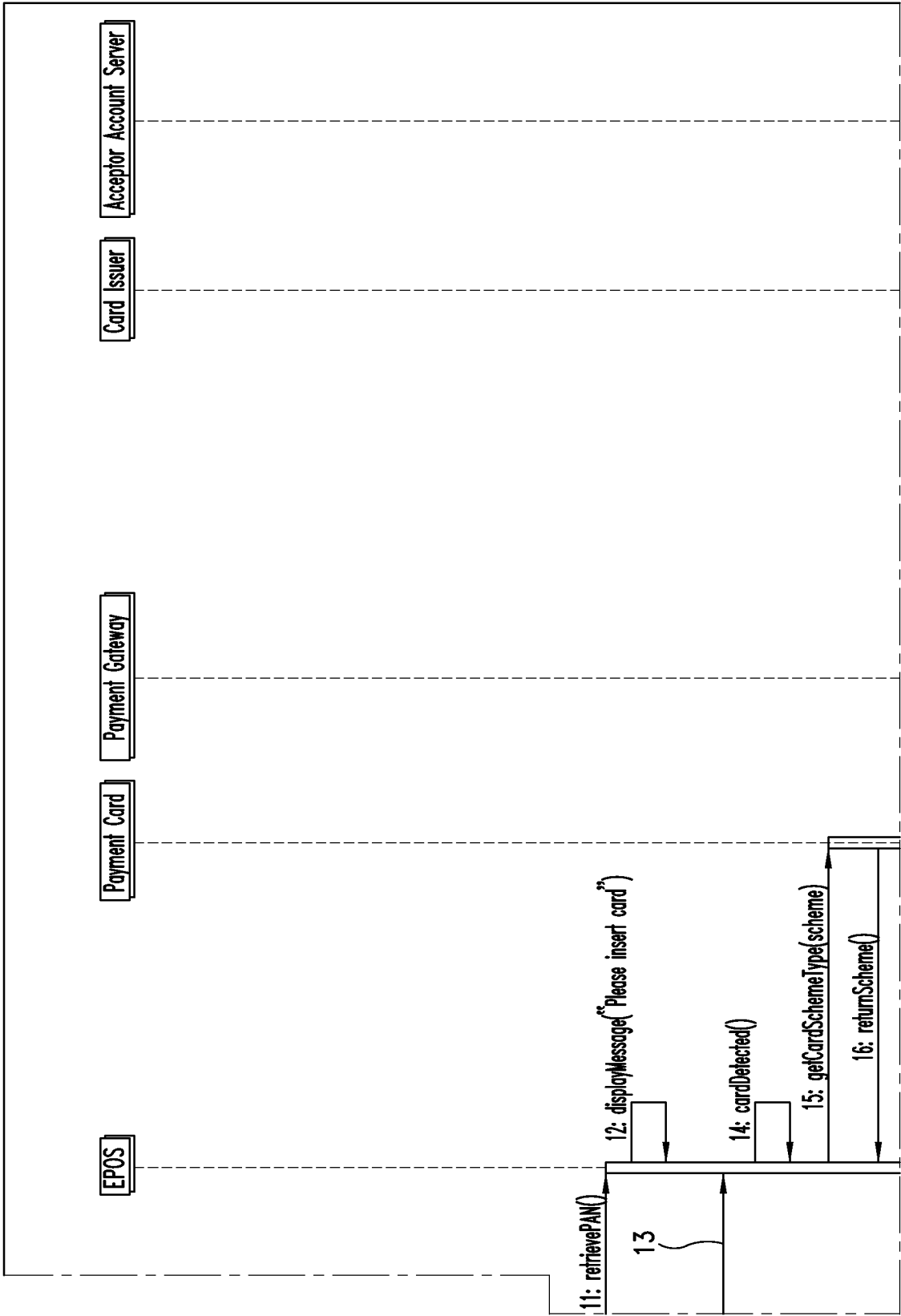


FIG. 4C

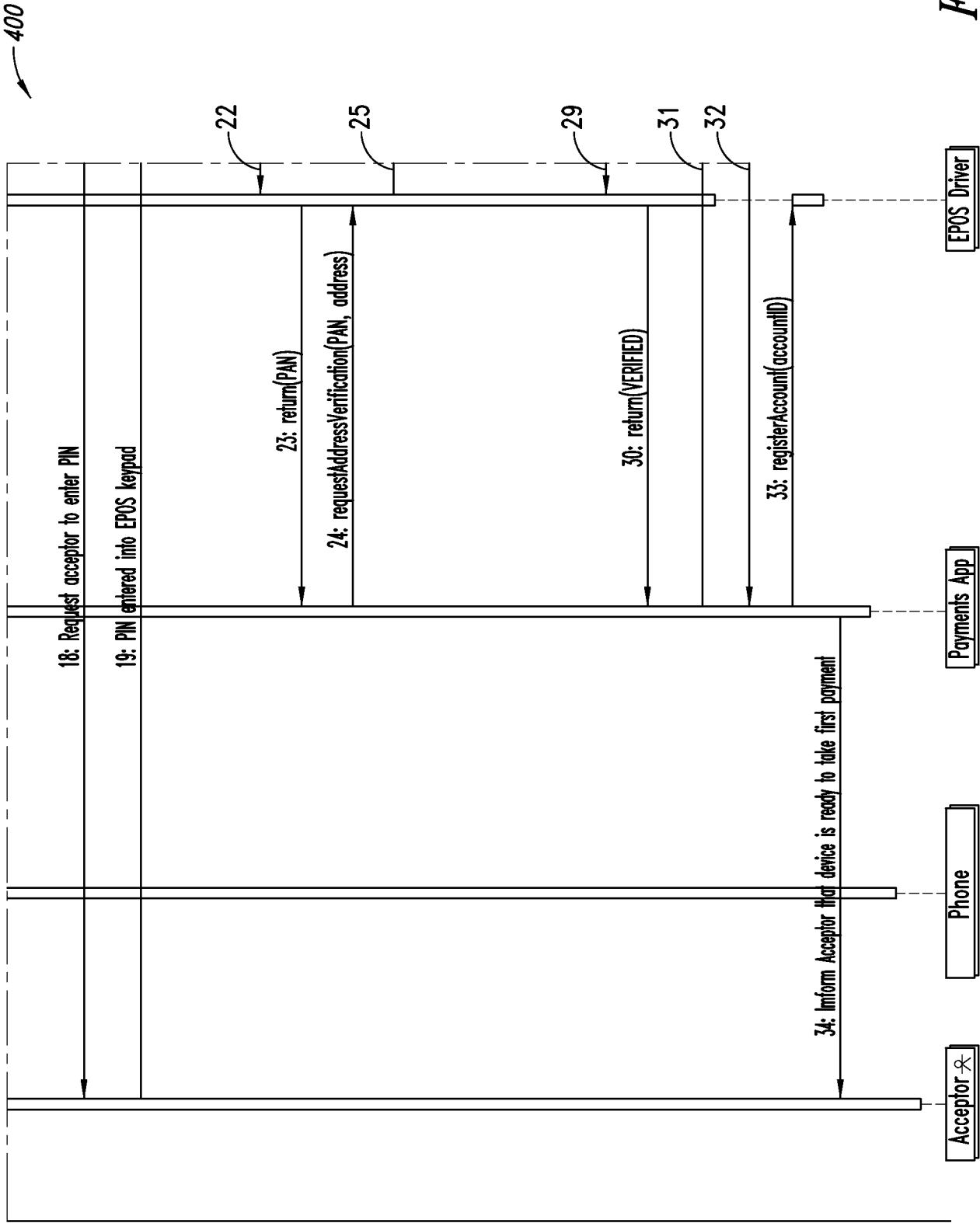


FIG. 4D

400

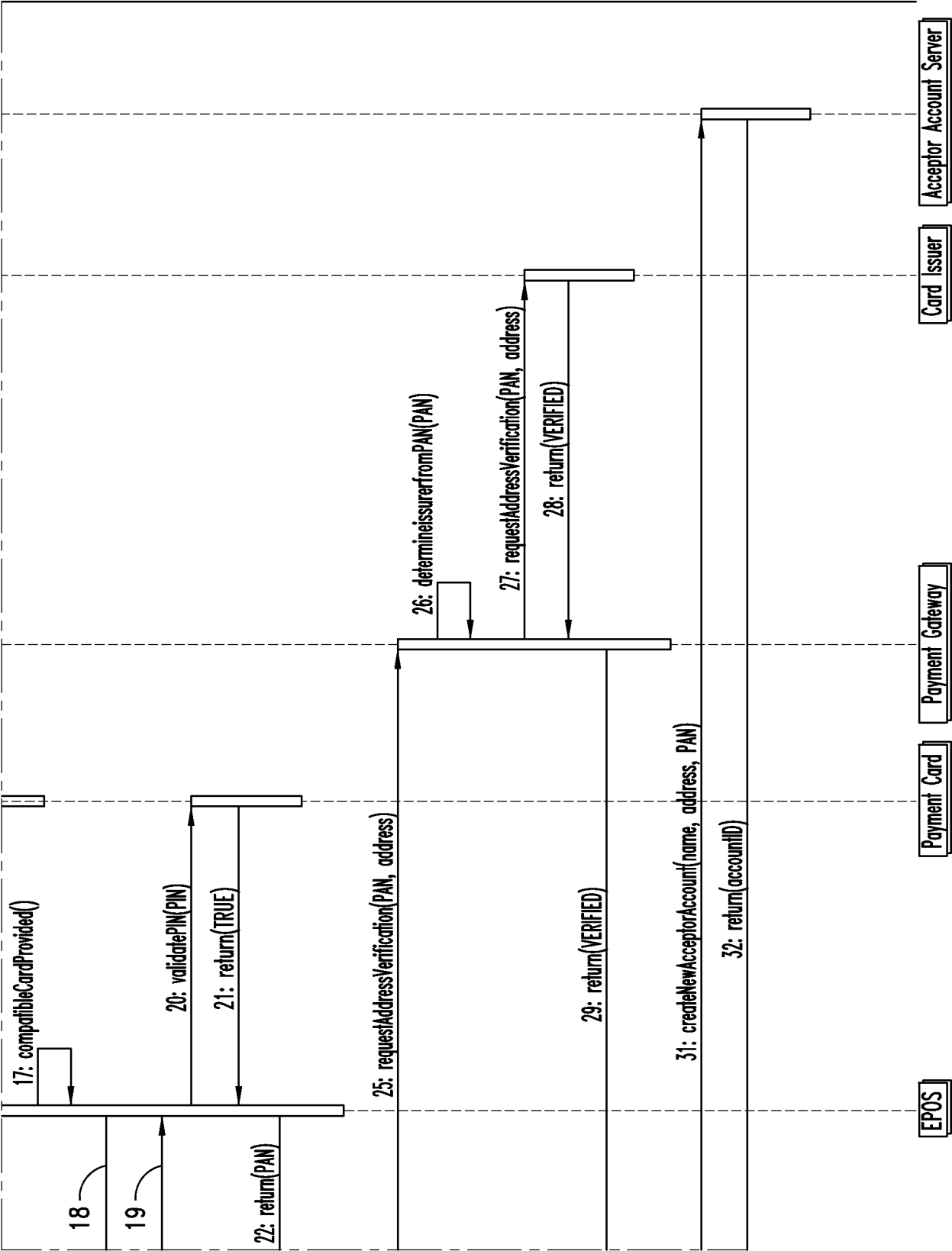


FIG. 4E

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500

Interaction Register New Device - Existing Account [Register New Device - Existing Account]

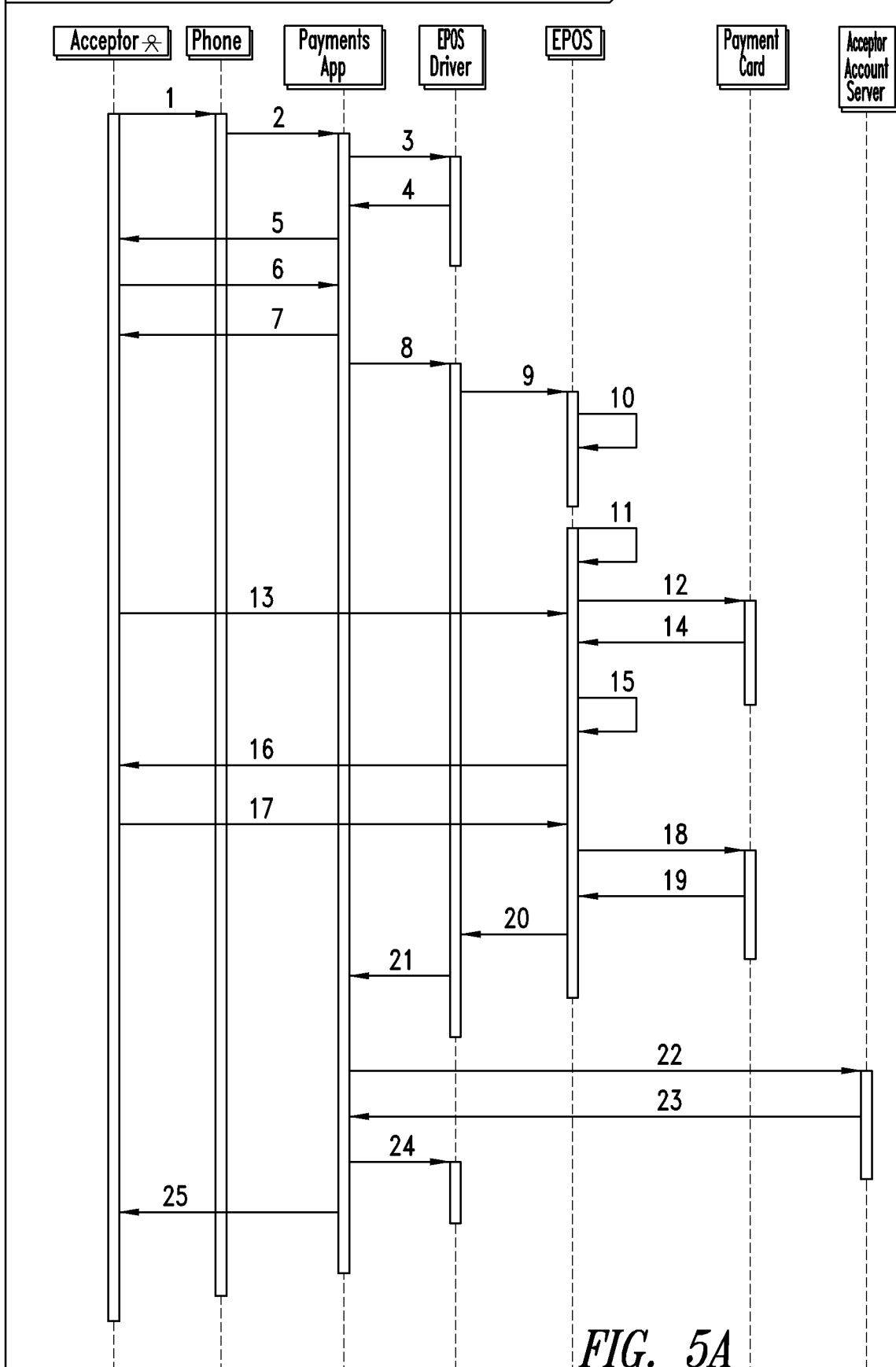


FIG. 5A

500

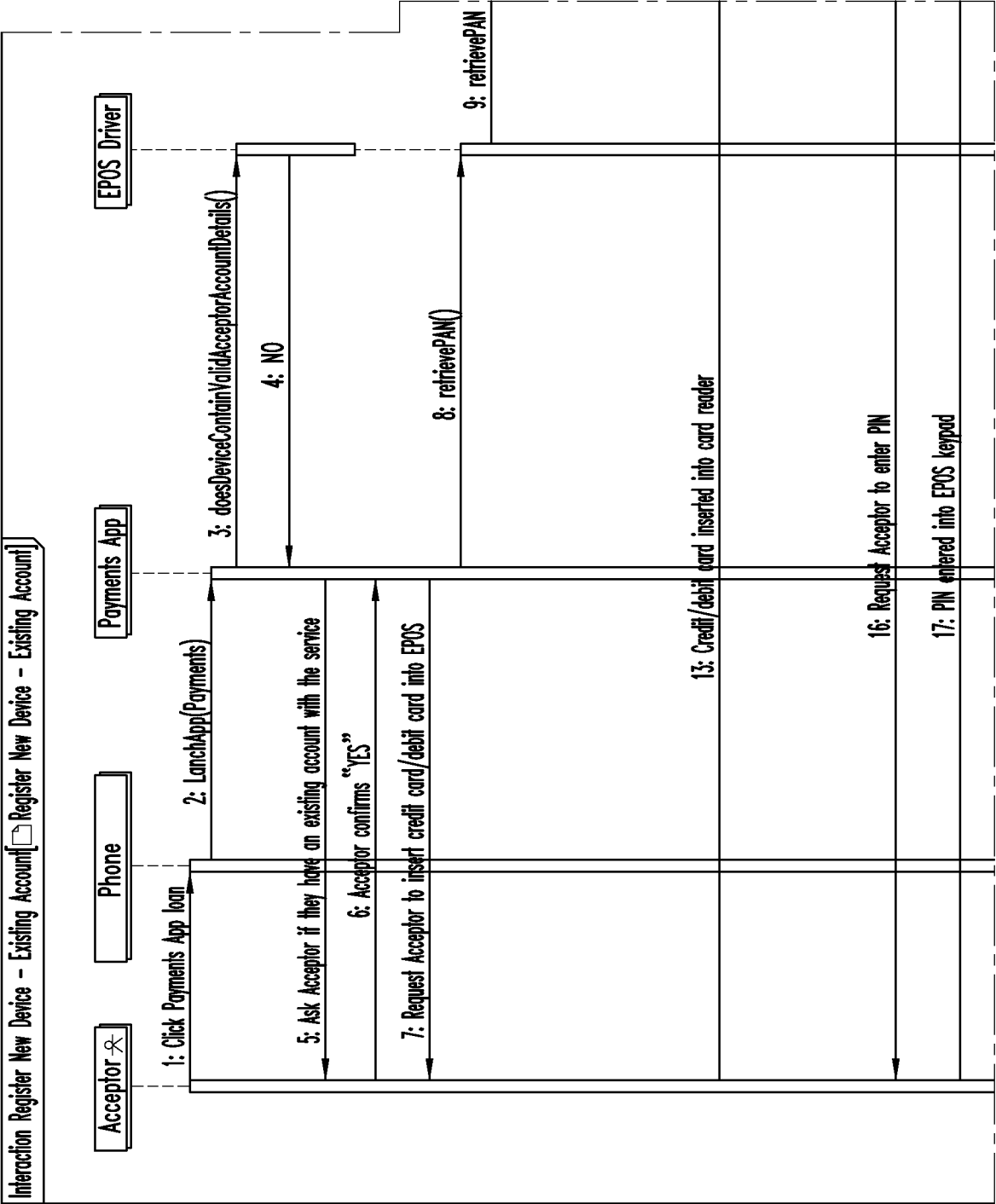


FIG. 5B

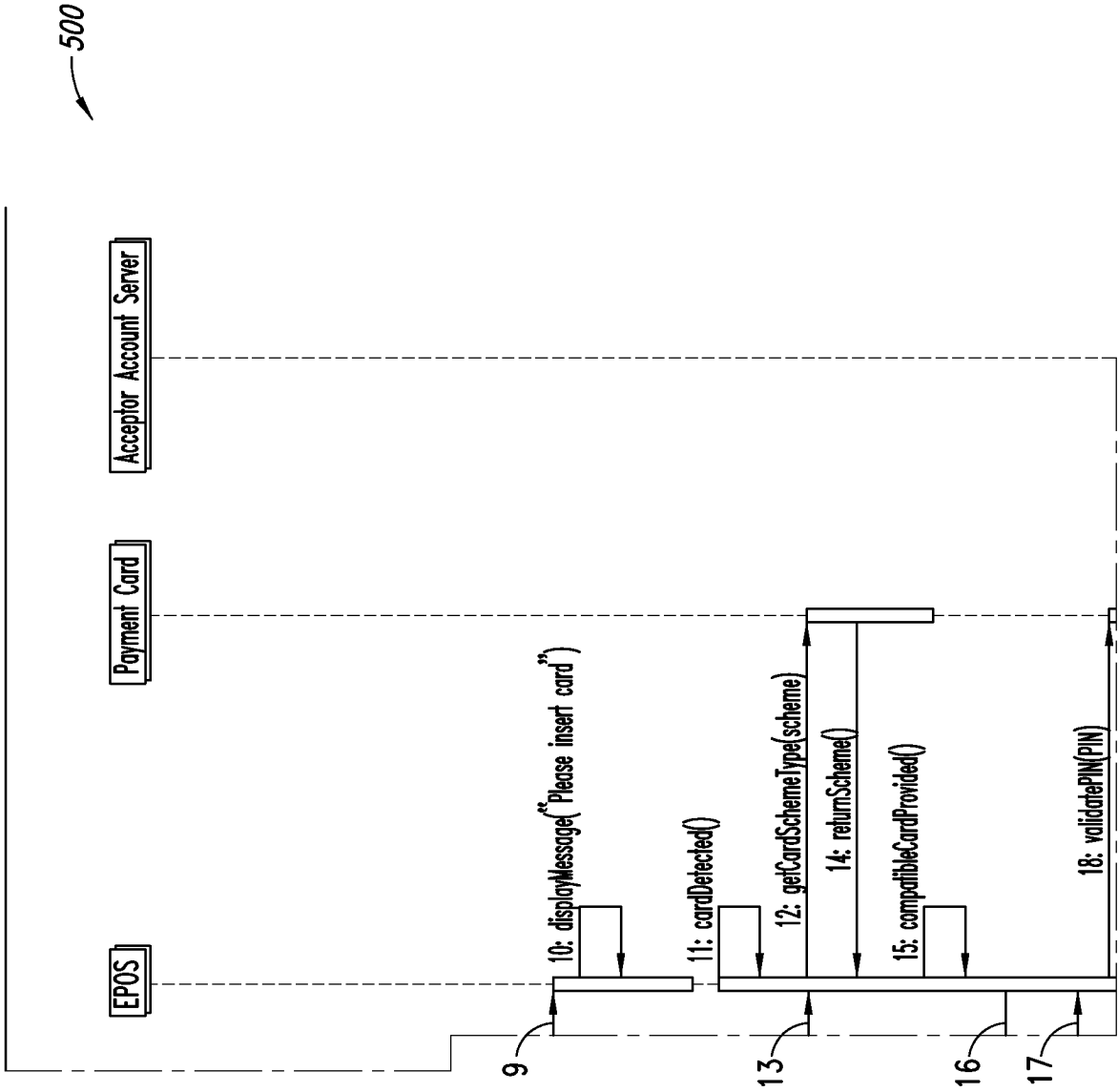


FIG. 5C

500 ↗

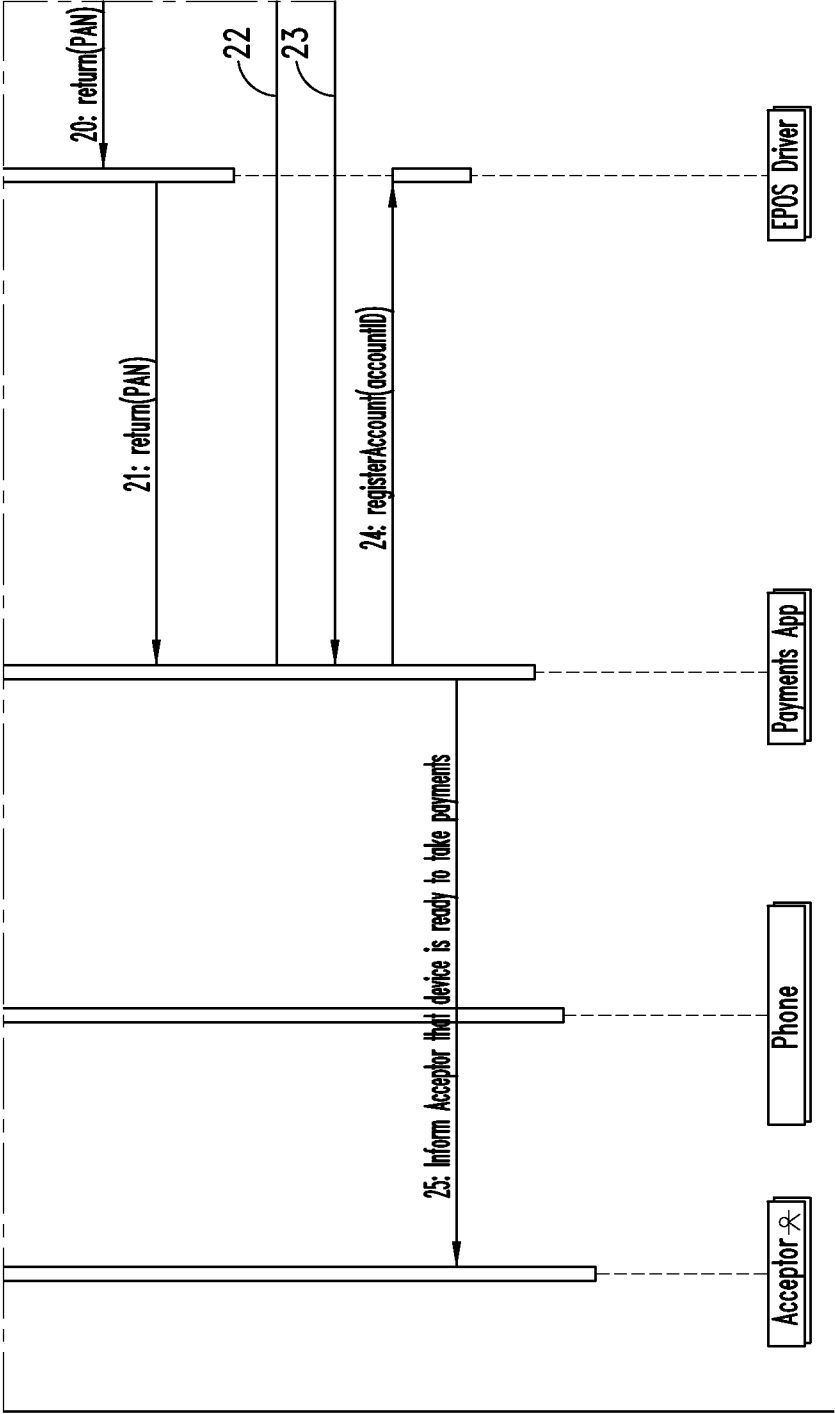


FIG. 5D

500

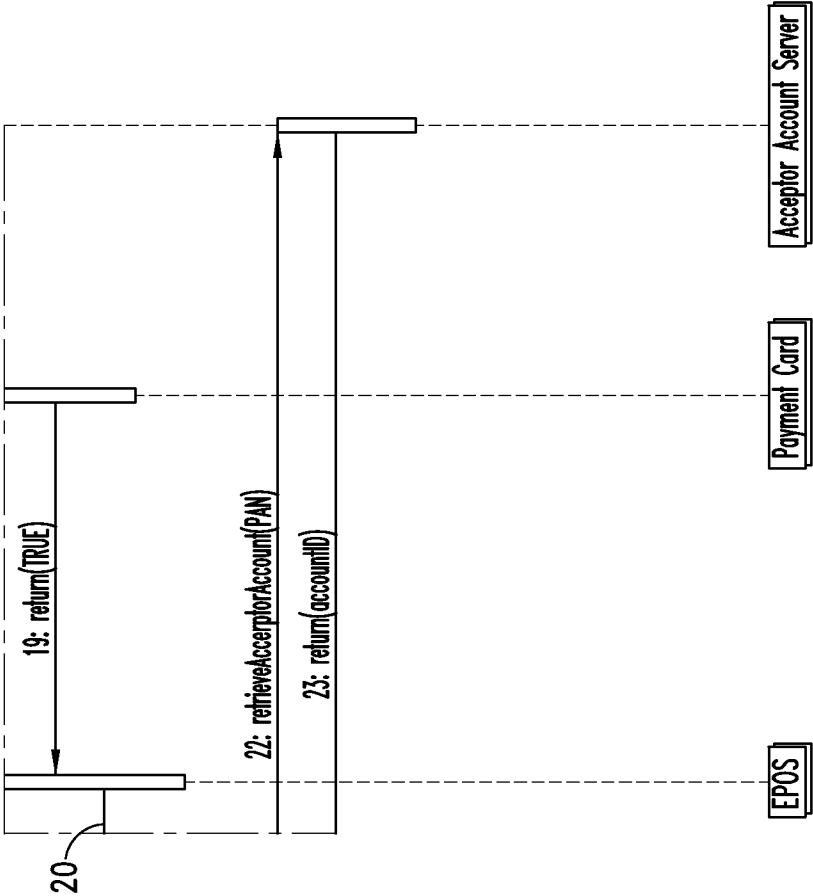


FIG. 5E