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(54) METHODS AND SYSTEMS FOR INDICATING A PAYMENT IN A MOBILE ENVIRONMENT

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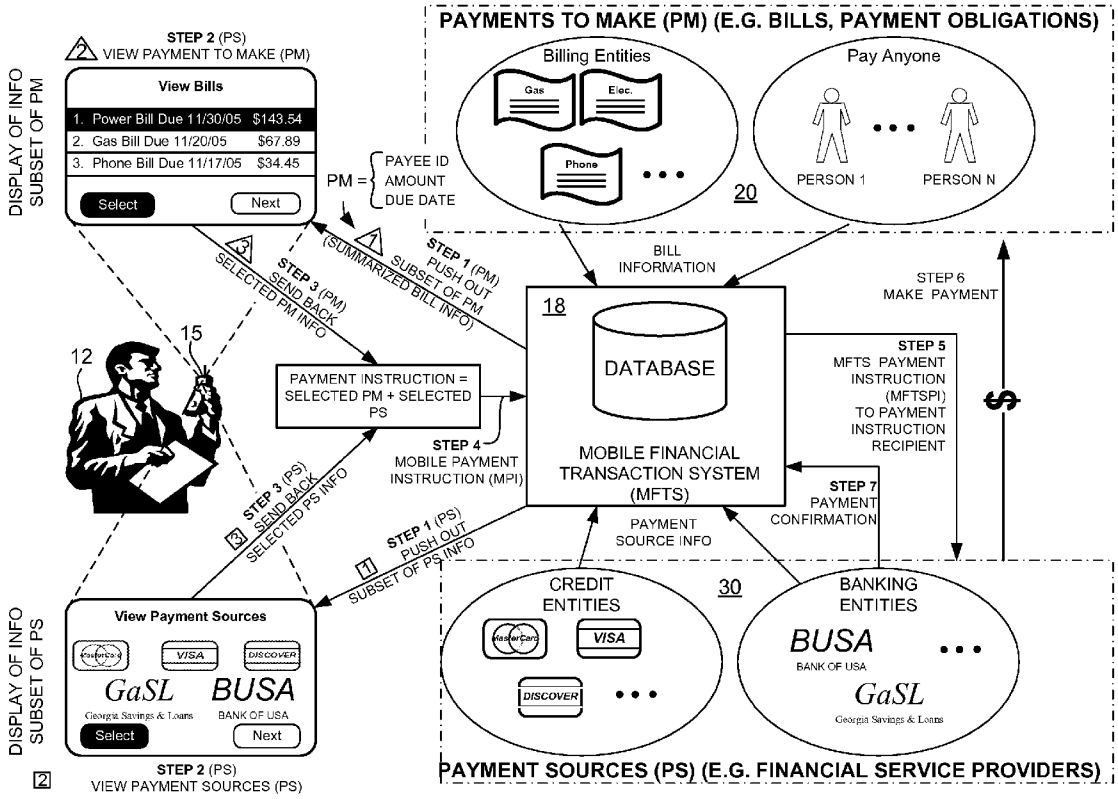
(57) **ABSTRACT**

Methods and systems for indicating a mobile financial payment utilizing a mobile device such as a mobile telephone (cellphone) or wireless connected personal digital assistant (PDA). A mobile financial transaction system (MFTS) is coupled for wireless communications with a mobile device of a user and is also coupled for electronic communications with one or more payment instruction recipients that can make a payment to a payee in behalf of the user. The mobile device allows for selection of a pre-existing payee or entry of payee information. The user provides input at the mobile device selecting a payee for a payment and a payment source for the payment. A mobile payment instruction comprising information corresponding to the payment to make and a payment source for the payment is wirelessly communicated to the MFTS. The MFTS generates and communicates an MFTS payment instruction to a payment instruction recipient which includes information identifying a selected account at a financial service provider, an amount, and information corresponding to the identified payee. The payment instruction recipient then effects the payment to the identified payee.



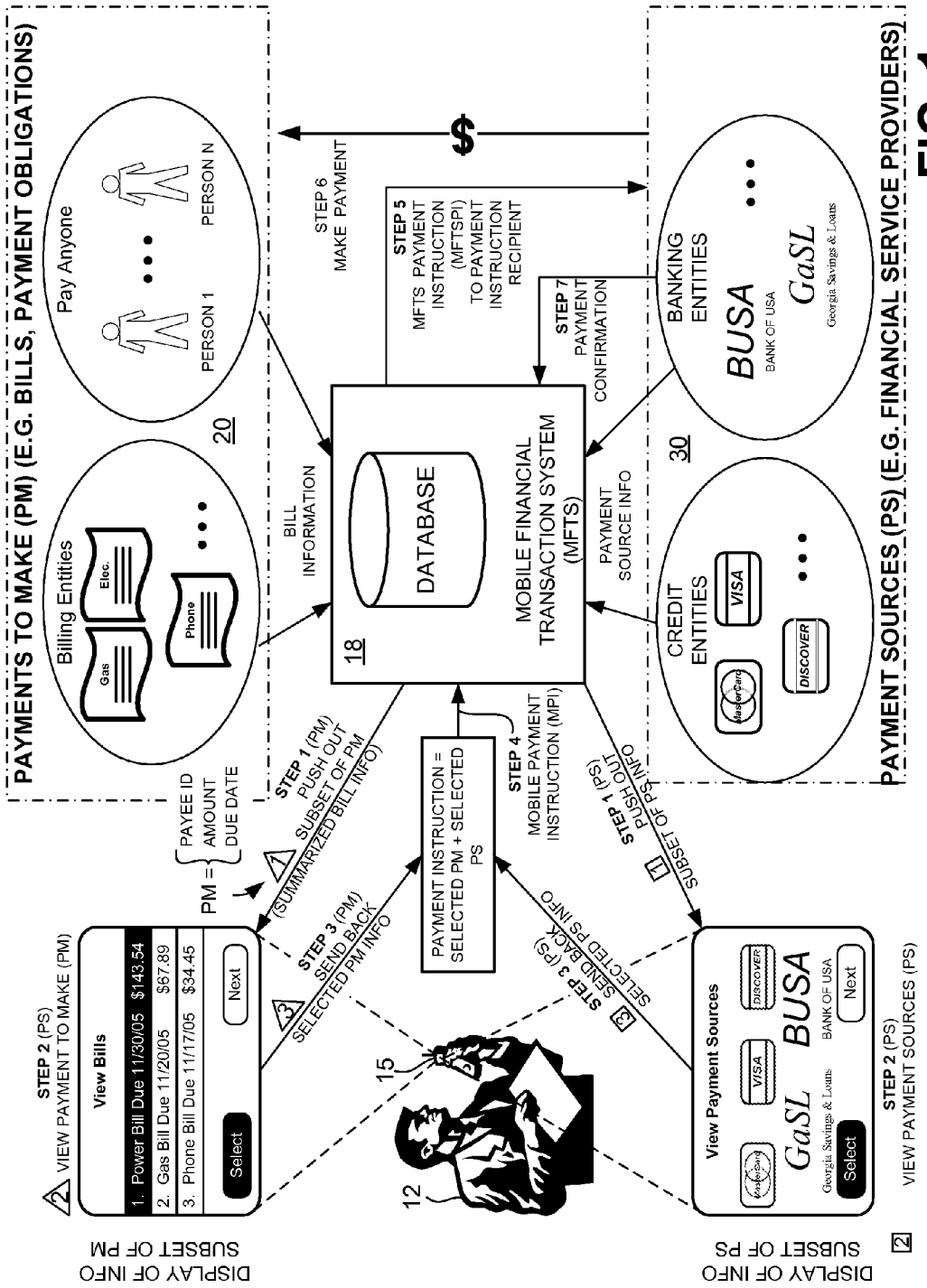
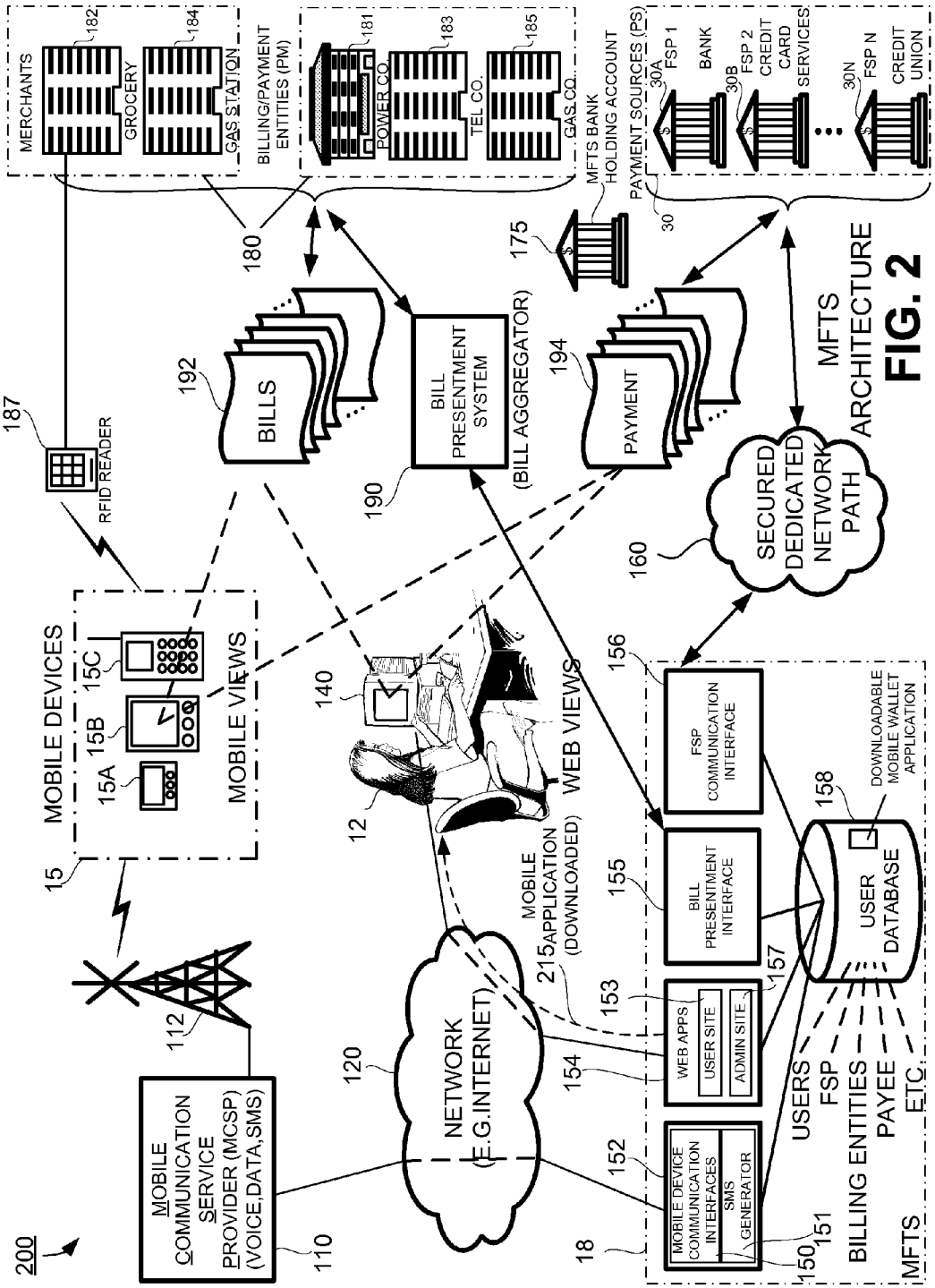

PAYMENTS TO MAKE (PM) (E.G. BILLS, PAYMENT OBLIGATIONS)
Pay Anyone
PERSON 1
PERSON N
20
Billing Entities
Gas
Elec.
Phone
PAYEE ID
AMOUNT
DUE DATE
PM =
STEP 6
MAKE PAYMENT
$
STEP 5
MFTS PAYMENT INSTRUCTION (MFTSPI) TO PAYMENT INSTRUCTION RECIPIENT
STEP 7
PAYMENT CONFIRMATION
BILL INFORMATION
DATABASE
MOBILE FINANCIAL TRANSACTION SYSTEM (MFTS)
18
PAYMENT SOURCE INFO
BANKING ENTITIES
BUSA
BANK OF USA
GaSL
Georgia Savings & Loans
30
CREDIT ENTITIES
VISA
MasterCard
DISCOVER
PAYMENT SOURCES (PS) (E.G. FINANCIAL SERVICE PROVIDERS)
STEP 1 (PM)
PUSH OUT SUBSET OF PM INFO (SUMMARIZED BILL INFO)
STEP 4
MOBILE PAYMENT INSTRUCTION (MPI)
PAYMENT INSTRUCTION = SELECTED PM + SELECTED PS
STEP 1 (PS)
PUSH OUT SUBSET OF PS INFO
STEP 3 (PM)
SEND BACK SELECTED PM INFO
STEP 3 (PS)
SEND BACK SELECTED PS INFO
15
12
STEP 2 (PS)
VIEW PAYMENT TO MAKE (PM)
View Bills
1. Power Bill Due 11/30/05 $143.54
2. Gas Bill Due 11/20/05 $67.89
3. Phone Bill Due 11/17/05 $34.45
Select
Next
View Payment Sources
GaSL
BUSA
Georgia Savings & Loans
BANK OF USA
Select
Next
STEP 2 (PS)
VIEW PAYMENT SOURCES (PS)
DISPLAY OF INFO SUBSET OF PM
DISPLAY OF INFO SUBSET OF PS

FIG. 1


MERCHANTS
182
GROCERY
184
GAS STATION
BILLING/PAYMENT ENTITIES (PM)
181
POWER CO.
183
TEL CO.
185
GAS CO.
MFTS BANK HOLDING ACCOUNT
PAYMENT SOURCES (PS)
30A
FSP 1
BANK
30B
FSP 2
CREDIT CARD SERVICES
30N
FSP N
CREDIT UNION
30
180
175
187
RFID READER
192
BILLS
BILL PRESENTMENT SYSTEM
(BILL AGGREGATOR)
190
194
PAYMENT
MFTS ARCHITECTURE
FIG. 2
SECURED DEDICATED NETWORK PATH
160
MOBILE DEVICES
15C
15B
15A
MOBILE VIEWS
15
140
12
WEB VIEWS
156
FSP COMMUNICATION INTERFACE
DOWNLOADABLE MOBILE WALLET APPLICATION
158
MOBILE APPLICATION (DOWNLOADED)
215
155
BILL PRESENTMENT INTERFACE
USER DATABASE
153
157
WEB APPS
USER SITE
ADMIN SITE
154
112
120
NETWORK (E.G.INTERNET)
152
MOBILE DEVICE COMMUNICATION INTERFACES
SMS GENERATOR
USERS
FSP
PAYEE
ETC.
BILLING ENTITIES
MFTS
MOBILE COMMUNICATION SERVICE PROVIDER (MCSP) (VOICE,DATA,SMS)
110
18
151
150
200

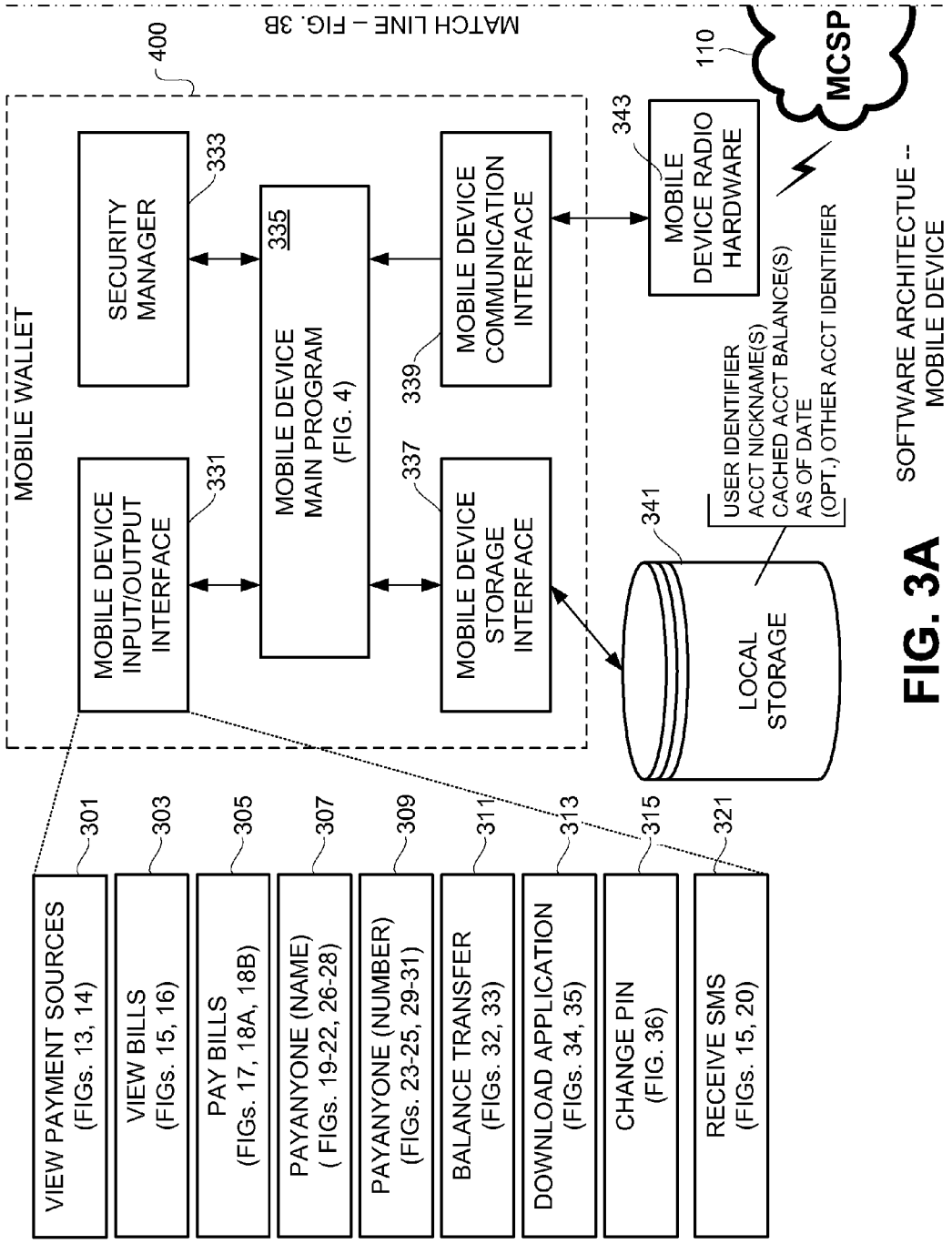


FIG. 3A SOFTWARE ARCHITECTUE -- MOBILE DEVICE

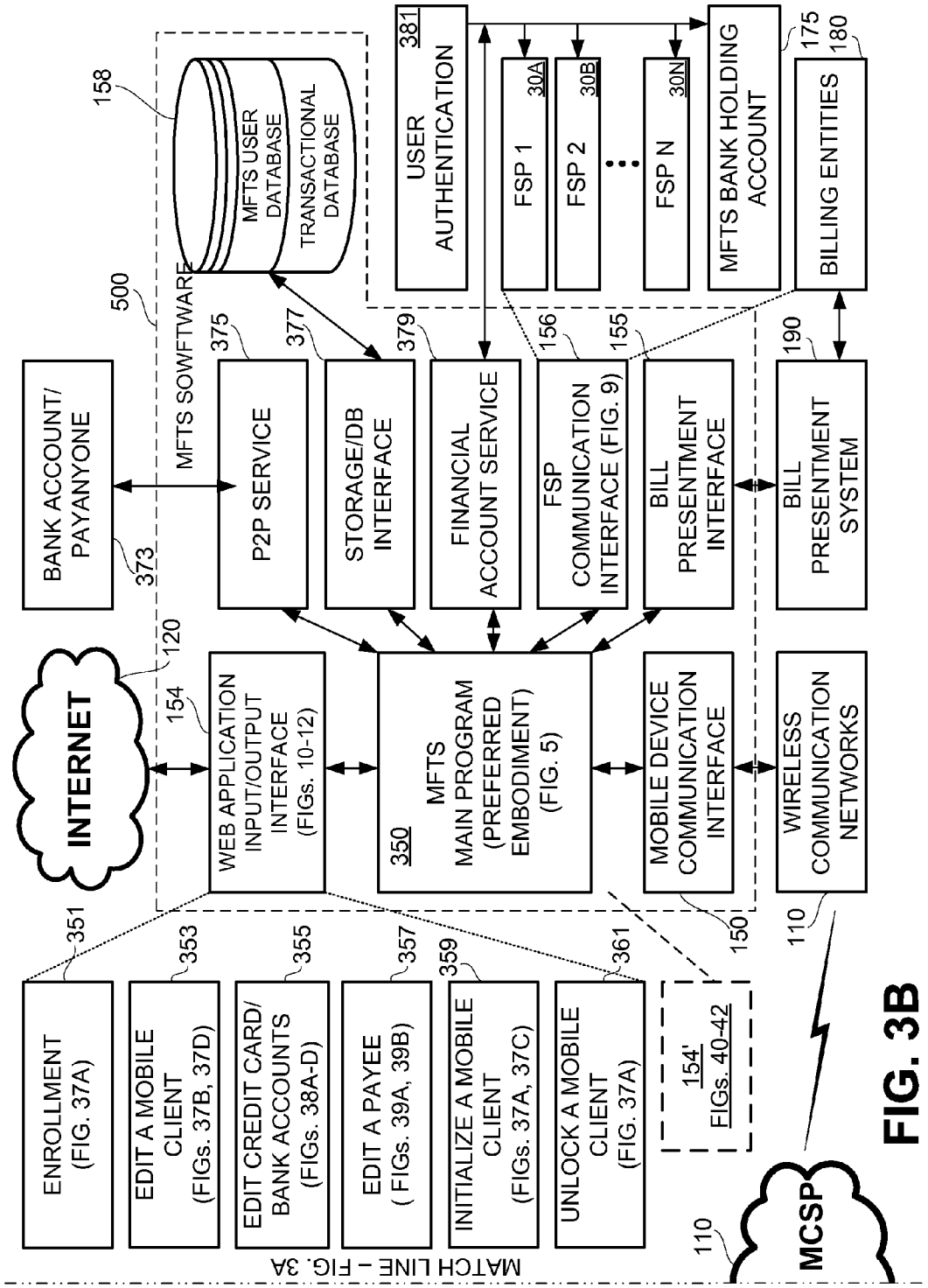
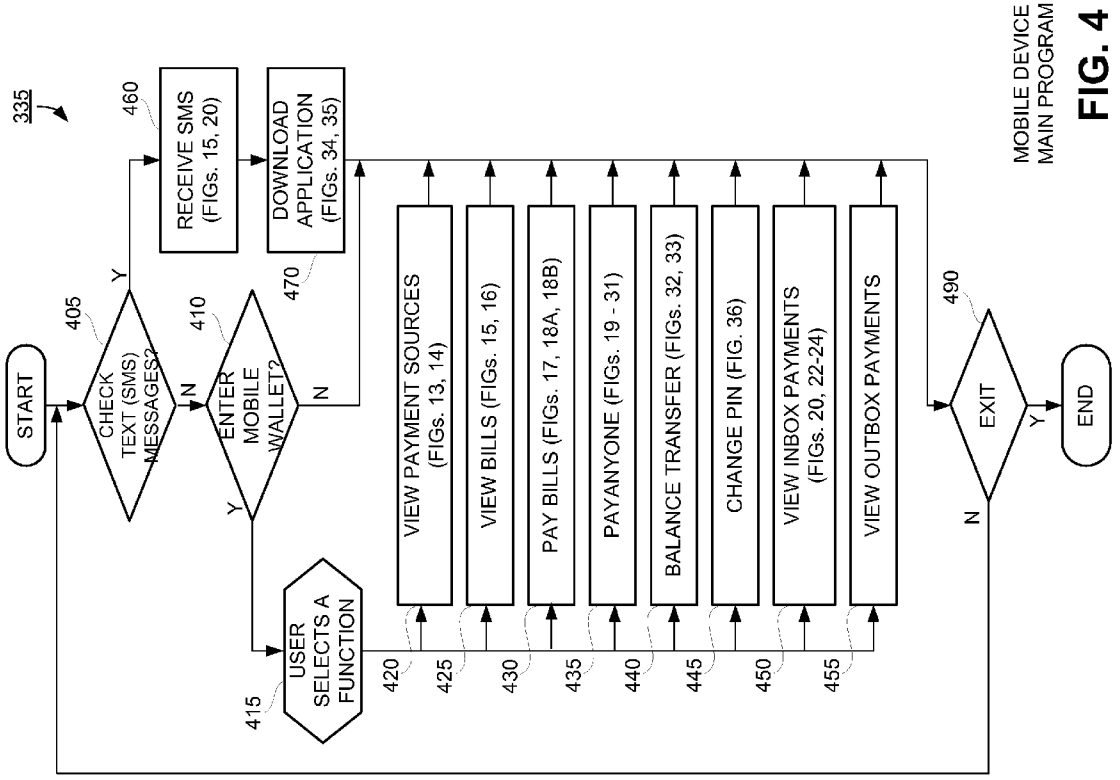
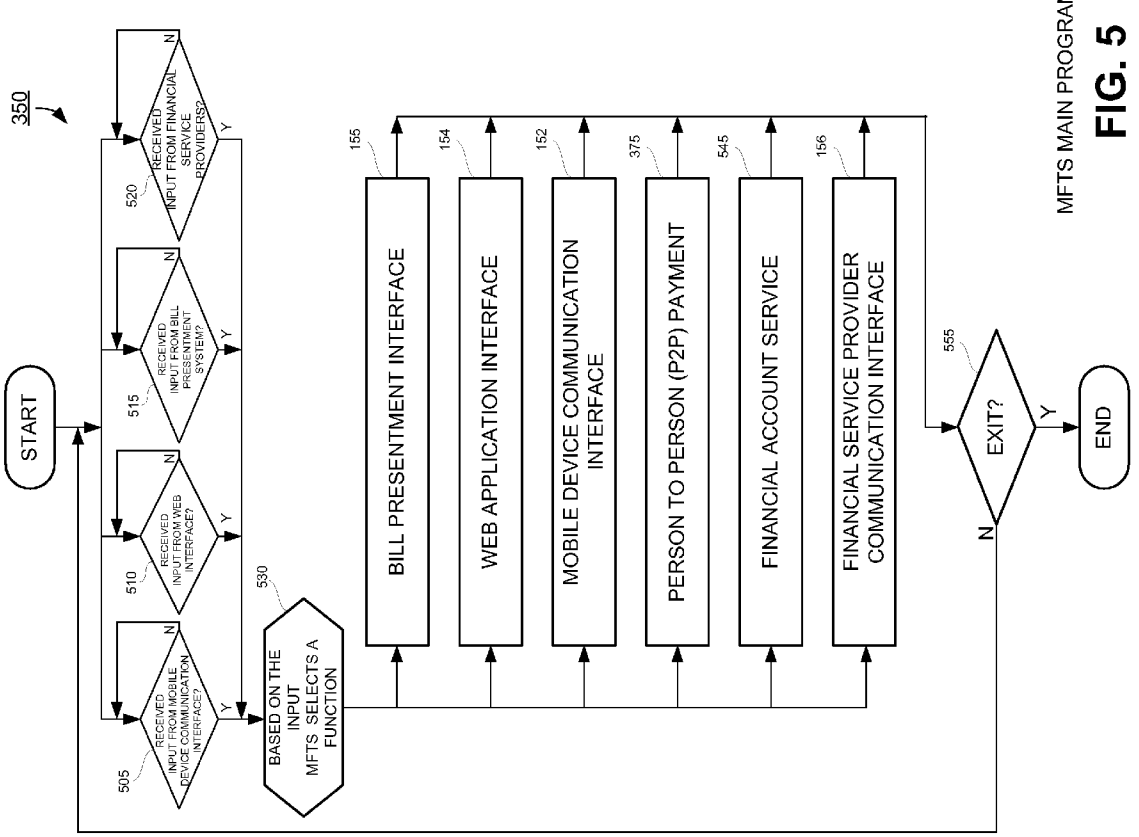

INTERNET
120
BANK ACCOUNT/ PAYANYONE
373
500
MFTS SOWFTWARE
158
MFTS USER DATABASE
TRANSACTIONAL DATABASE
375
P2P SERVICE
377
STORAGE/DB INTERFACE
379
FINANCIAL ACCOUNT SERVICE
156
FSP COMMUNICATION INTERFACE (FIG. 9)
155
BILL PRESENTMENT INTERFACE
190
BILL PRESENTMENT SYSTEM
381
USER AUTHENTICATION
FSP 1
30A
FSP 2
30B
FSP N
30N
MFTS BANK HOLDING ACCOUNT
175
BILLING ENTITIES
180
154
WEB APPLICATION INPUT/OUTPUT INTERFACE (FIGs. 10-12)
350
MFTS MAIN PROGRAM (PREFERRED EMBODIMENT) (FIG. 5)
MOBILE DEVICE COMMUNICATION INTERFACE
150
WIRELESS COMMUNICATION NETWORKS
110
351
ENROLLMENT (FIG. 37A)
353
EDIT A MOBILE CLIENT (FIGs. 37B, 37D)
355
EDIT CREDIT CARD/ BANK ACCOUNTS (FIGs. 38A-D)
357
EDIT A PAYEE (FIGs. 39A, 39B)
359
INITIALIZE A MOBILE CLIENT (FIGs. 37A, 37C)
361
UNLOCK A MOBILE CLIENT (FIG. 37A)
154'
FIGs. 40-42
110
MCSP
MATCH LINE – FIG. 3A

FIG. 3B



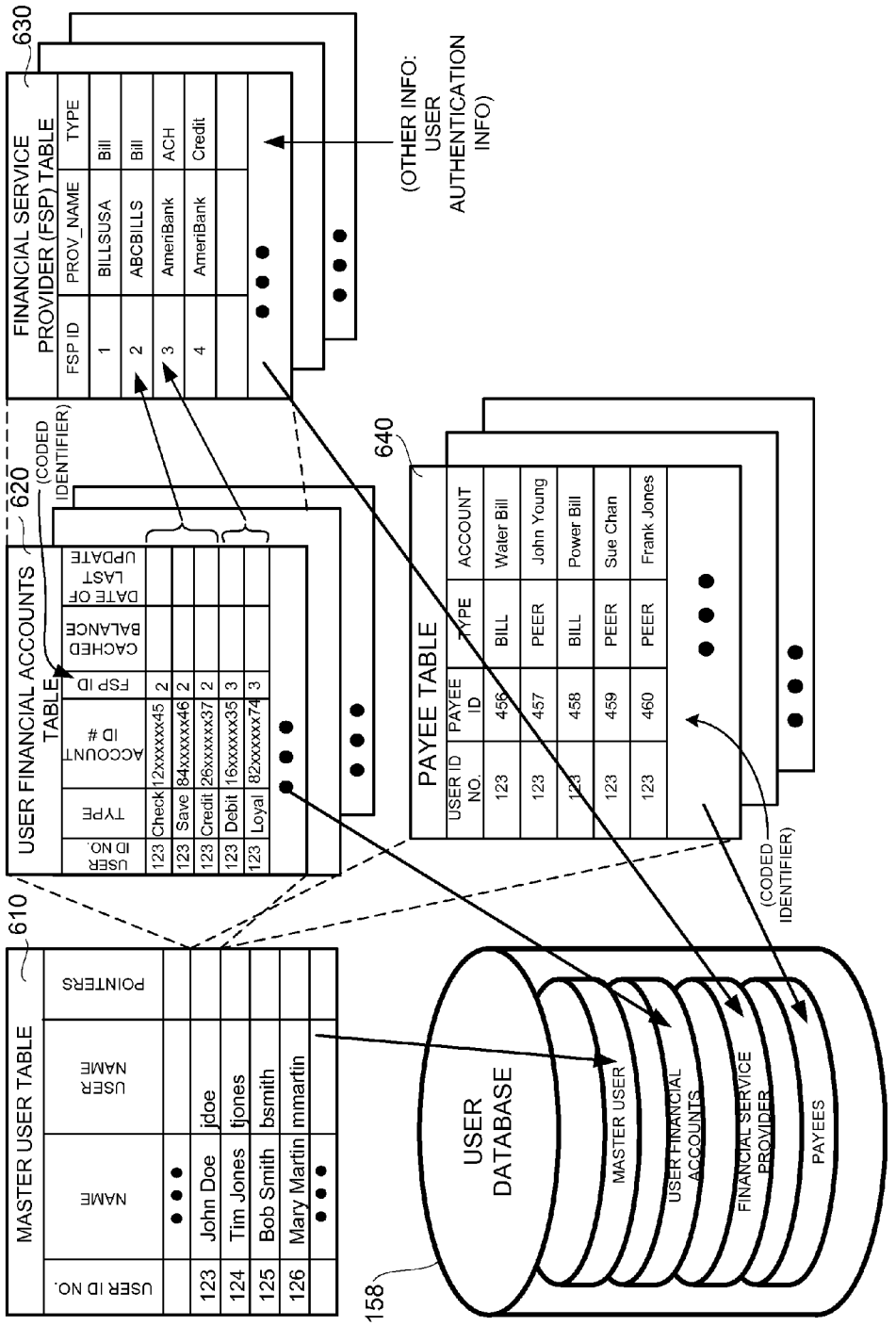
MOBILE DEVICE MAIN PROGRAM

FIG. 4

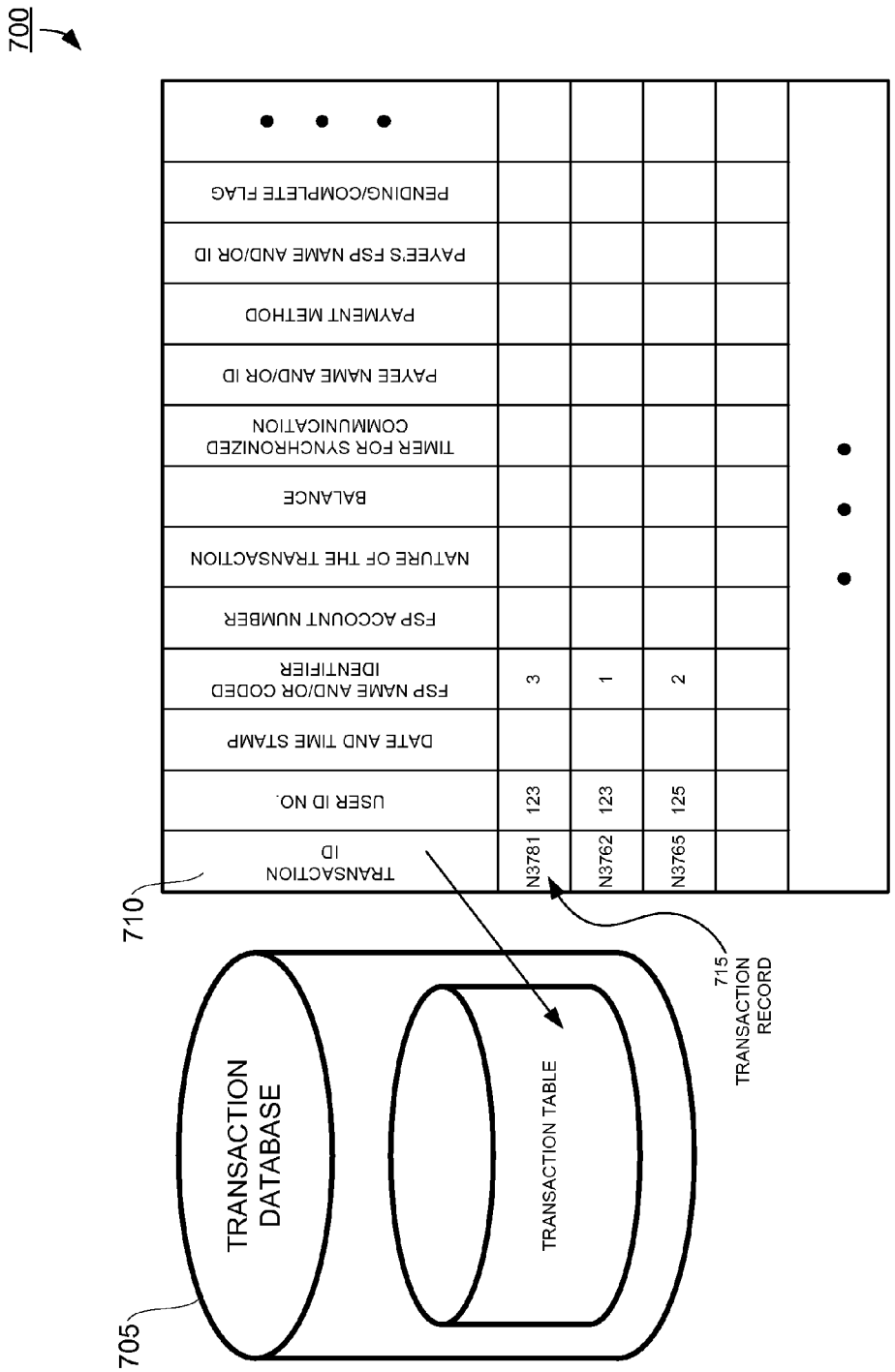


MFTS MAIN PROGRAM

FIG. 5



USER DATABASE SCHEMA **FIG. 6**



TRANSACTION TABLE AND TRANSACTION DATABASE

FIG. 7

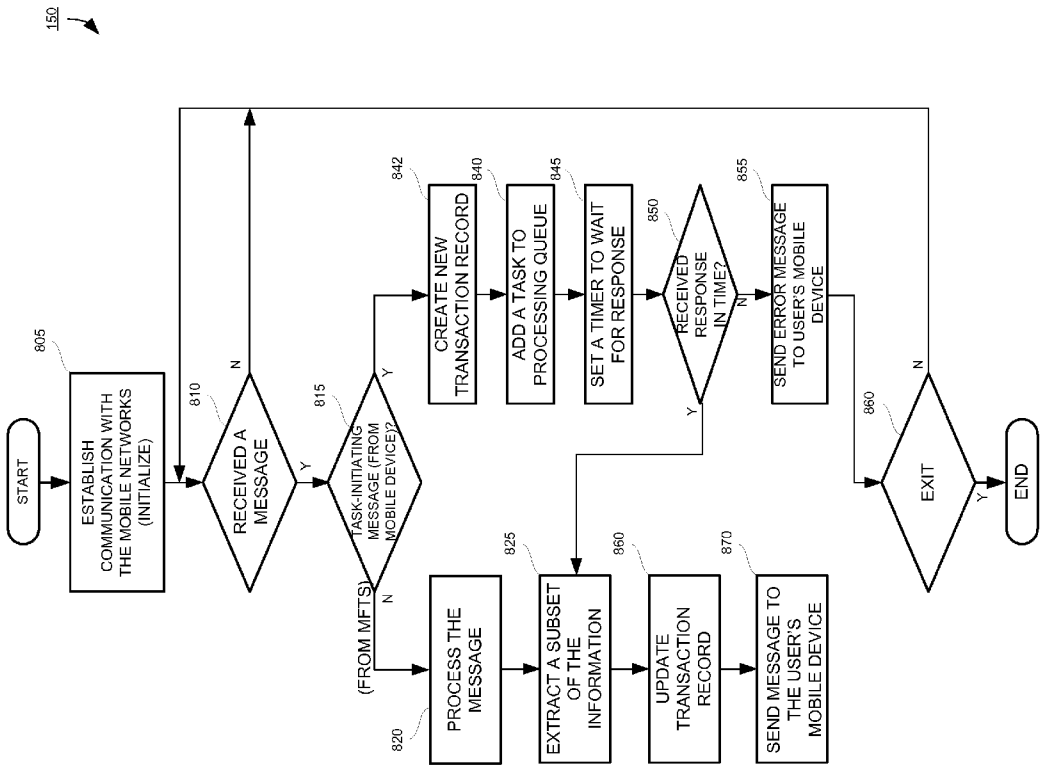


FIG. 8

MOBILE DEVICE COMMUNICATION INTERFACE (MFTS)

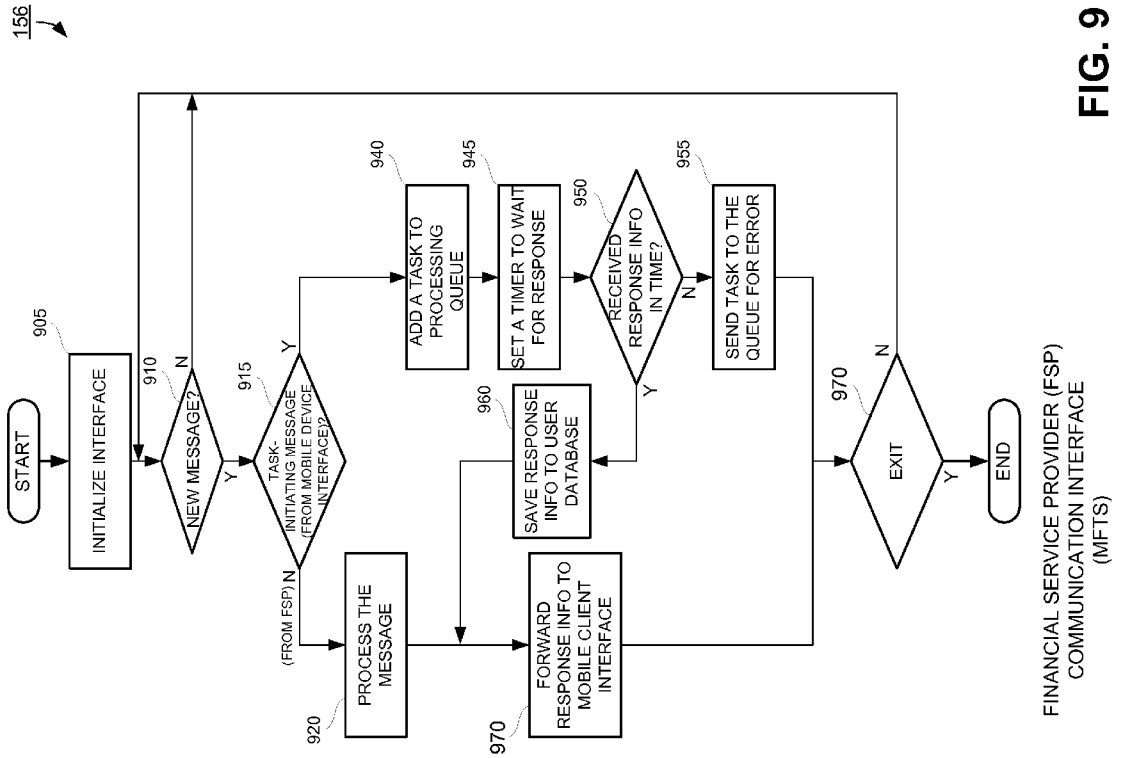
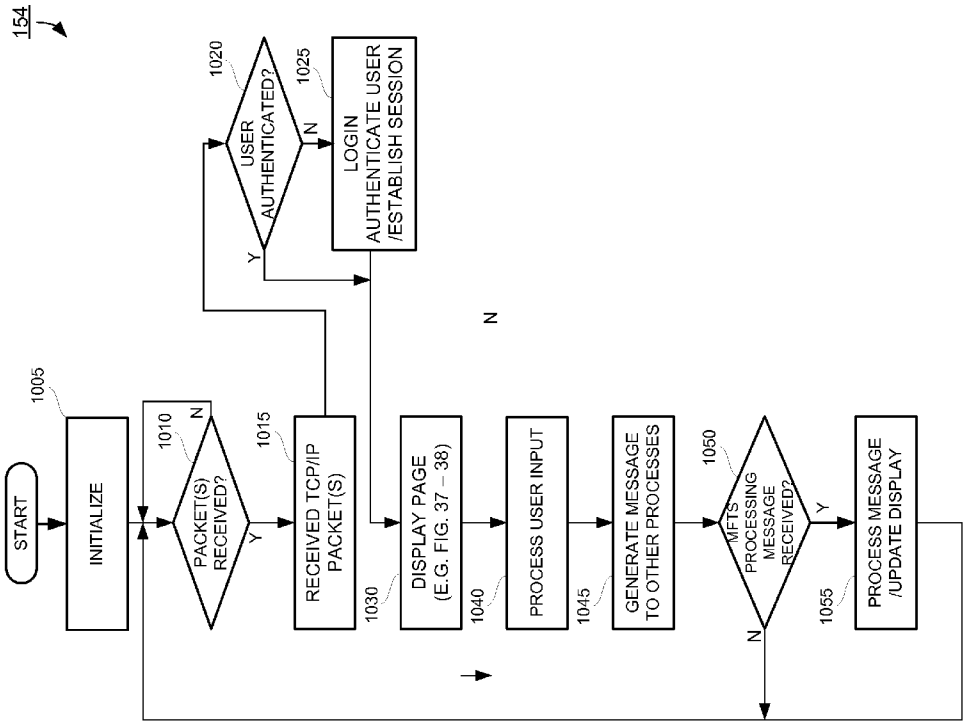

156
START
INITIALIZE INTERFACE
905
NEW MESSAGE?
910
N
Y
TASK-INITIATING MESSAGE (FROM MOBILE DEVICE INTERFACE)?
915
Y
N
(FROM FSP)
PROCESS THE MESSAGE
920
ADD A TASK TO PROCESSING QUEUE
940
SET A TIMER TO WAIT FOR RESPONSE
945
RECEIVED RESPONSE INFO IN TIME?
950
N
Y
SEND TASK TO THE QUEUE FOR ERROR
955
SAVE RESPONSE INFO TO USER DATABASE
960
FORWARD RESPONSE INFO TO MOBILE CLIENT INTERFACE
970
EXIT
970
N
Y
END
FINANCIAL SERVICE PROVIDER (FSP) COMMUNICATION INTERFACE (MFTS)

FIG. 9



WEB APPLICATION INTERFACE

FIG. 10

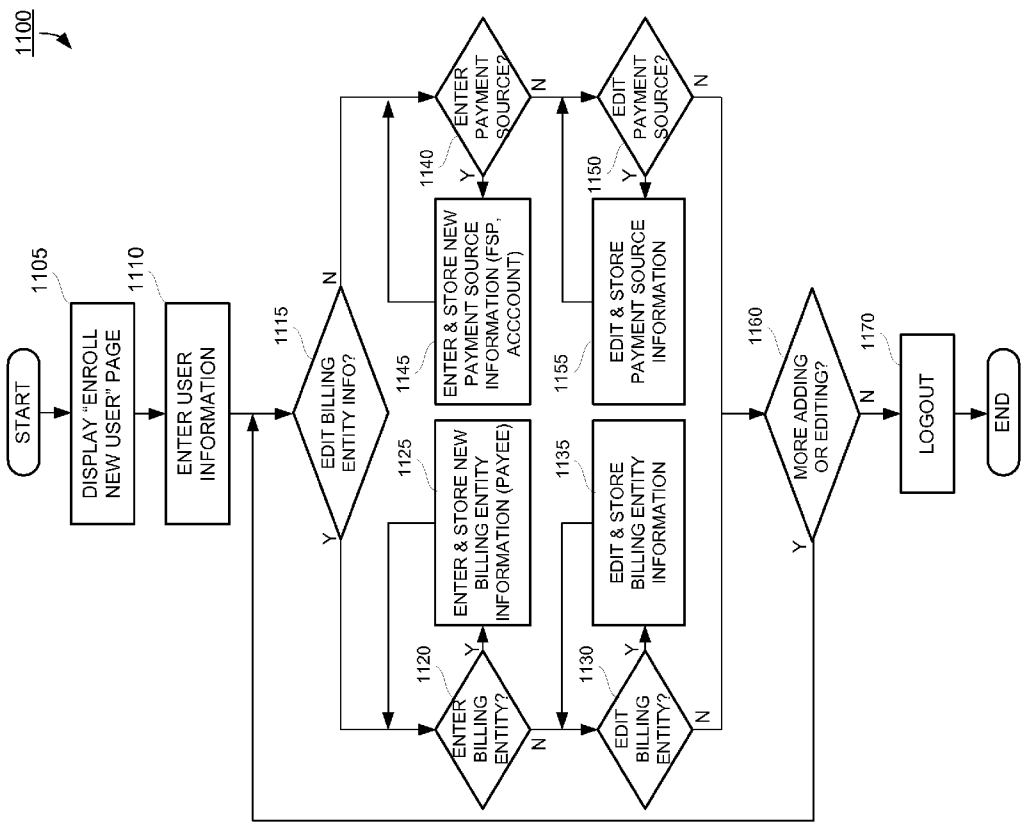
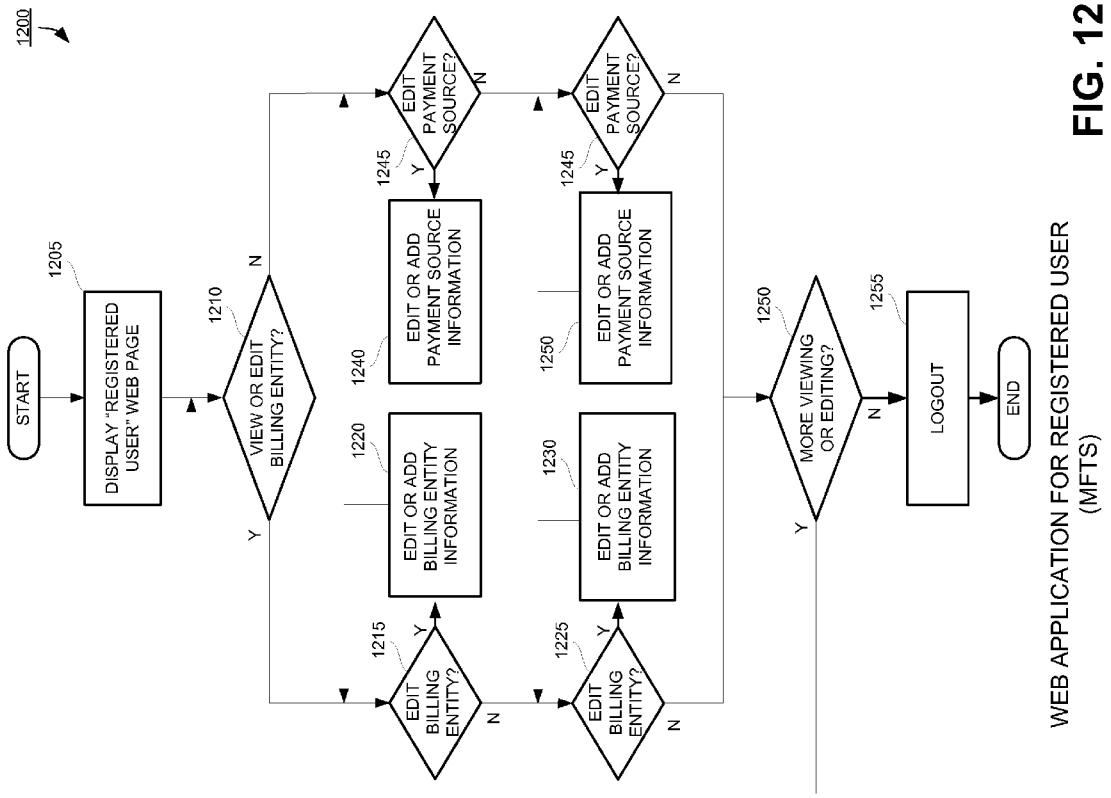


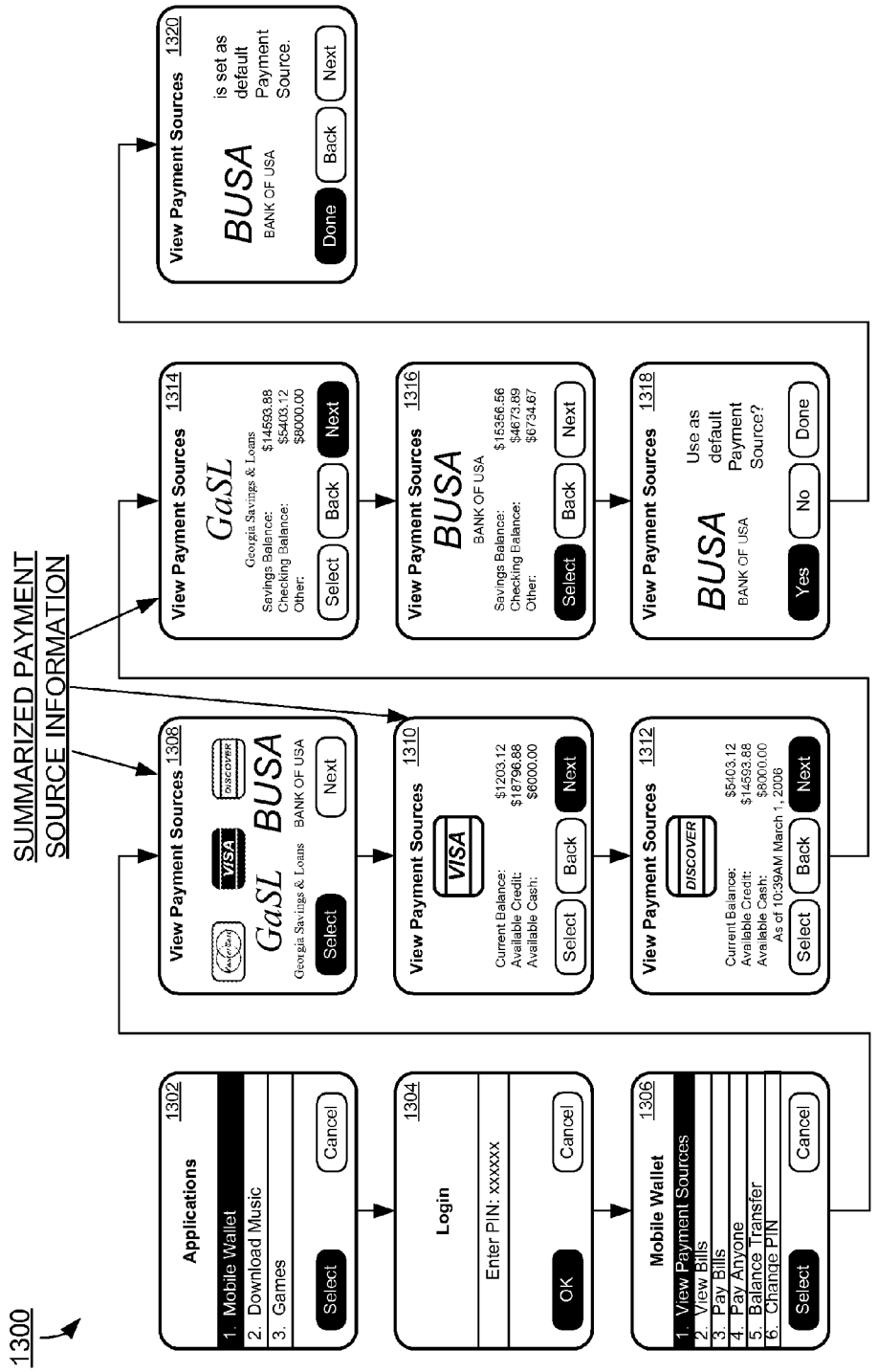
FIG. 11

WEB APPLICATION FOR NEW USER ENROLLMENT (MFTS)



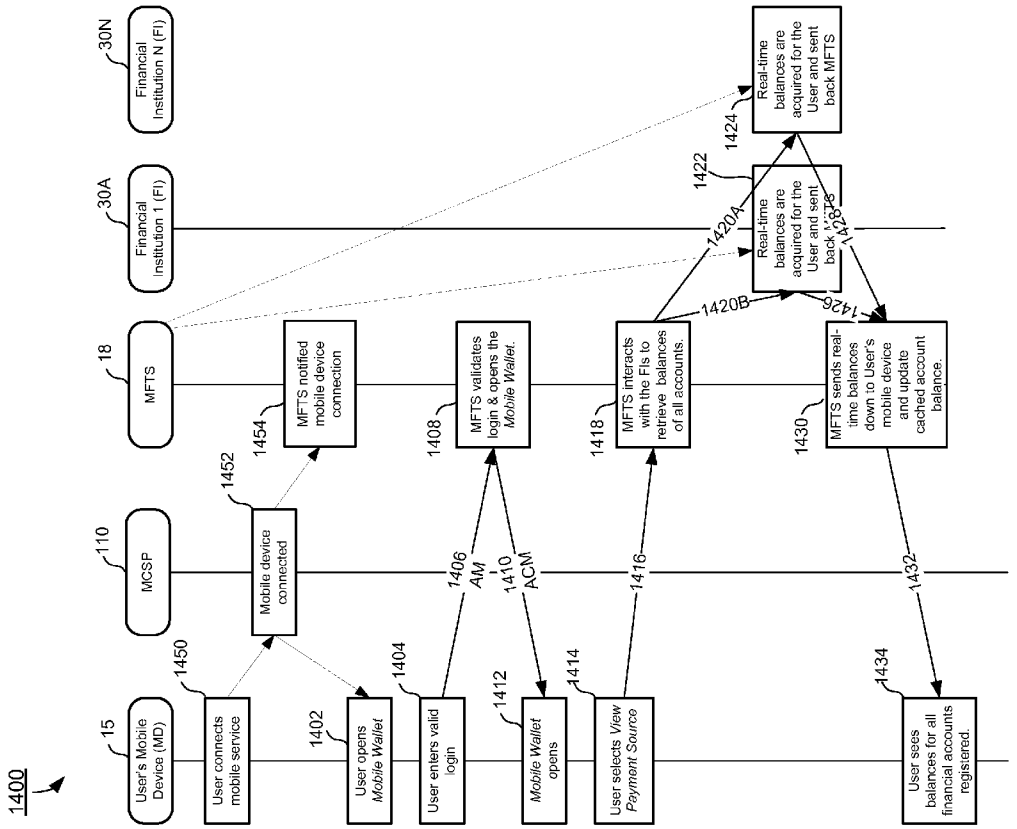
WEB APPLICATION FOR REGISTERED USER (MFTS)

FIG. 12



VIEW PAYMENT SOURCES & ACCOUNT BALANCE

FIG. 13



SEQUENCE DIAGRAM FOR VIEWING PAYMENT SOURCES AND ACCOUNT BALANCES

FIG. 14

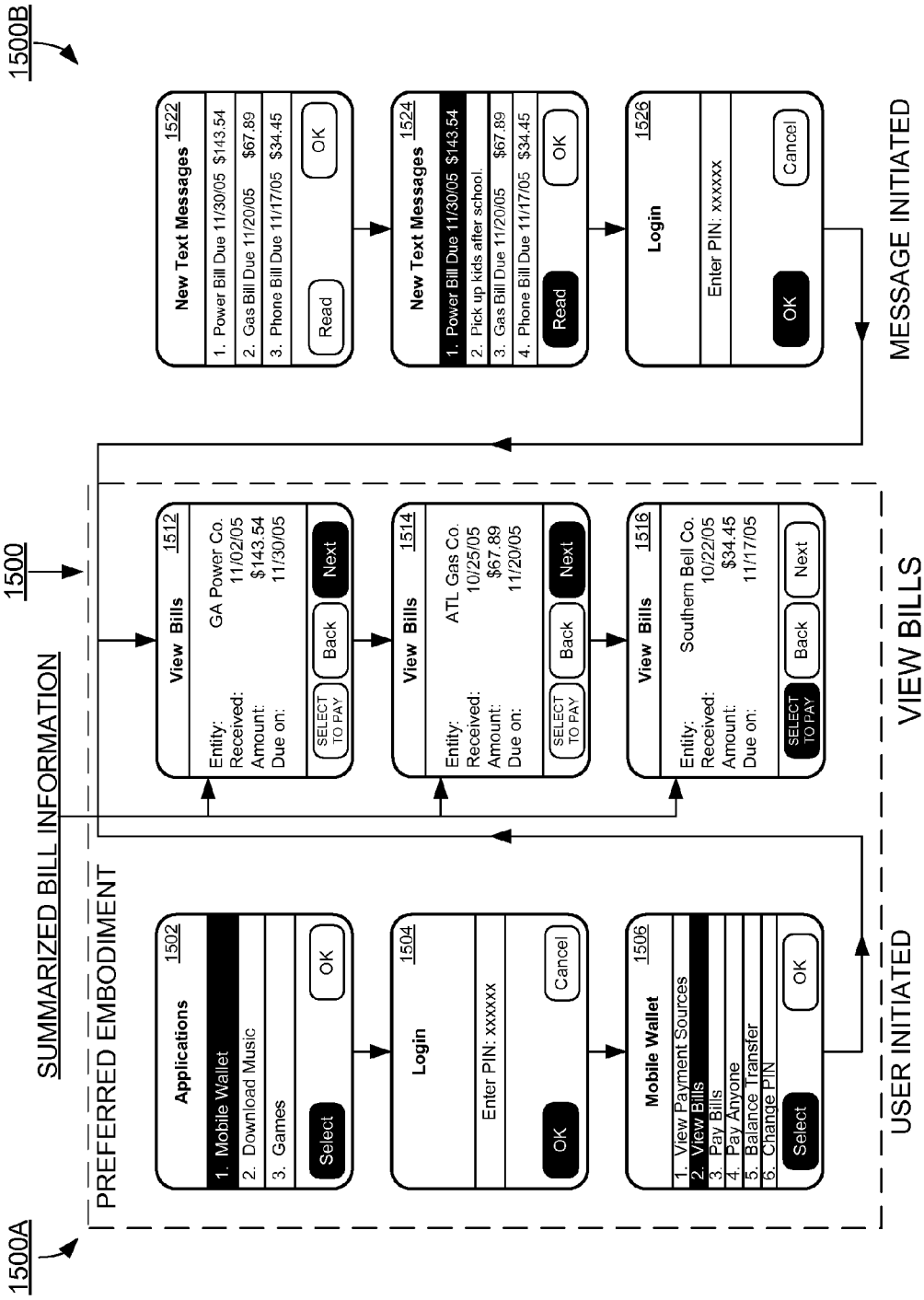
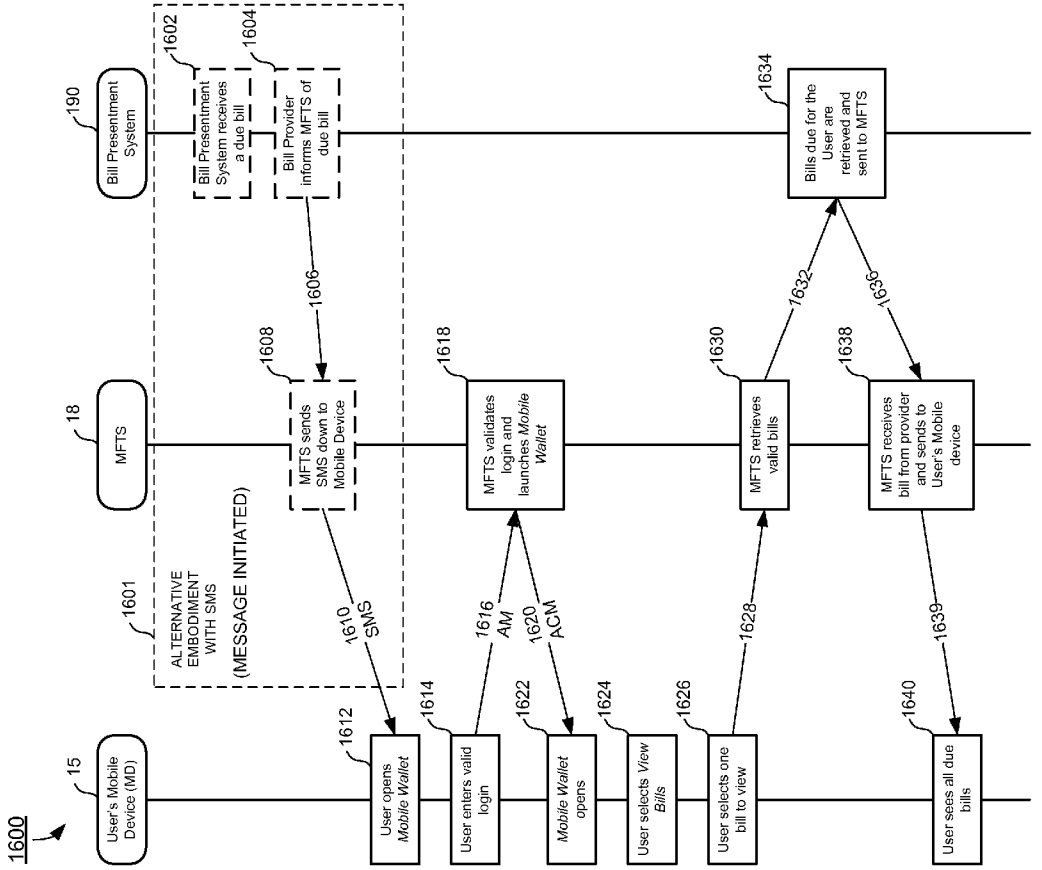
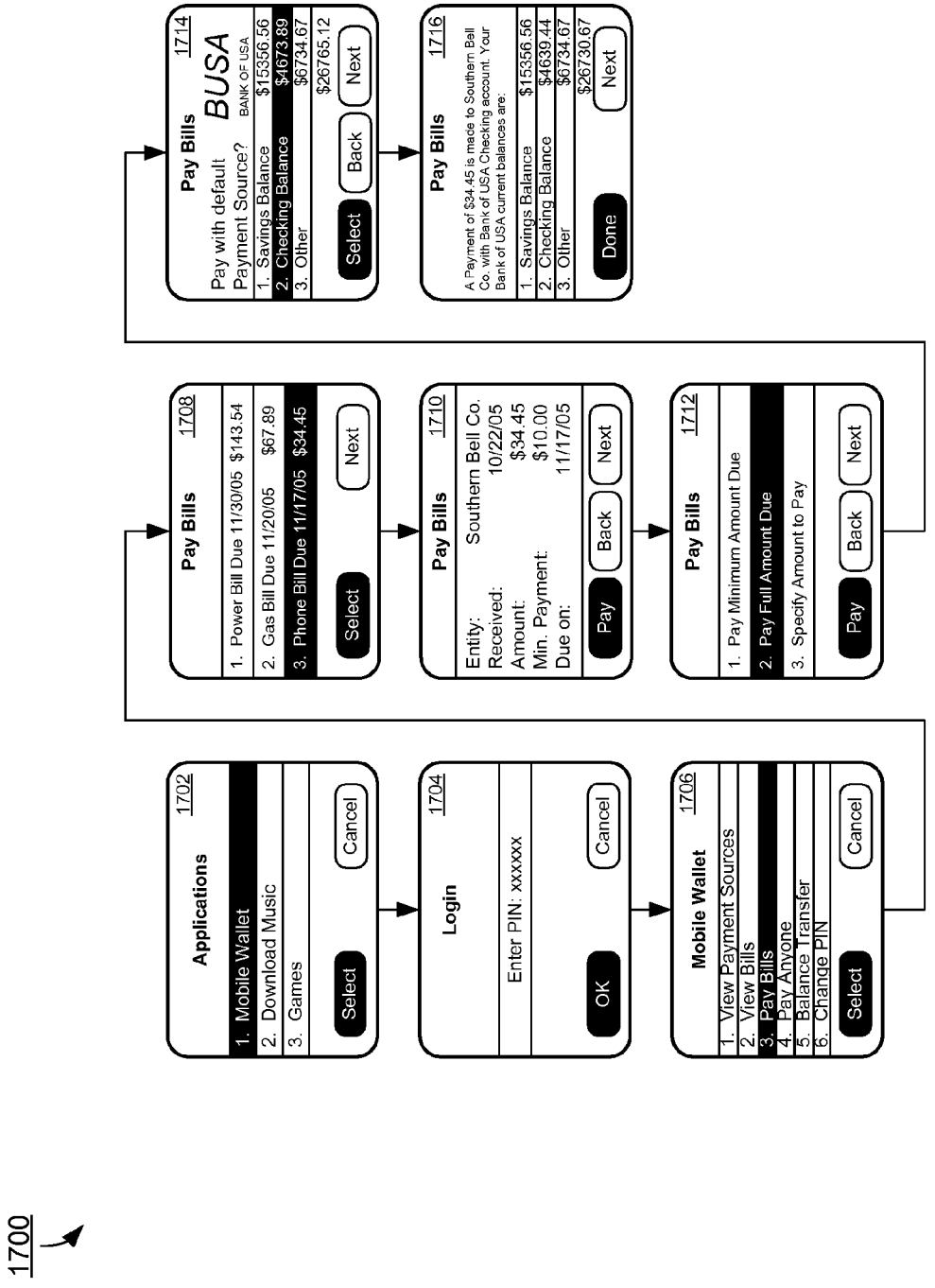

1500B
1500
1500A
SUMMARIZED BILL INFORMATION
PREFERRED EMBODIMENT
Applications 1502
1. Mobile Wallet
2. Download Music
3. Games
Select
OK
Login 1504
Enter PIN: xxxxxx
OK
Cancel
Mobile Wallet 1506
1. View Payment Sources
2. View Bills
3. Pay Bills
4. Pay Anyone
5. Balance Transfer
6. Change PIN
Select
OK
View Bills 1512
Entity: GA Power Co.
Received: 11/02/05
Amount: $143.54
Due on: 11/30/05
SELECT TO PAY
Back
Next
View Bills 1514
Entity: ATL Gas Co.
Received: 10/25/05
Amount: $67.89
Due on: 11/20/05
SELECT TO PAY
Back
Next
View Bills 1516
Entity: Southern Bell Co.
Received: 10/22/05
Amount: $34.45
Due on: 11/17/05
SELECT TO PAY
Back
Next
New Text Messages 1522
1. Power Bill Due 11/30/05 $143.54
2. Gas Bill Due 11/20/05 $67.89
3. Phone Bill Due 11/17/05 $34.45
Read
OK
New Text Messages 1524
1. Power Bill Due 11/30/05 $143.54
2. Pick up kids after school.
3. Gas Bill Due 11/20/05 $67.89
4. Phone Bill Due 11/17/05 $34.45
Read
OK
Login 1526
Enter PIN: xxxxxx
OK
Cancel
USER INITIATED
VIEW BILLS
MESSAGE INITIATED

FIG. 15

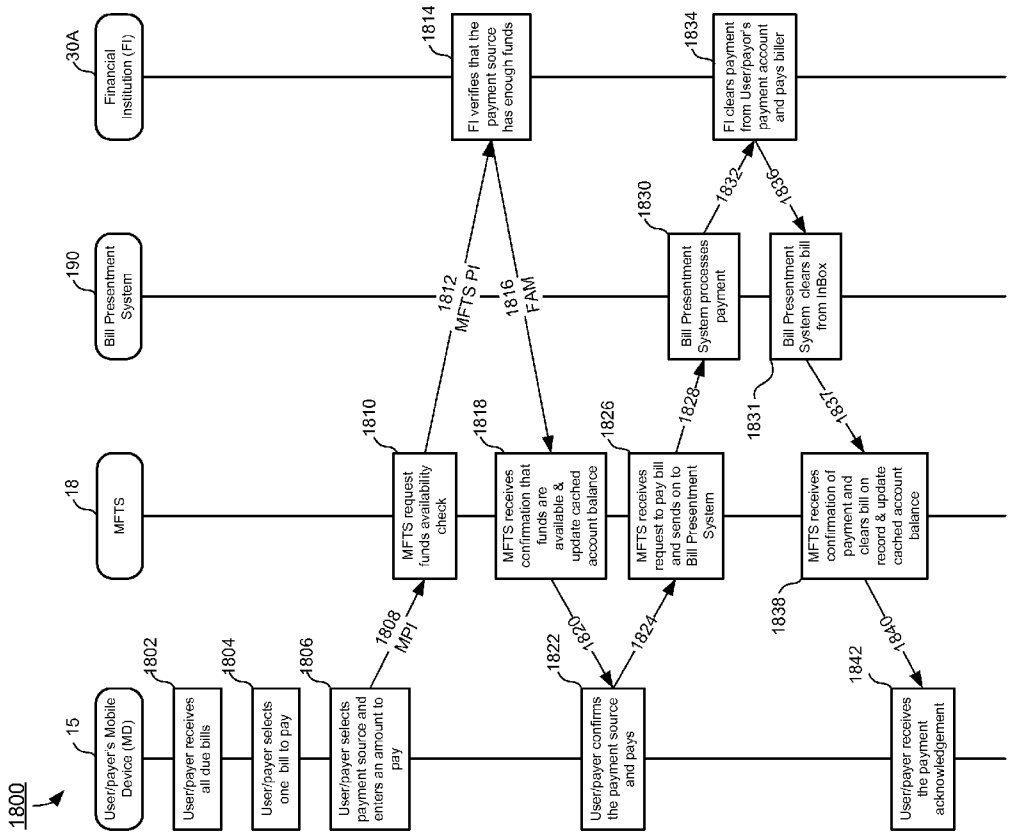


SEQUENCE DIAGRAM FOR VIEWING BILLS

FIG. 16

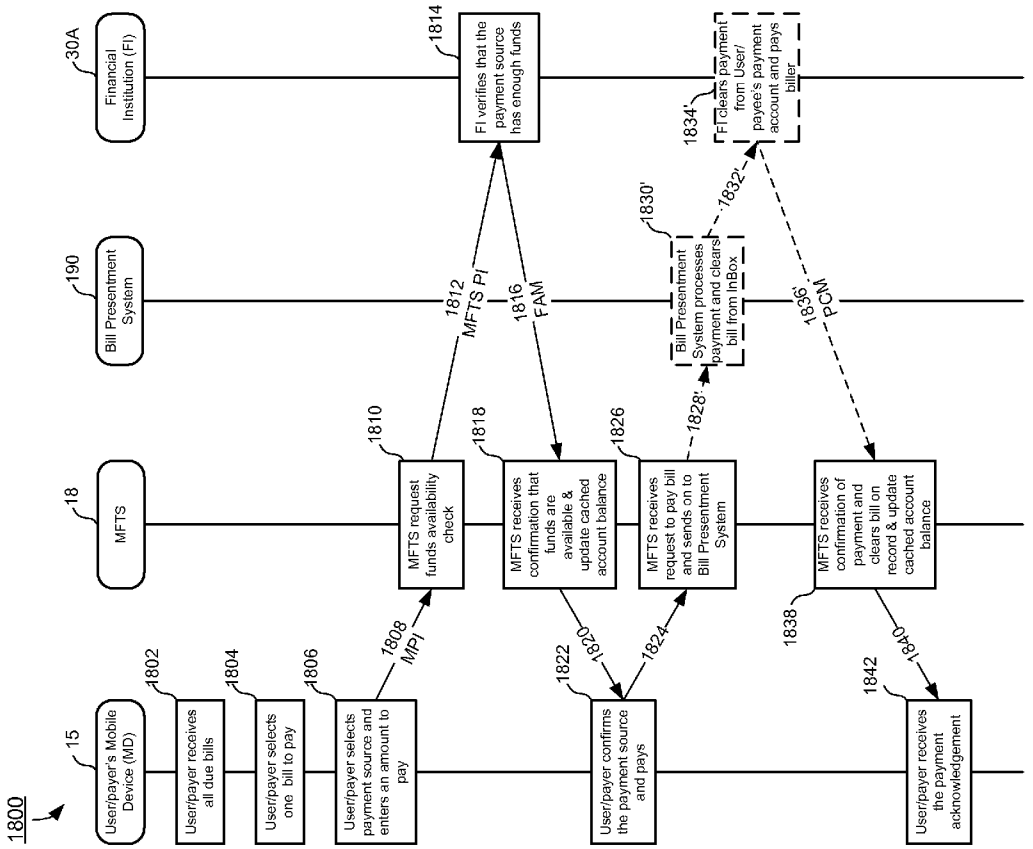


PAY BILLS
FIG. 17



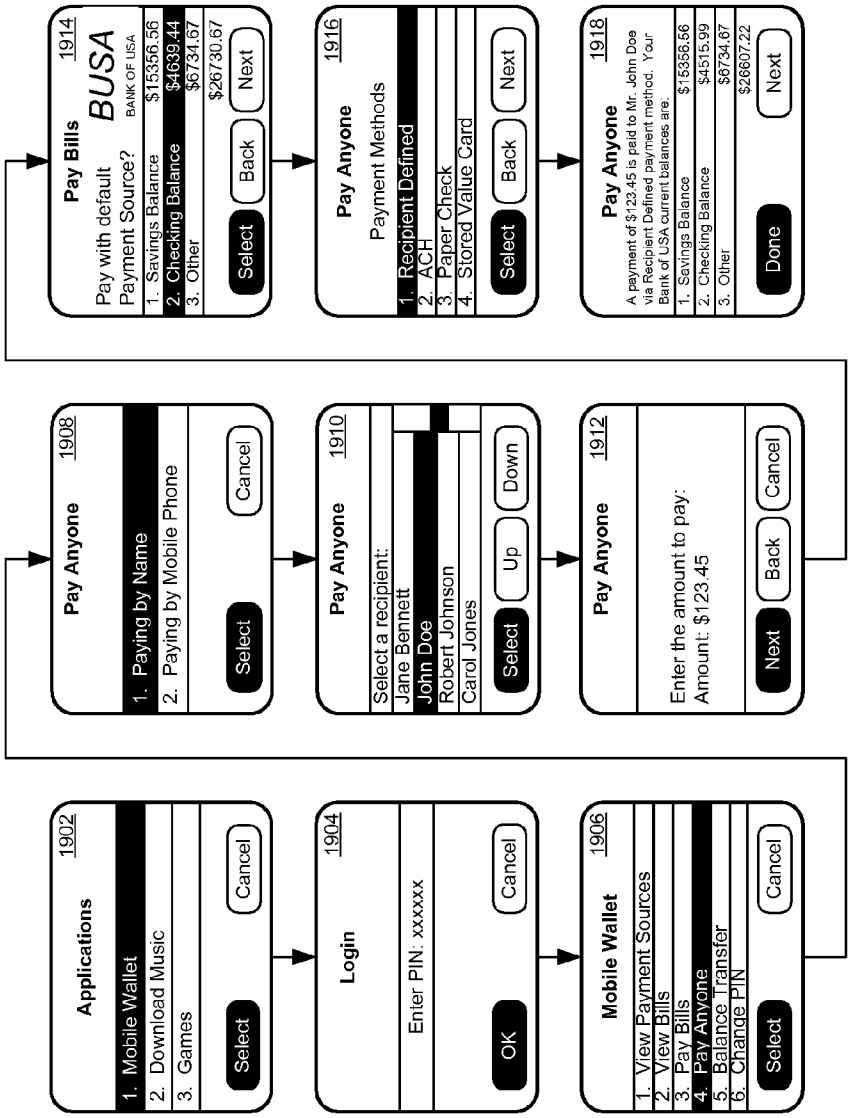
SEQUENCE DIAGRAM FOR PAYING A BILL
(PREFERRED EMBODIMENT)

FIG. 18A



SEQUENCE DIAGRAM FOR PAYING A BILL (ALTERNATIVE EMBODIMENT)

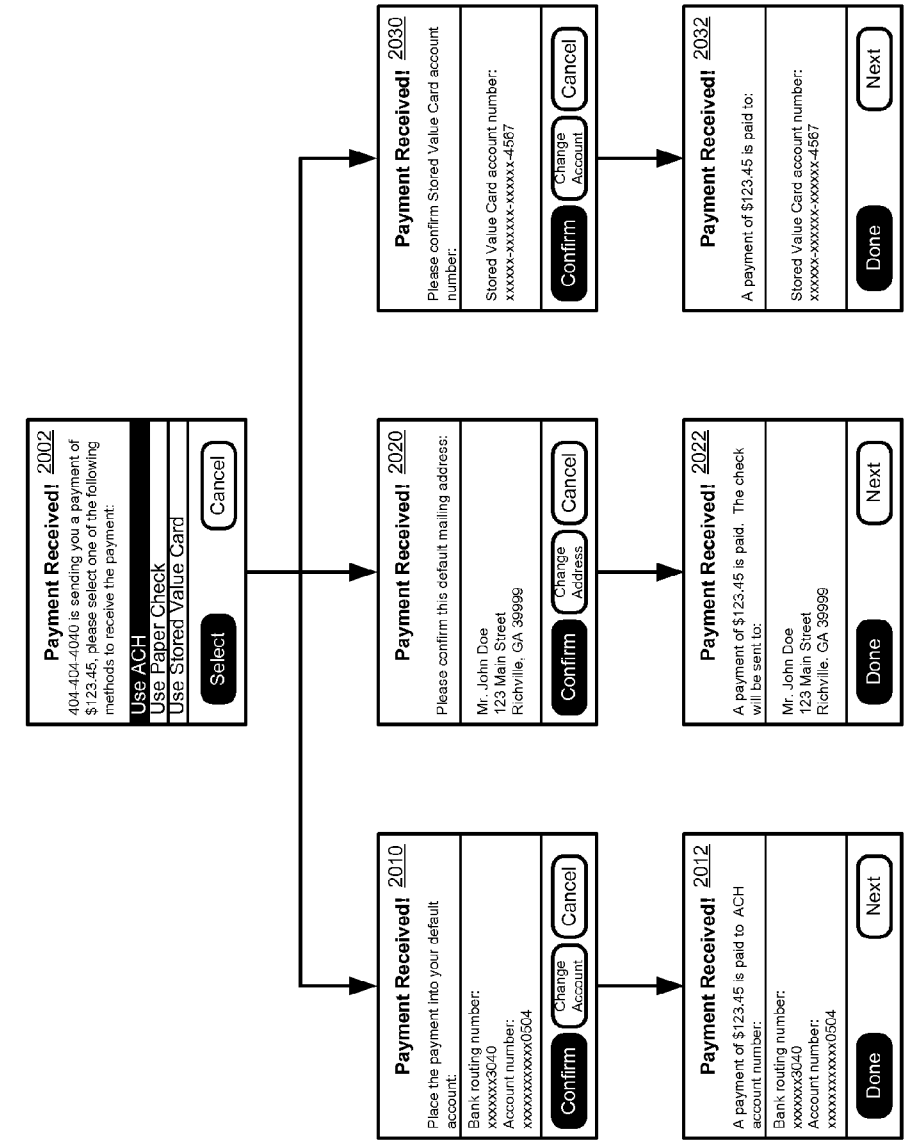
FIG. 18B



PAYANYONE BY NAME (RECIPIENT DEFINED, PAYER'S VIEW)

FIG. 19

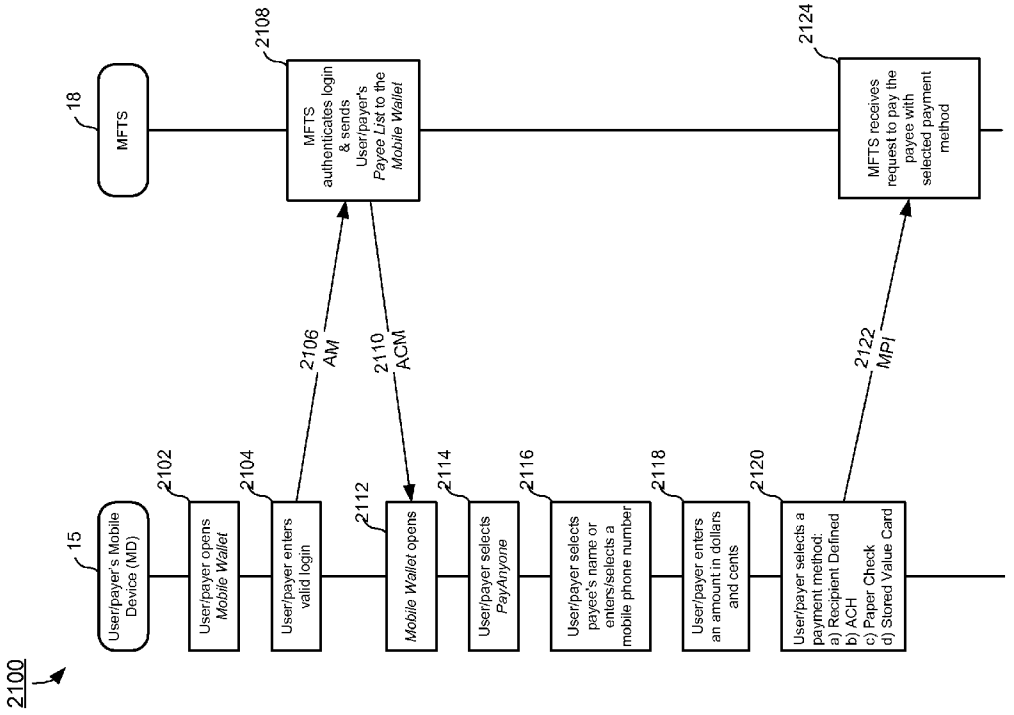
1900



2000

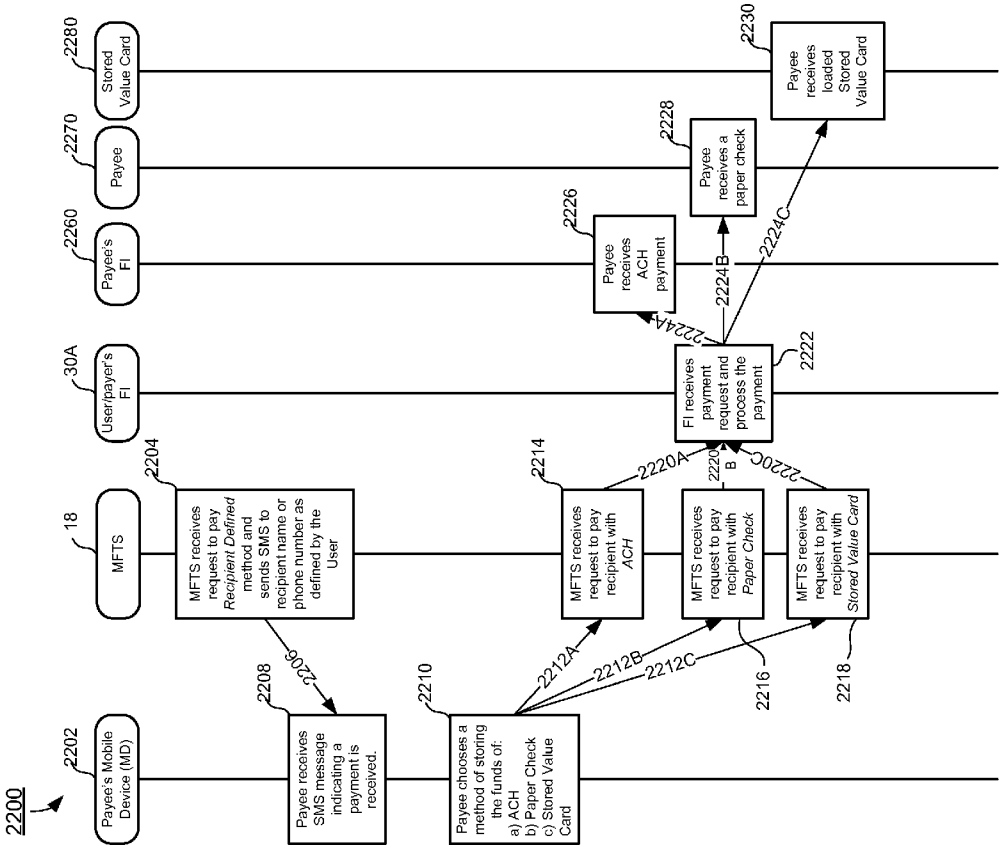
PAYANYONE BY NAME
(RECIPIENT DEFINED, PAYEE'S VIEW)

FIG. 20



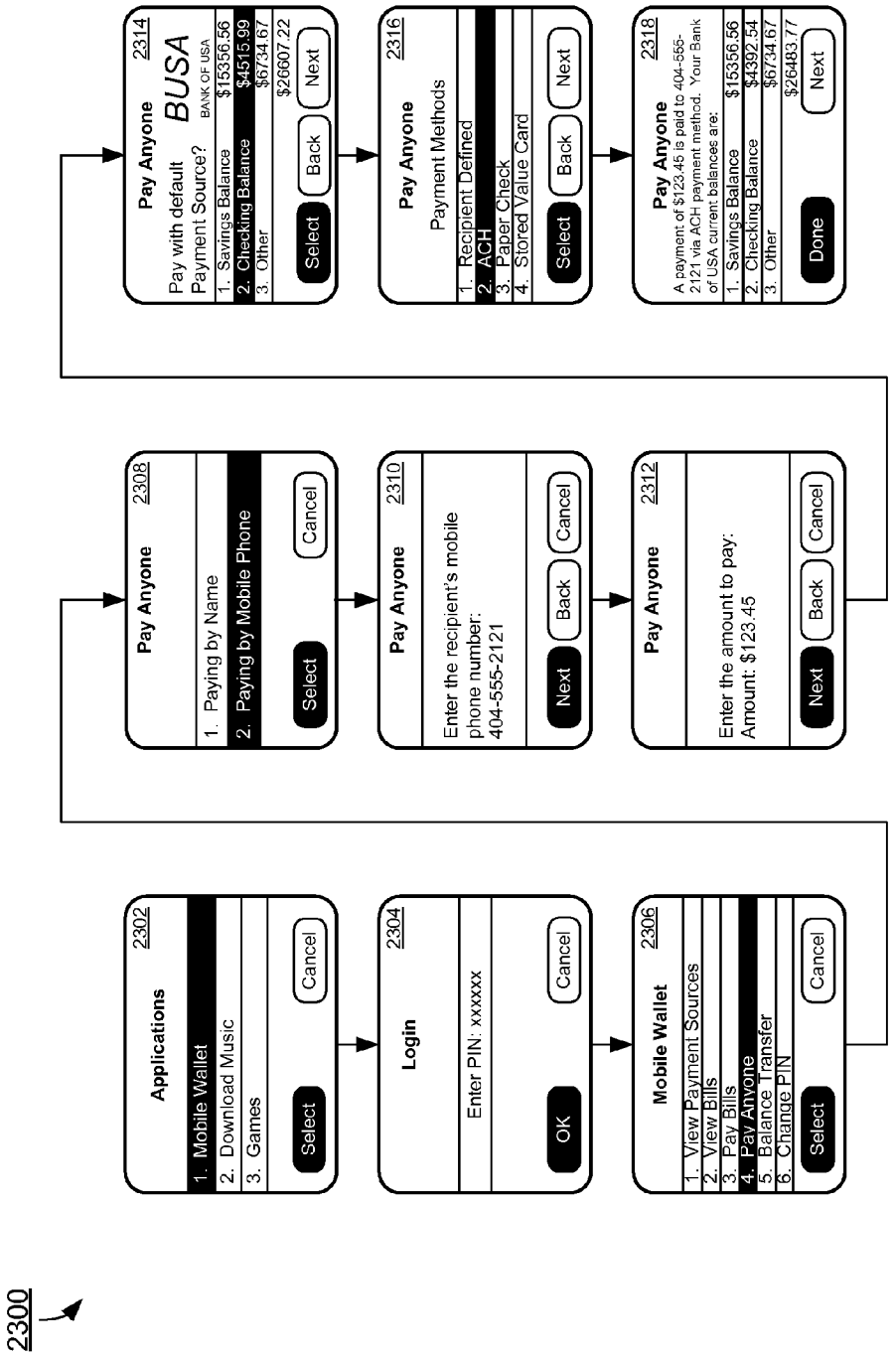
SEQUENCE DIAGRAM FOR PAYANYONE

FIG. 21



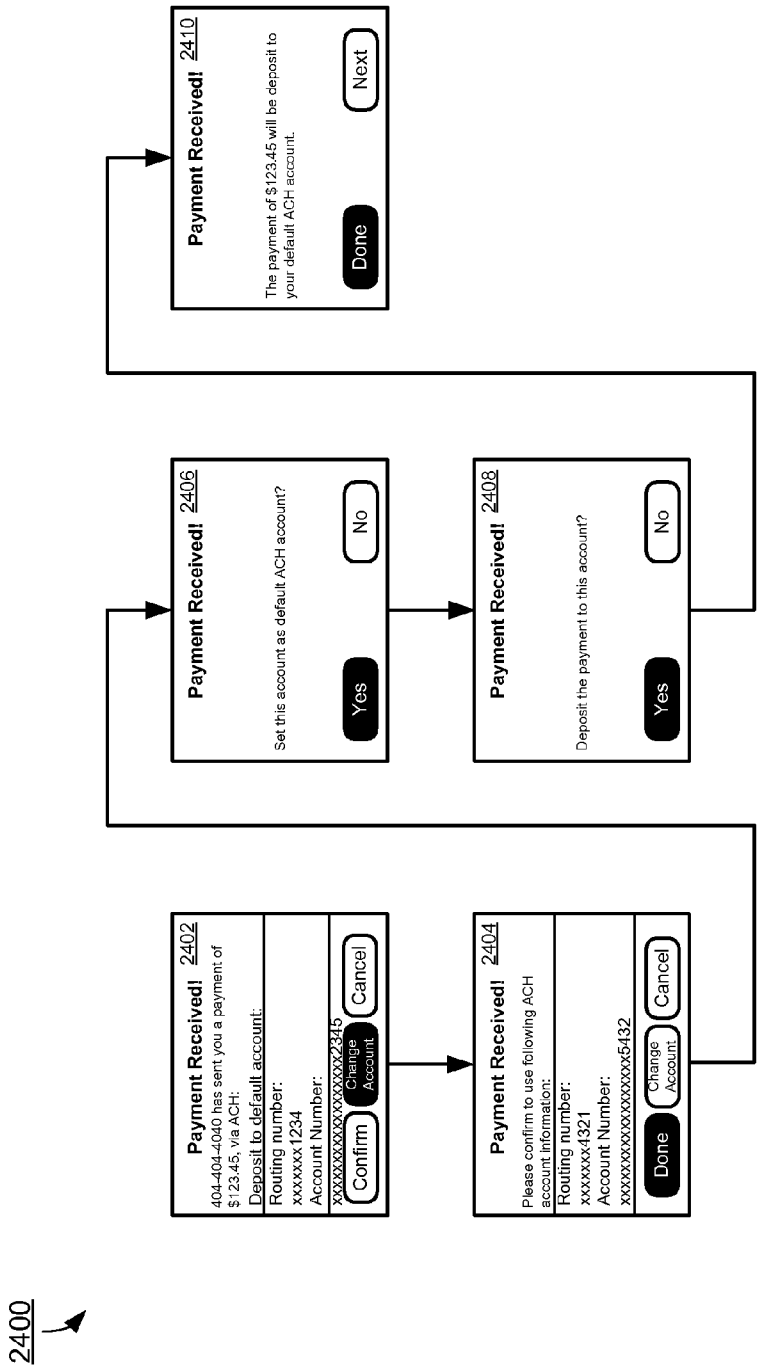
SEQUENCE DIAGRAM FOR PAYANYONE RECIPIENT DEFINED PAYMENT METHOD

FIG. 22



PAYANYONE BY PHONE NUMBER (ACH, PAYER'S VIEW)

FIG. 23



PAYANYONE BY PHONE NUMBER (ACH, PAYEE'S VIEW)

FIG. 24

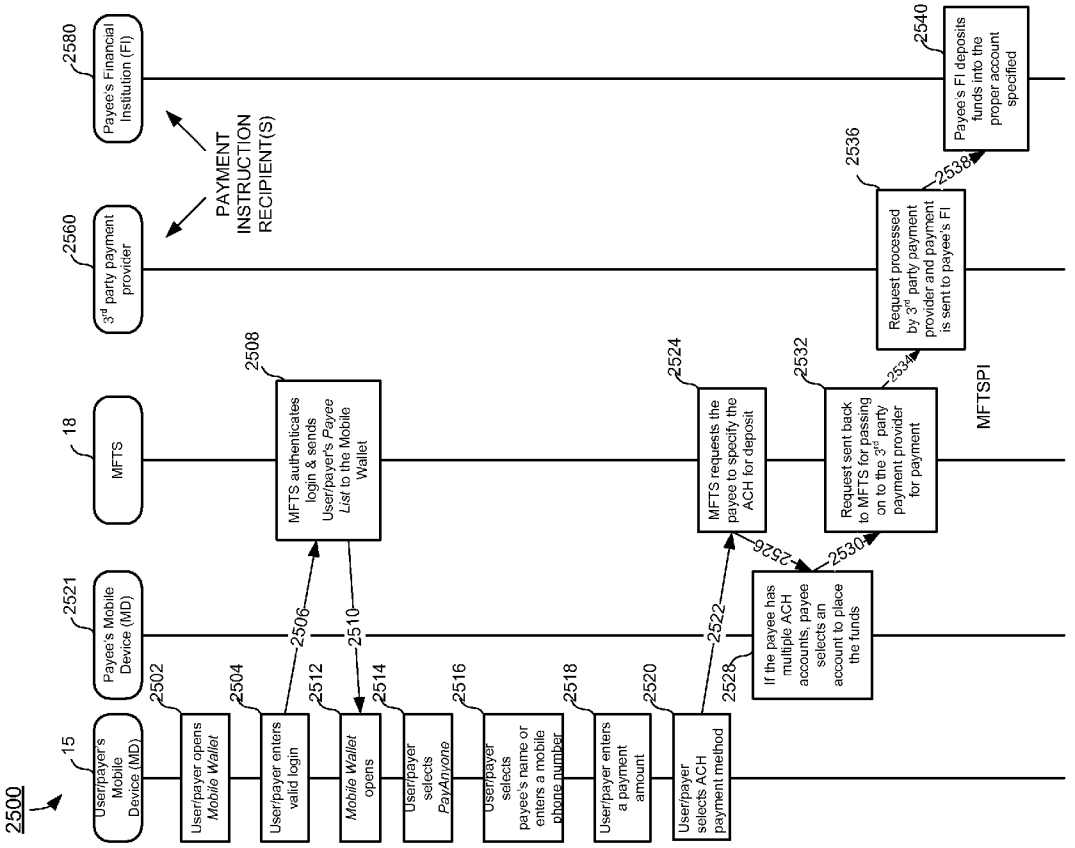
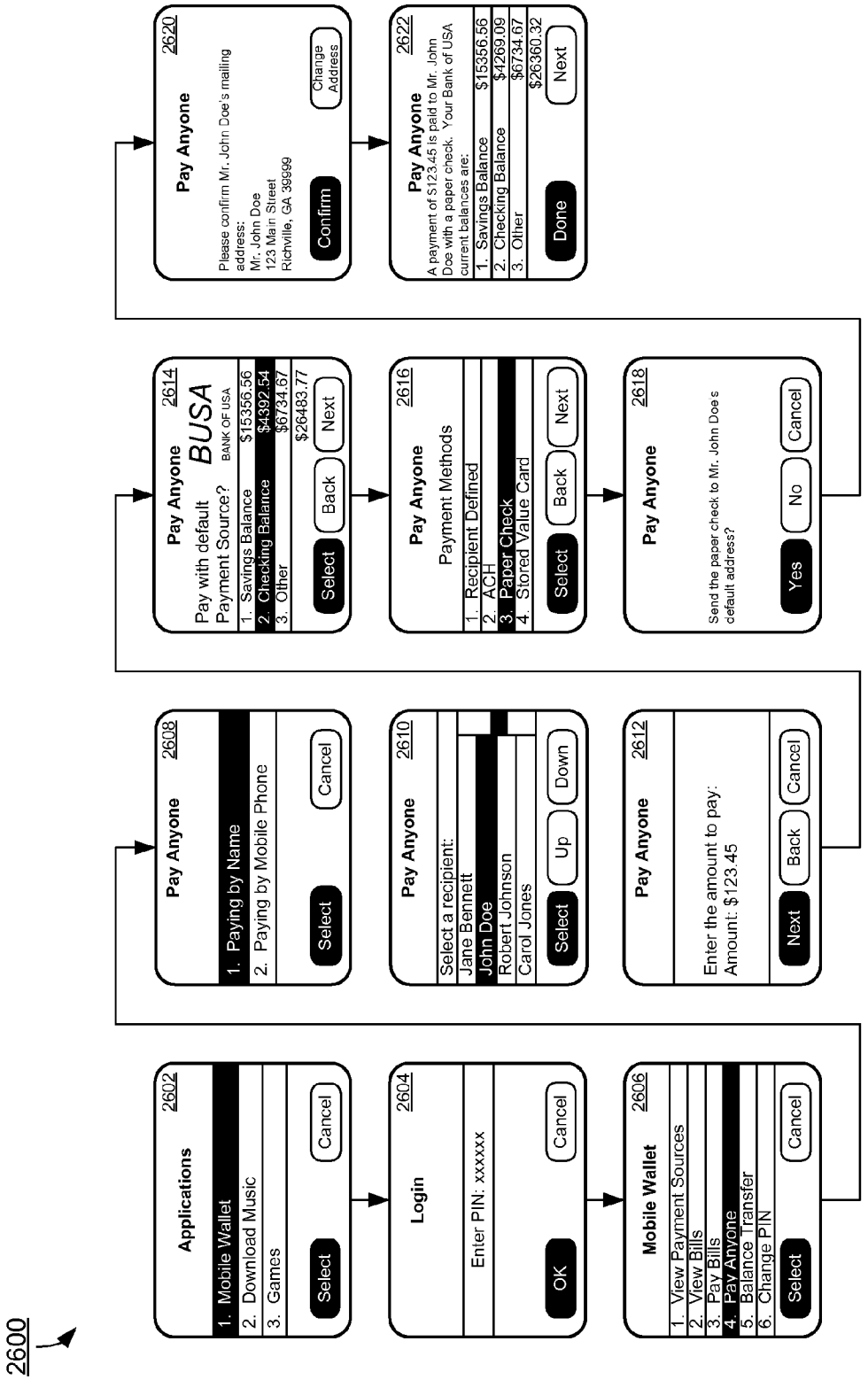


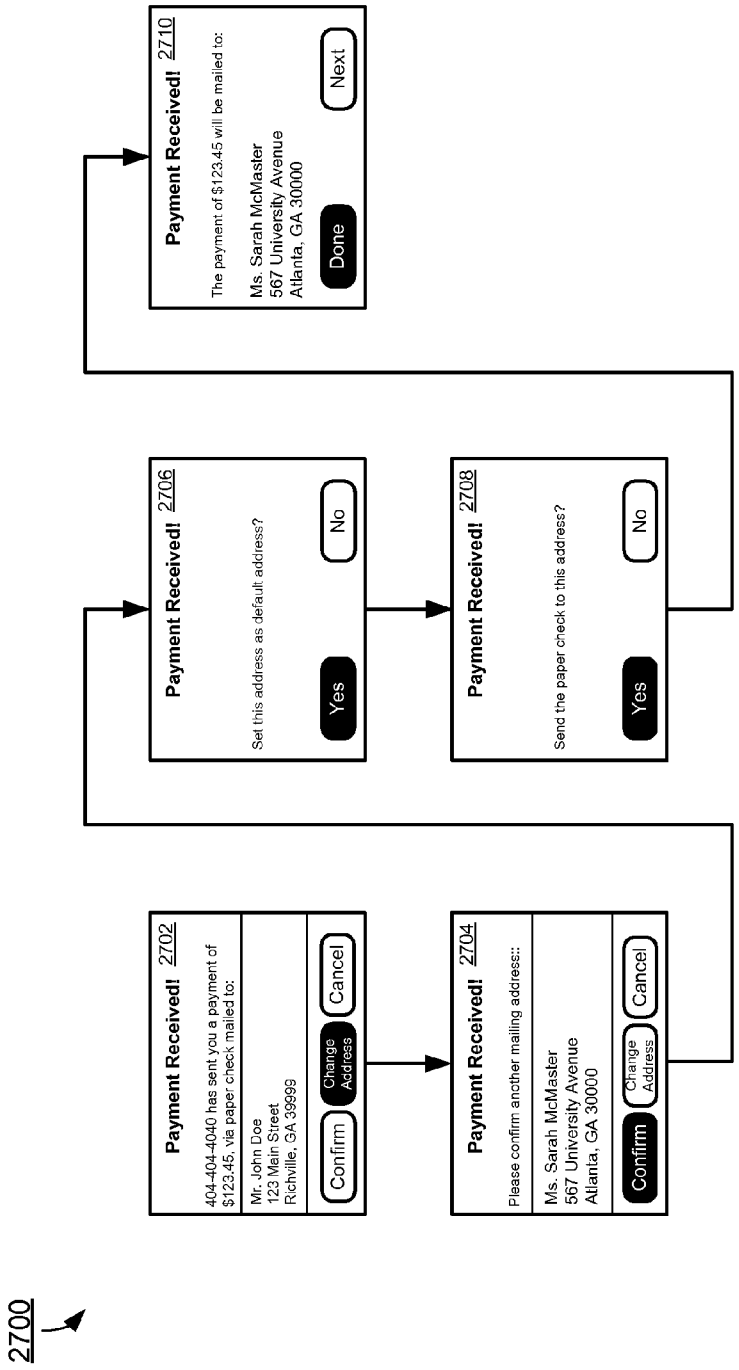
FIG. 25

SEQUENCE DIAGRAM FOR PAYANYONE WITH ACH



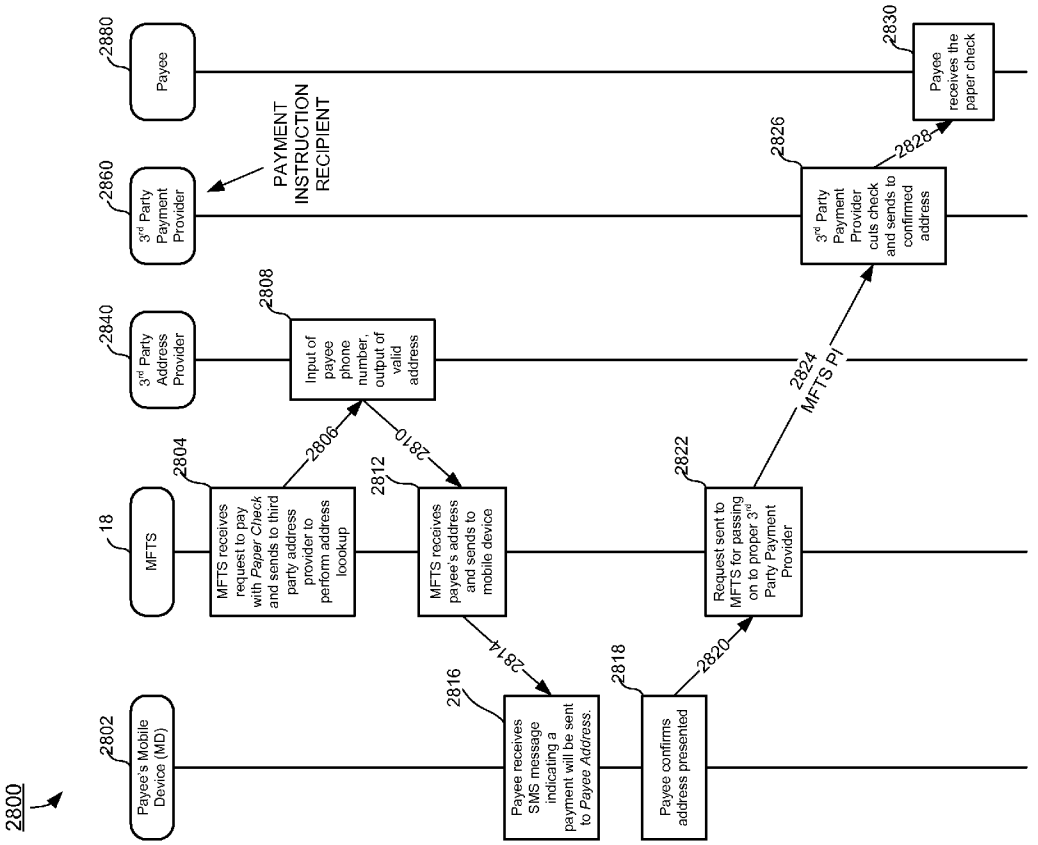
PAYANYONE BY NAME (PAPER CHECK, PAYER'S VIEW)

FIG. 26



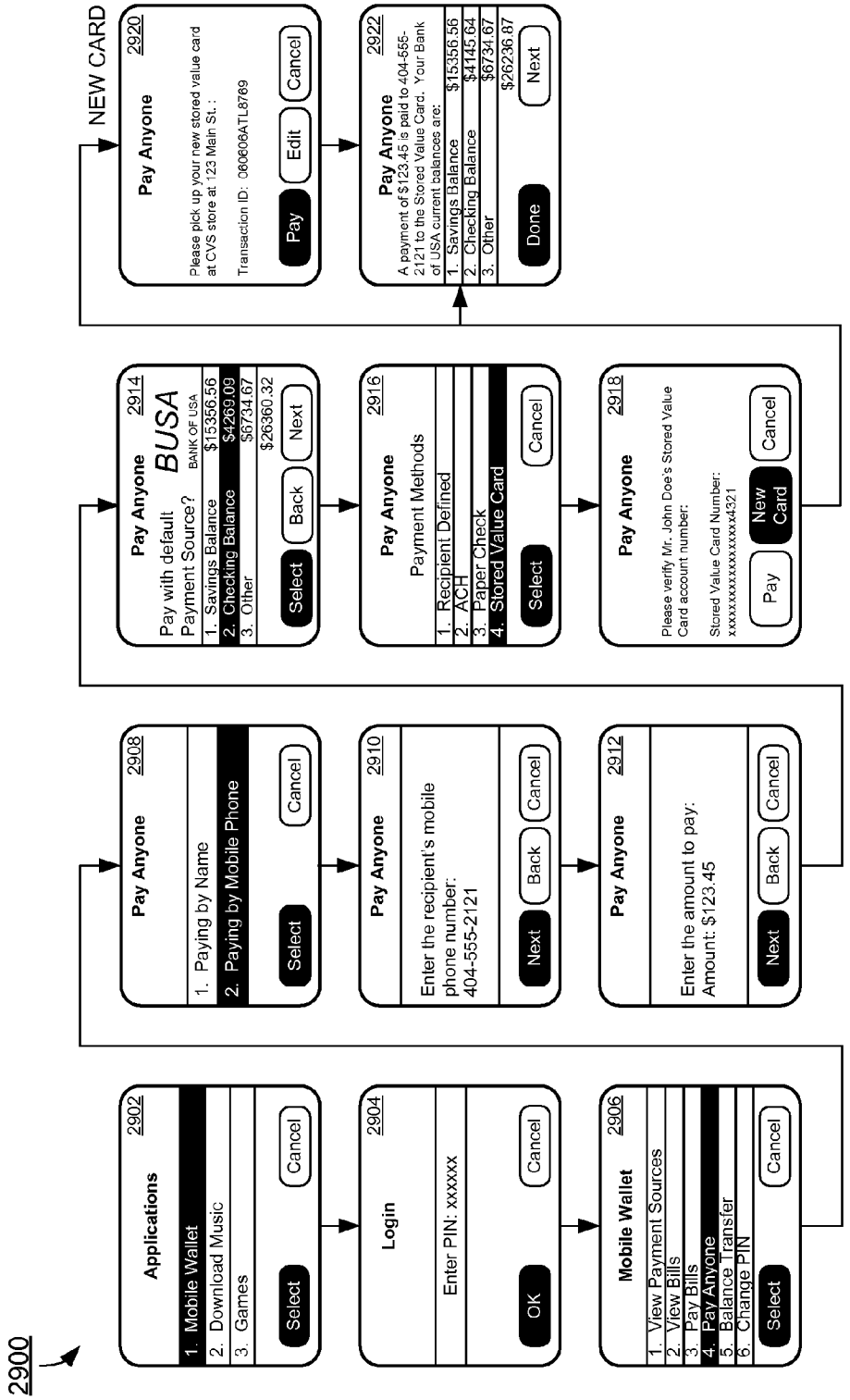
PAYANYONE BY NAME (PAPER CHECK, PAYEE'S VIEW)

FIG. 27



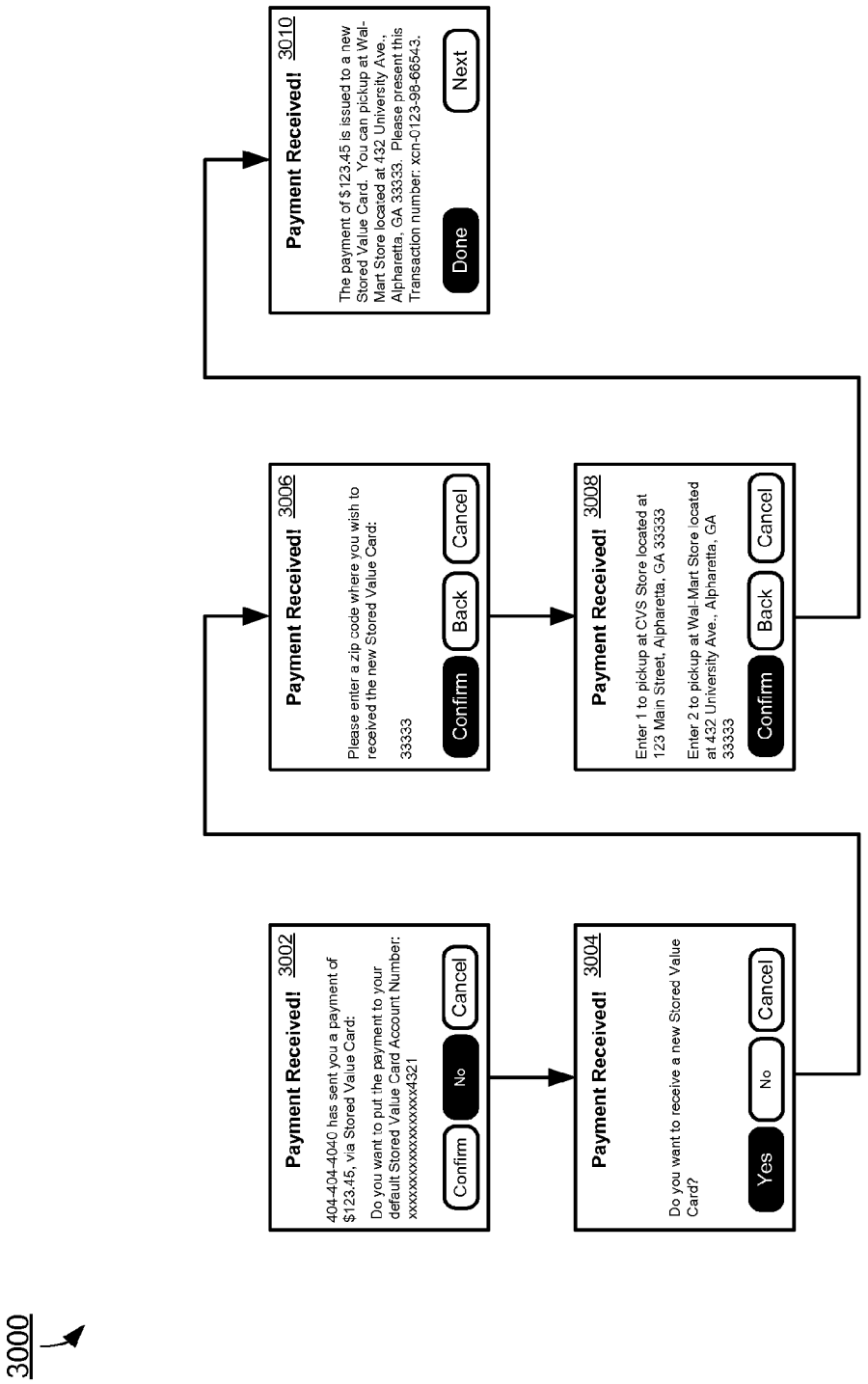
SEQUENCE DIAGRAM FOR PAYANYONE WITH PAPER CHECK

FIG. 28



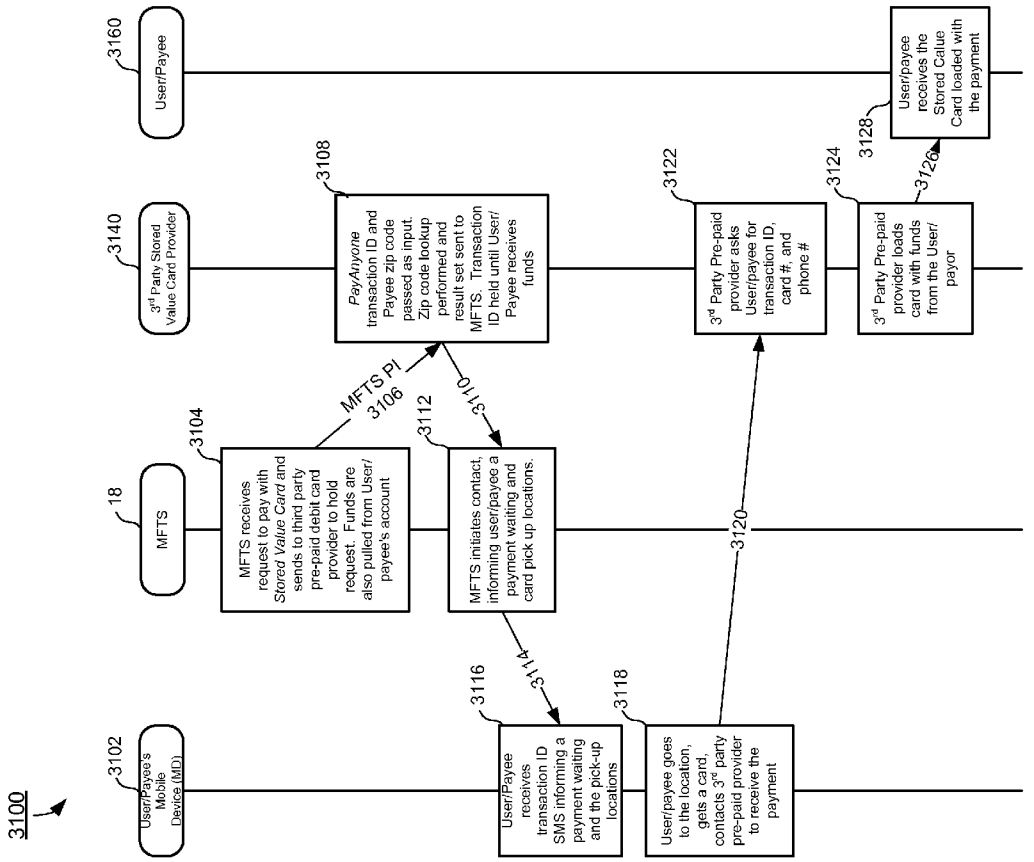
PAYANYONE BY PHONE NUMBER (STORED VALUE CARD, PAYER'S VIEW)

FIG. 29



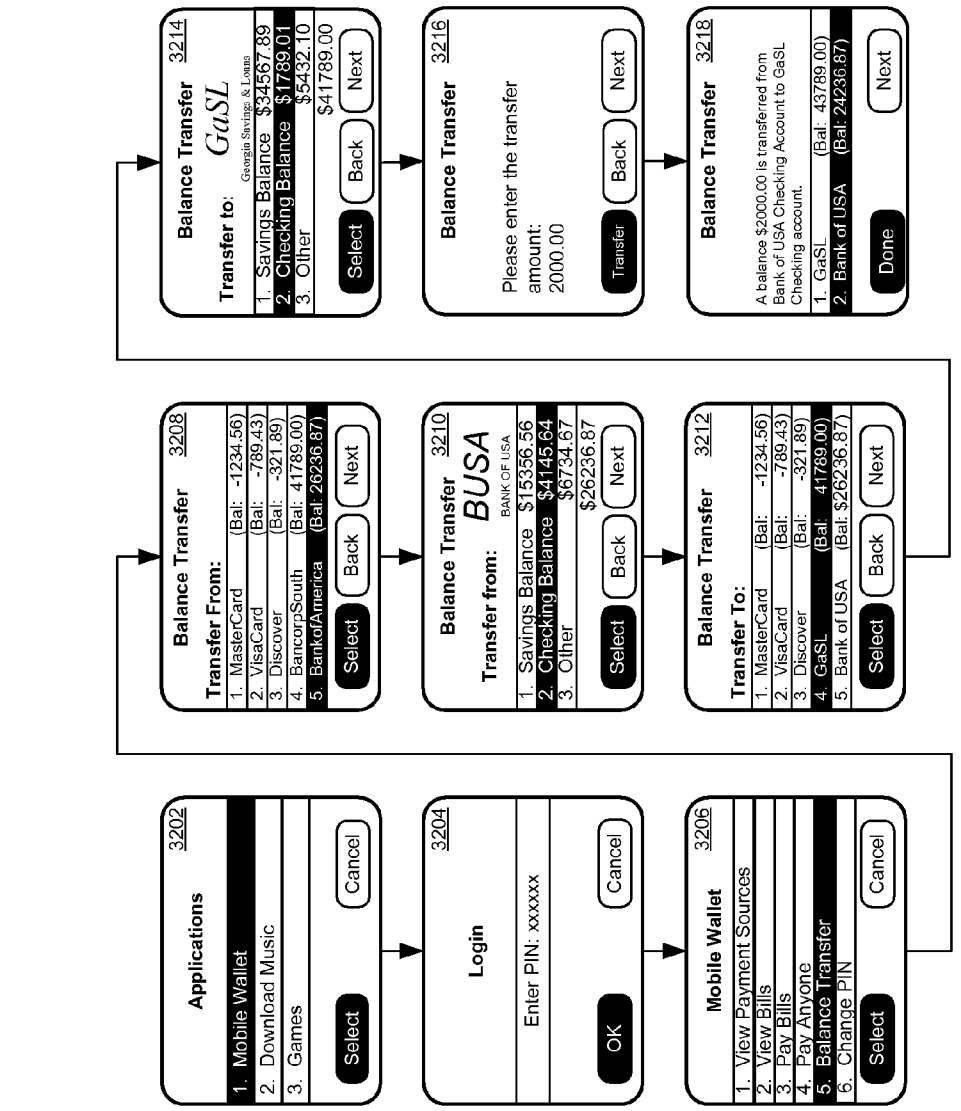
PAYANYONE BY PHONE NUMBER (STORED VALUE CARD, PAYEE'S VIEW)

FIG. 30



SEQUENCE DIAGRAM FOR PAYANYONE WITH STORED VALUE CARD

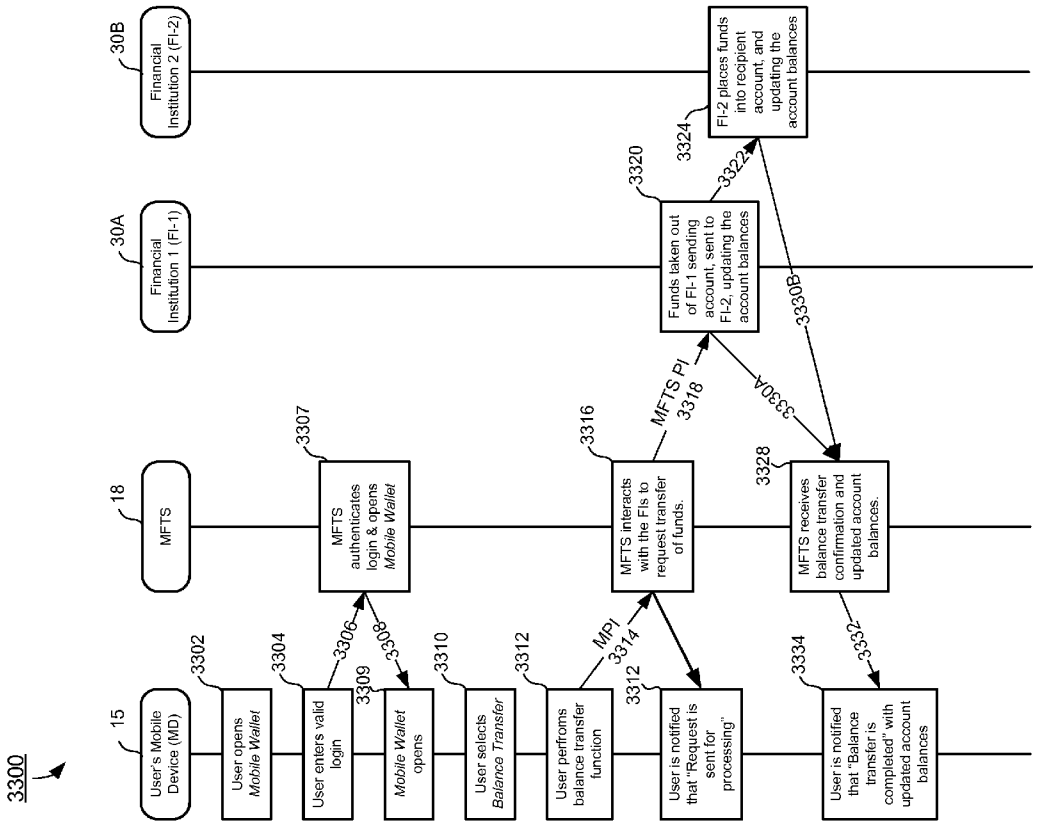
FIG. 31



3200

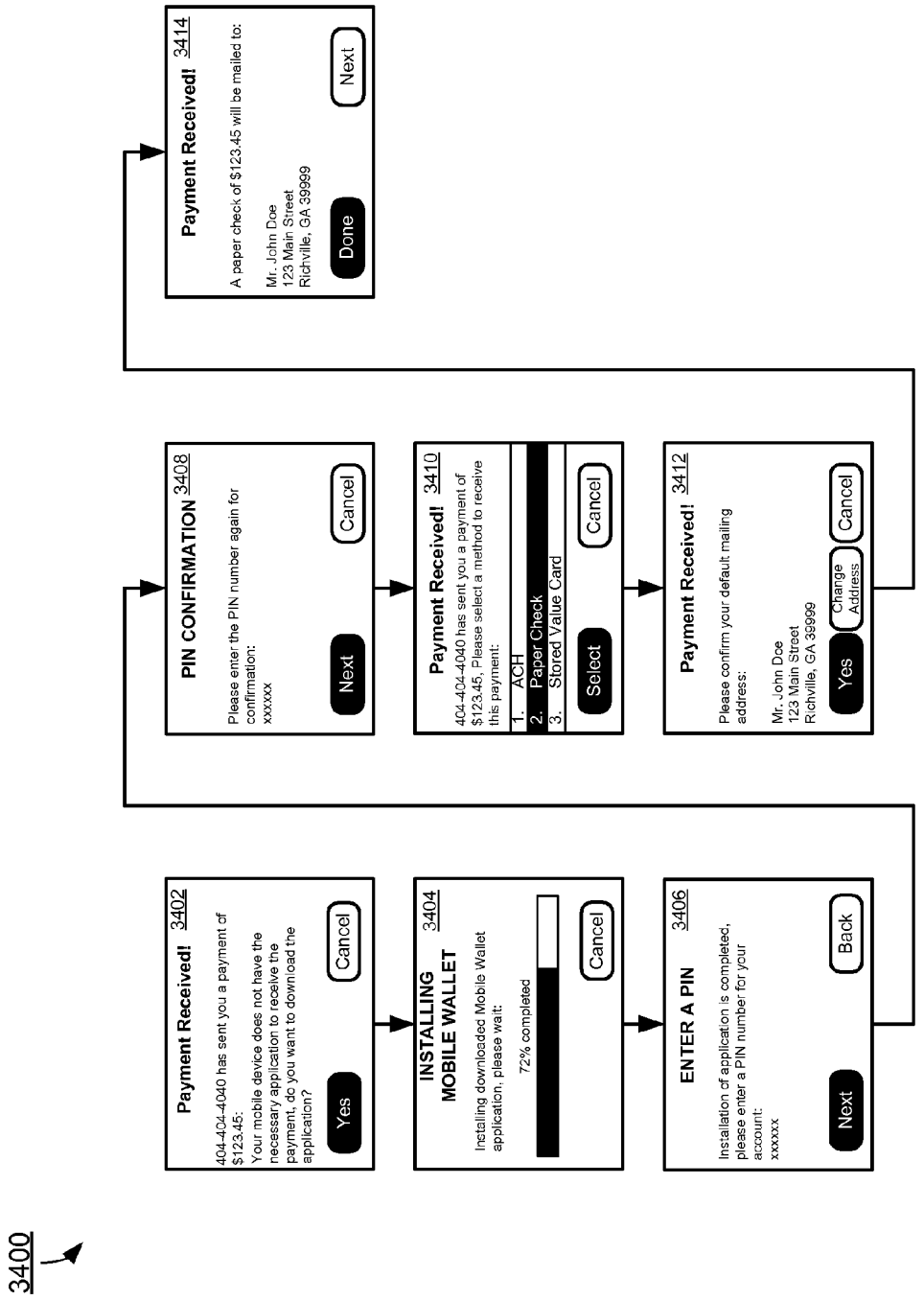
BALANCE TRANSFER

FIG. 32



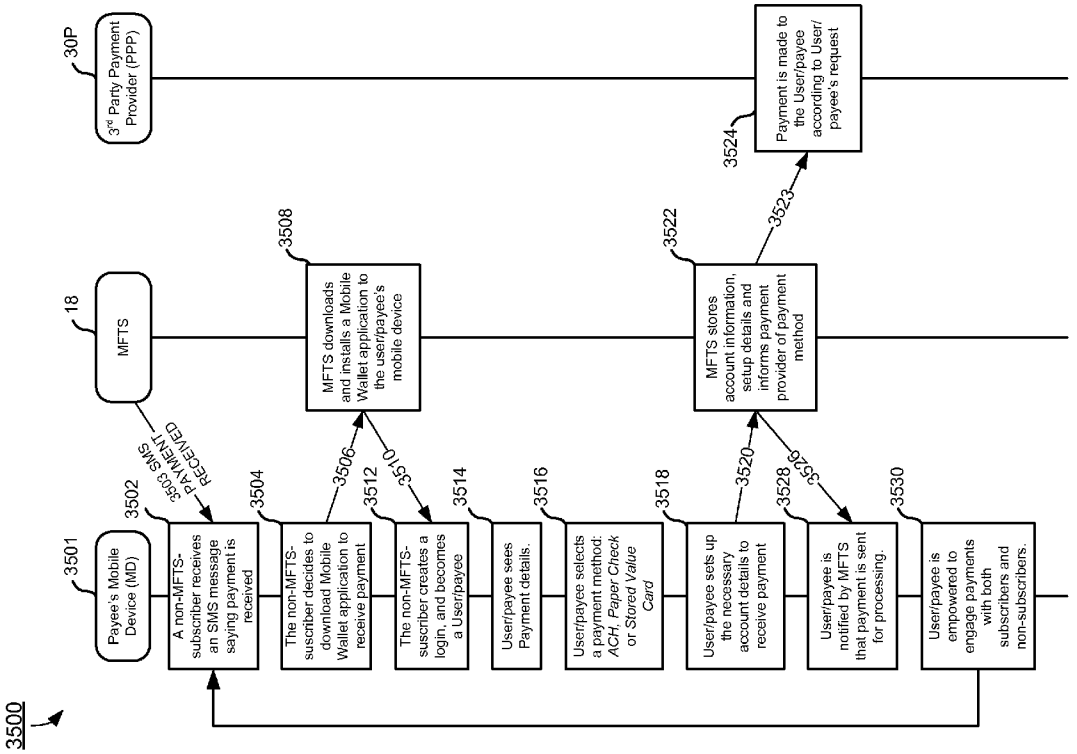
SEQUENCE DIAGRAM FOR BALANCE TRANSFER

FIG. 33



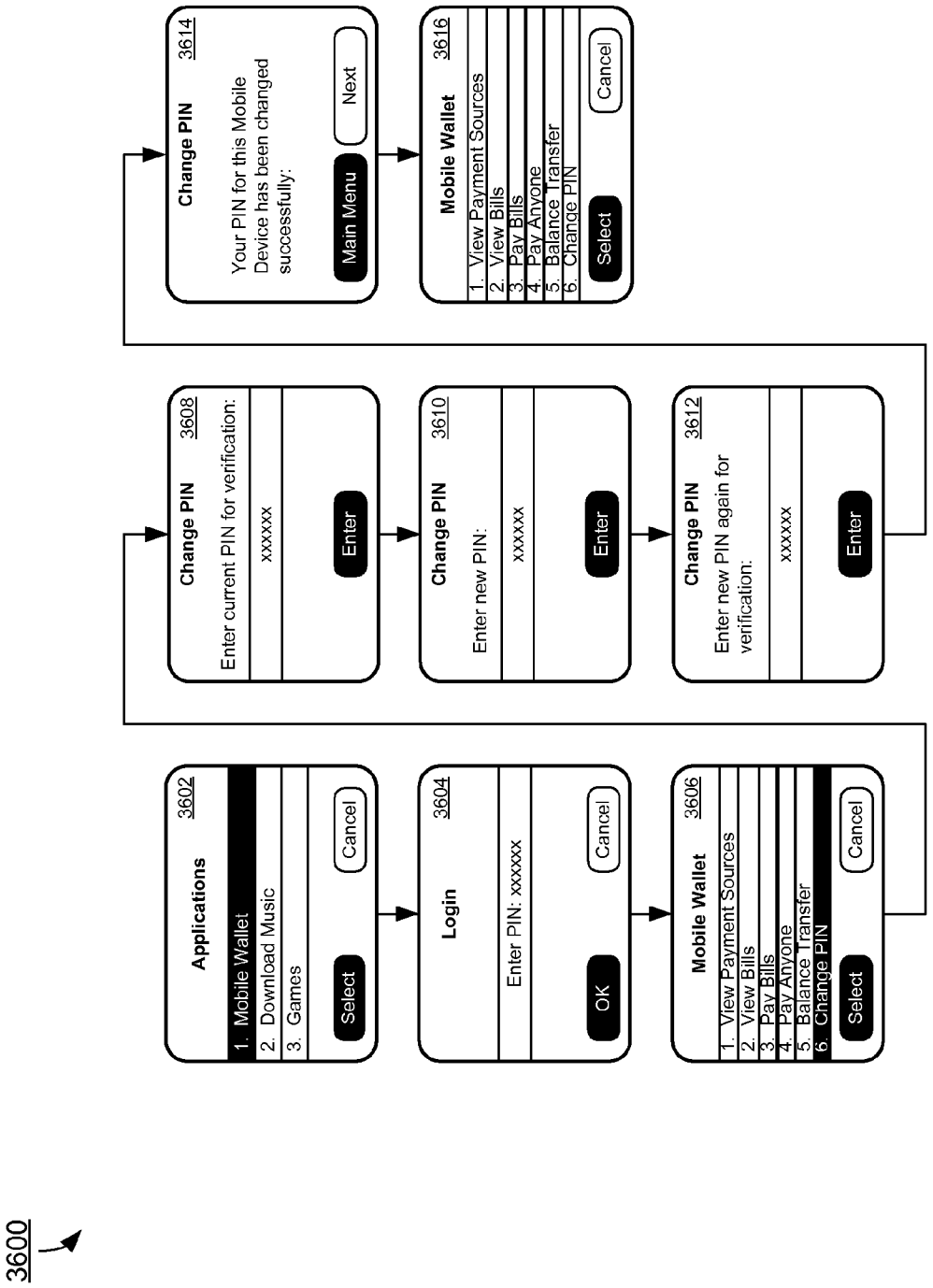
RECEIVING PAYMENT AND MOBILE WALLET INSTALLATION BY PAYEE

FIG. 34



MOBILE WALLET INSTALLATION BY PAYEE

FIG. 35



CHANGE PIN
FIG. 36

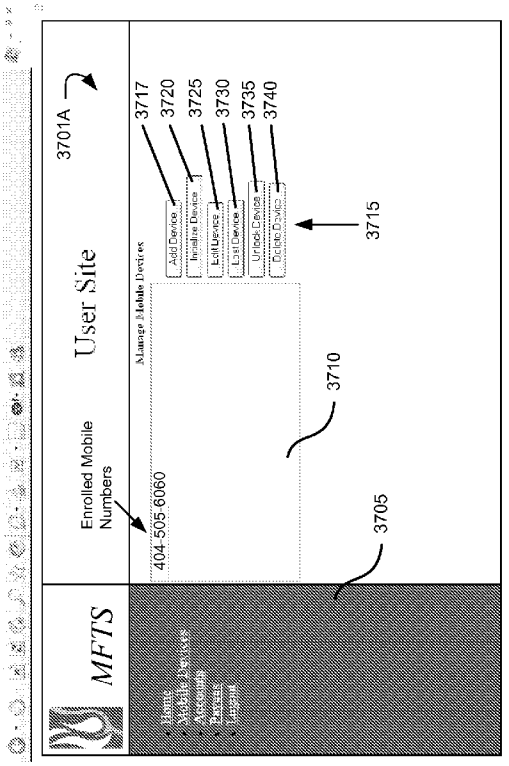


FIG. 37A

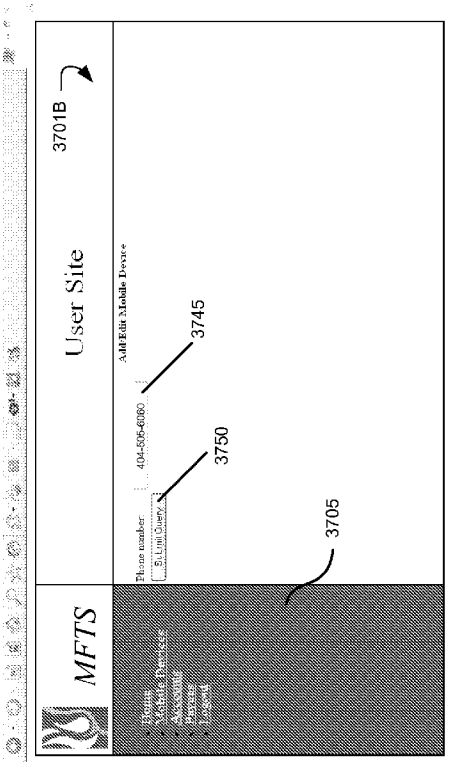


FIG. 37B

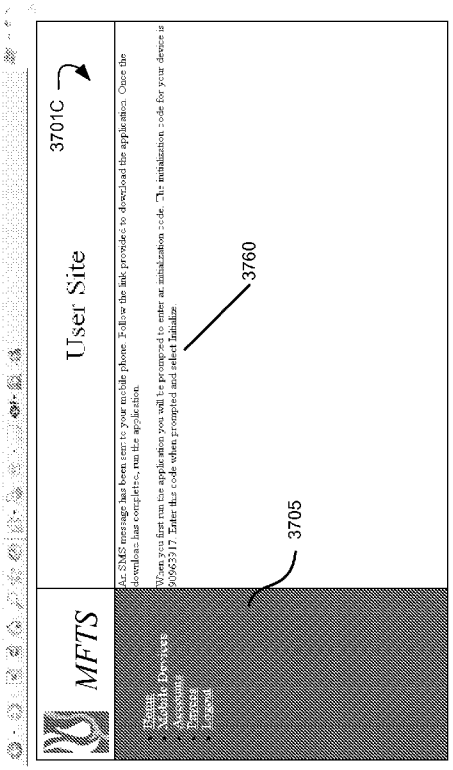


FIG. 37C

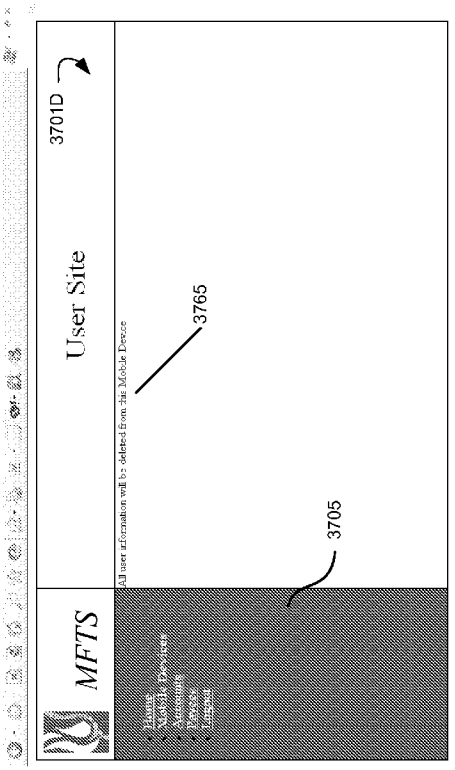


FIG. 37D

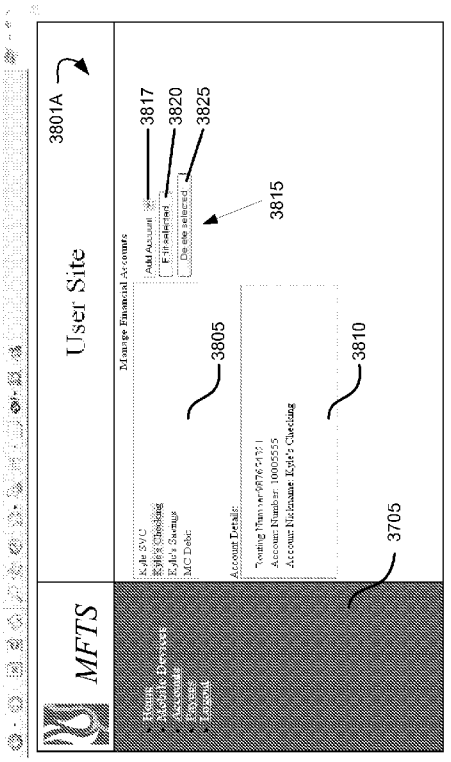


FIG. 38A

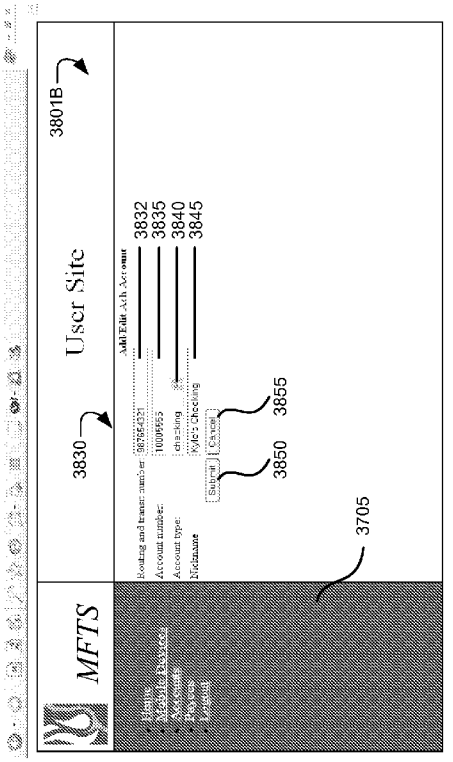


FIG. 38B

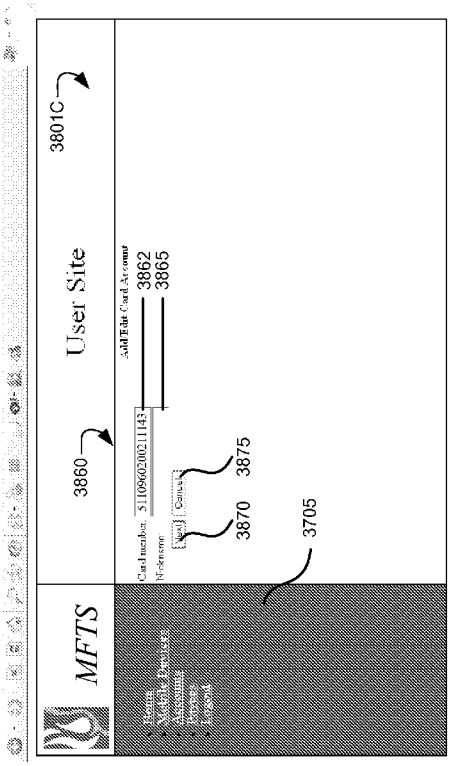


FIG. 38C

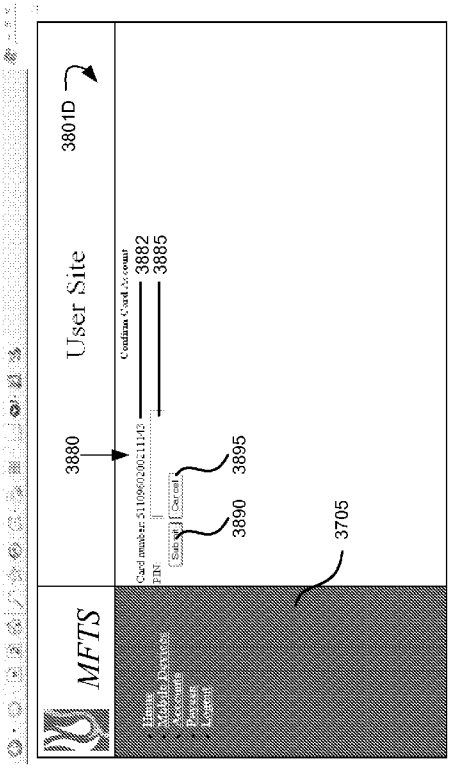


FIG. 38D

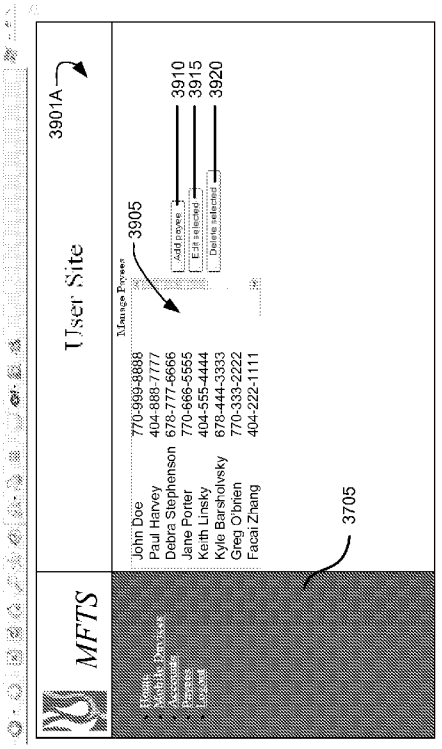


FIG. 39A

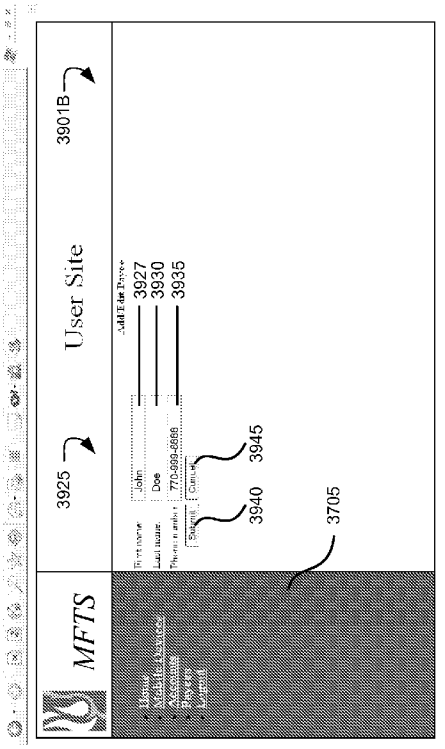
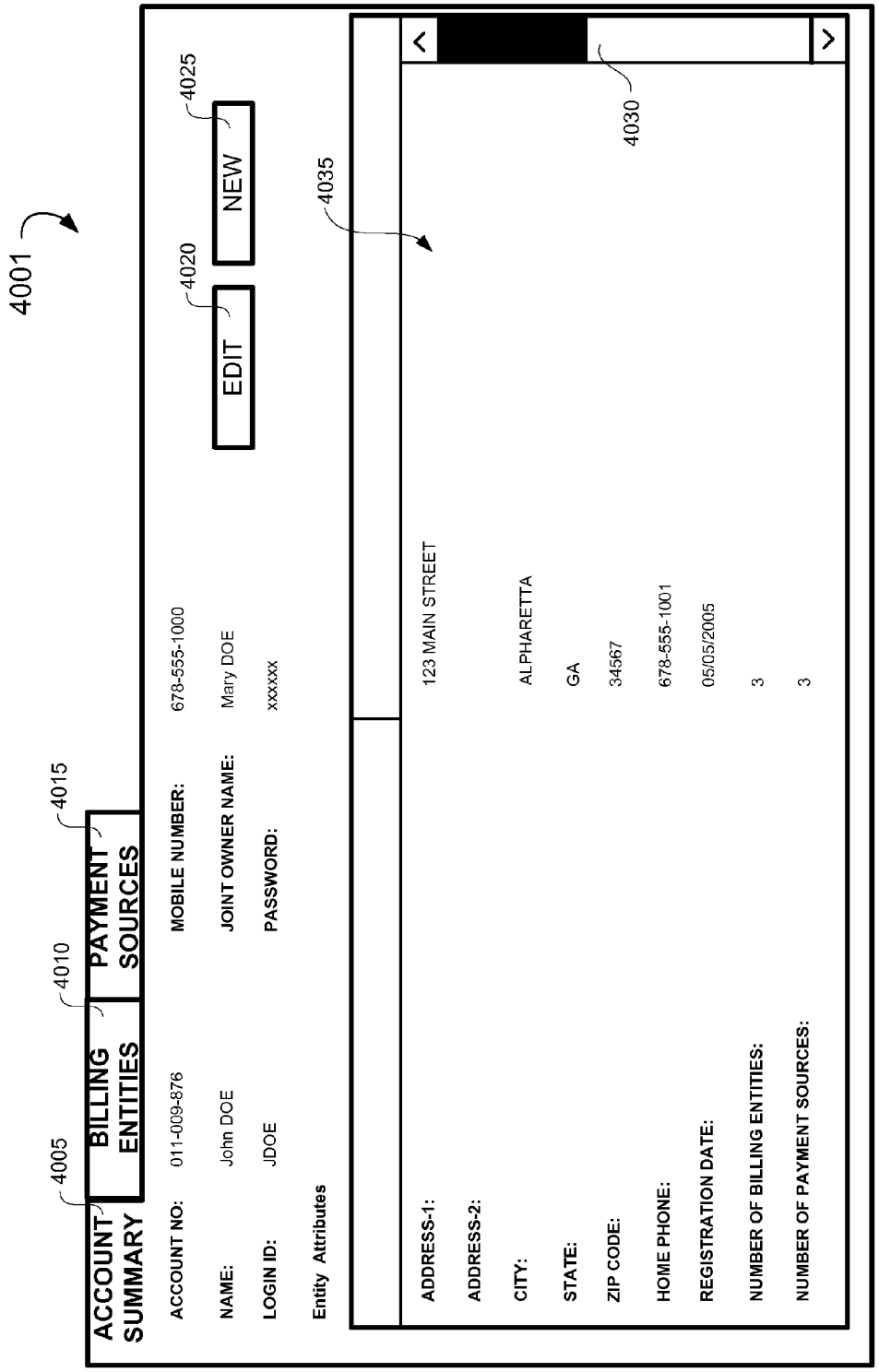


FIG. 39B



WEB APPLICATION: ACCOUNT SUMMARY

FIG. 40

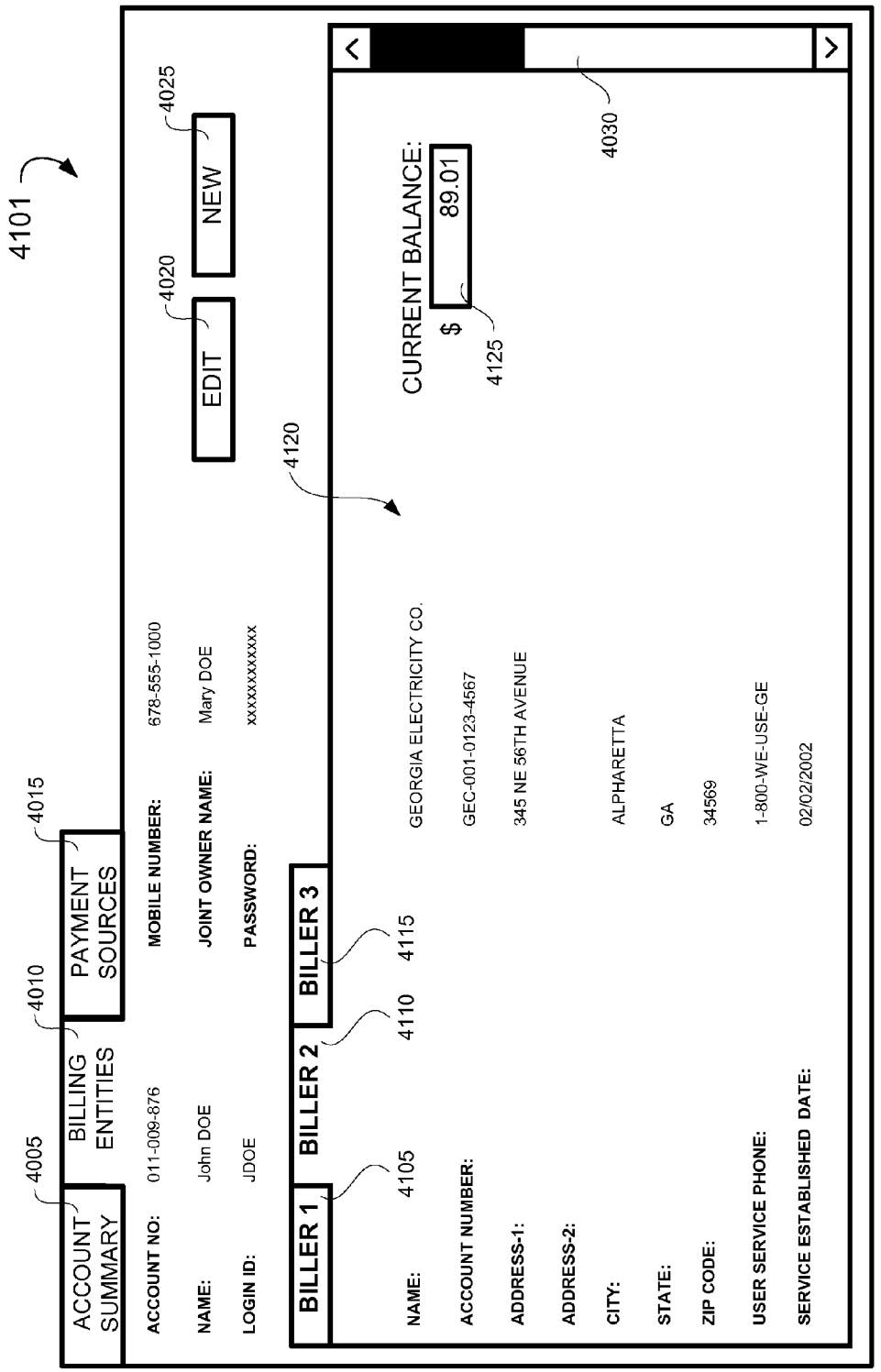
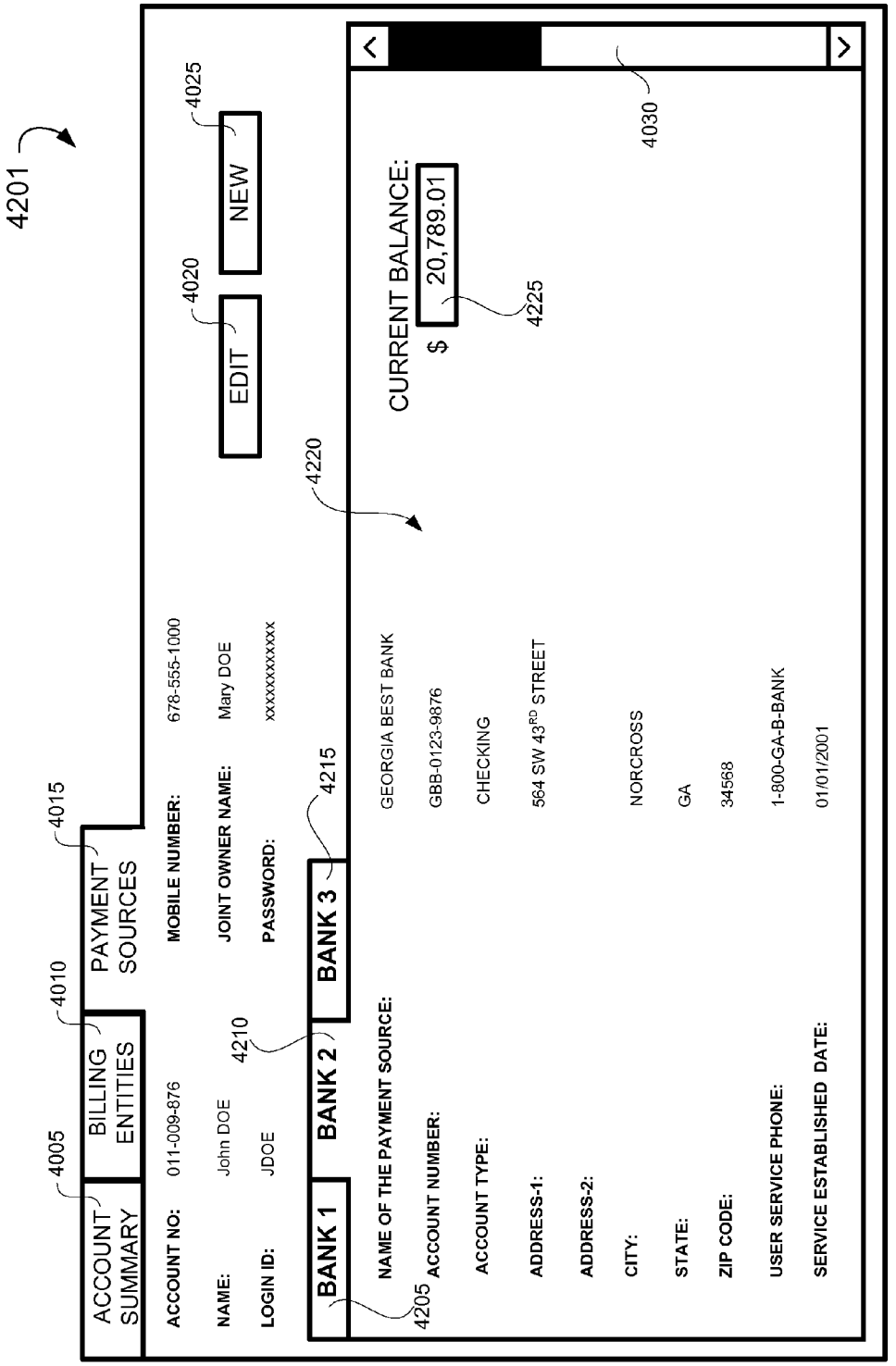


FIG. 41

WEB APPLICATION: BILLING ENTITY DETAIL



WEB APPLICATION: PAYMENT SOURCE DETAIL

FIG. 42

METHODS AND SYSTEMS FOR INDICATING A PAYMENT IN A MOBILE ENVIRONMENT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is related to and incorporates by reference herein the following U.S. patent applications:

[0002] Application Ser. No. 11/_____, entitled "Methods and Systems for Payment Transactions in a Mobile Environment," filed on Jul. __, 2006,

[0003] Application Ser. No. 11/_____, entitled "Methods and Systems for Making a Payment via a Paper Check in a Mobile Environment," filed on Jul. __, 2006;

[0004] Application Ser. No. 11/_____, entitled "Methods and Systems for Making a Payment via a Stored Value Card in a Mobile Environment," filed on Jul. __, 2006,

[0005] Application Ser. No. 11/_____, entitled "Methods and Systems for Viewing Aggregated Payment Obligations in a Mobile Environment," filed on Jul. __, 2006,

[0006] Application Ser. No. 11/_____, entitled "Methods and Systems for Providing a Payment in a Mobile Environment," filed on Jul. __, 2006,

[0007] Application Ser. No. 11/_____, entitled "Methods and Systems for Managing Payment Sources in a Mobile Environment," filed on Jul. __, 2006,

[0008] Application Ser. No. 11/_____, entitled "Methods and Systems for Real Time Account Balances in a Mobile Environment," filed on Jul. __, 2006,

[0009] Application Ser. No. 11/_____, entitled "Methods and Systems for Distribution of a Mobile Wallet for a Mobile Device," filed on Jul. __, 2006,

[0010] Application Ser. No. 11/_____, entitled "Methods and Systems for Indicating a Payment in a Mobile Environment," filed on Jul. __, 2006,

[0011] Application Ser. No. 11/_____, entitled "Methods and Systems for Payment Method Selection by a Payee in a Mobile Environment," filed on Jul. __, 2006, and

[0012] International (PCT) application no. PCT/US06/_____, entitled "Methods and Systems for Financial Transactions in a Mobile Environment," filed on Jul. __, 2006, the disclosures of which applications are incorporated by reference as if the same were fully set forth herein.

FIELD OF THE INVENTION

[0013] The present invention relates generally to financial transactions, and more particularly relates to methods and systems for conducting financial transactions in a mobile environment using a mobile device such as a mobile telephone (cellphone) or wireless connected personal digital assistant (PDA).

BACKGROUND OF THE INVENTION

[0014] Busy consumers in mobile societies seek to maximize the use of their time. Electronic devices such as personal digital assistants ("PDA's") and mobile telephones ("cell phones") provide the promise of more efficient use of time, by allowing communication with other people and institutions wherever a user may go. One particular demand of mobile consumers is better capability to securely manage one's financial situation, such as balances in bank accounts, credit cards, other sources of funds, etc., and quickly but efficiently fulfill financial obligations such as paying bills, transferring funds to third parties and family members, etc. Several useful web- and personal computer (PC)-based financial services programs are available for consumers and businesses. These include the popular QUICKEN™ product from Intuit Inc., MICROSOFT MONEY by Microsoft Corp. and others.

[0015] However, these web- and PC-based solutions to financial payments and money management require that a user have access to a network-connected PC. A PC may not always be readily available to a mobile consumer when he or she needs to pay a bill. But a mobile device such as a cellphone or PDA is more likely to be available. (So ubiquitous are modern mobile communication devices that an average consumer knows within about 6 minutes whether they have lost their cellphone, but about 18 minutes before they realize they have lost their traditional wallet.)

[0016] Consumers in mobile societies tend to carry a variety of personal possessions, such as keys, wallets, cards, and electronic devices. Currently popular electronic devices include mobile phones, PDAs, MP3 players or other types of music players (e.g. APPLE iPOD™), and personal video players (also APPLE iPOD™). Such electronic devices are converging as to functionality, but the average mobile society consumer still tends to carry too many other personal possessions, such as a wallet, checkbook, multiple credit cards, debit cards, membership cards, loyalty (points) cards, keys, etc. Further consolidation and convergence of electronic and mobile communication devices is expected in the future to alleviate some of the personal possession clutter, but the present-day communication and financial services infrastructure is still lacking in the need for effective conduct of mobile financial transactions and reduction of personal possession clutter.

[0017] Unfortunately, current mobile device technology and the financial services infrastructure do not provide convenient, secure, and rapid attention to a person's financial needs in the mobile environment. To enable a mobile device such as cellular phone or PDA to be used successfully for mobile financial transactions, certain functionality relating to transactions is important. A person's financial payment obligations arise from many sources—paying bills and mortgages, sending money, checking out purchases at a retail establishment point of sale (POS), etc. Such obligations can involve dozens (or more) of different entities. Different entities may require different payment forms. A mobile financial transaction system that is attractive to mobile consumers would provide for aggregation and consolidation of payment obligations, and allow a choice of payment vehicles such as checks, direct funds transfer, use of a credit card account, etc. Stored value (SV) cards are an increasingly popular payment option in some communities, especially the so-called "unbanked" (i.e. people who may not have an established bank account and tend to conduct business in cash).

[0018] Similarly, a person may have multiple sources of payments and funds—credit cards, bank accounts with savings and checking features, debit cards, etc. People often have preferences as to which source of funds should be used to pay certain payment obligations. A bank account may be desired for some payments, while a credit card may be desired for other transactions, for many reasons such as participation in loyalty programs such as "frequent user" programs. Before using a particular source of funds for a payment, a consumer often needs or wants to have infor-

mation about available funds balance or credit balance. Some form of account balance inquiry, or perhaps real time balance information updating, from a mobile device is desirable. In addition to balance information, the ability to invoke other financial institution operations while mobile is desirable. Such other operations include funds transfer between accounts, selection of different payment sources or accounts from a particular financial institution, remittance and payment, inquiry and payment of loans, and the like, at any time and anywhere, without requiring an appearance at a banking facility in person or at a PC terminal with internet connectivity.

[0019] Some online financial service providers, e.g. CheckFree Corporation, offer a service known as "bill aggregation" or "bill presentment," whereby multiple payment obligations are collected into a centralized computer facility and provided to the consumer as a list. For example, U.S. Pat. No. 6,289,322 to Kitchen et al. describes a method of electronically presenting billing information, which can be used in connection with "online bill payment." This method includes receiving billing information associated with a plurality of different billers, different portions of which represent bills for different people (as payers). Billing information is consolidated for each registered user or payer. Individual customers can go to an Internet web site to register an account, add information about billers, add information about financial institutions, and pay bills online. However, the system described in U.S. Pat. No. 6,289,322 patent is intended for users with a PC and Internet access and has several shortcomings for use in a mobile environment. One particular shortcoming is that a web-based user interface actually provides too much information about the user's accounts and bill detail, and is difficult to view and navigate on a small mobile device. Another shortcoming is the lack of integration of online bill payment with the use of multiple and conveniently selectable different payment sources.

[0020] U.S. Published Pat. App. No. 20050086164 to Kim et al. describes a method for utilizing a mobile phone to pay a charge of goods or services rendered through approval of a mobile phone network. First, a buyer uses his or her mobile phone to connect to a payment transaction server. A buyer and "merchant store" identification code (for each) and a bill for the goods or services is transmitted to the payment transaction server. The payment transaction server examines the data received from the mobile phone and determines the approval of the transaction based on a balance corresponding to the buyer identification code. When approved, an approval notification is sent to a terminal at the merchant store. After the confirmation from the approval notification at the merchant store, the buyer receives the goods or services.

[0021] A system as described in the Kim et al. publication depends on having a pre-established balance in a prepaid account established by the buyer with the mobile phone networks. Furthermore, the method involves delivering voice prompts to the user via the mobile phone and receiving the user's selection of options by activation of keys on the mobile phone keypad. While such a device and system is certainly one way that financial transactions can be conducted using a mobile phone, the well-known method of voice prompts for keypad data entry is slow and awkward, and is a known source of consumer frustration. Furthermore, modern mobile devices are more than just a telephone—many such devices now include displays, controls, and keypads, and provide more ways for wireless interaction than voice messages and prompts.

[0022] Mobile communication devices and systems have now progressed beyond the limitations of voice prompts and telephone keypad data entry and option selection. The first generation (1G) of mobile telephone systems was limited to analog radio voice transmission, and has been surpassed by second generation (2G) systems that provide digital signal transmission features and enable greater functionality. Present mobile device communication systems (beyond 2G) are now all digital and utilize data communication channels for carrying voice signals as well as other data signals. Features enabled by the digital data communications include Short Message System (SMS) message for text messaging, ringtone downloads, and other features. Consumer-oriented mobile communication systems are now progressing beyond advanced second generation (2.5G) technologies into third generation (3G) technologies that provide high speed broadband data connectivity for mobile devices. New 3G systems and devices permit capabilities such as full Internet usage on mobile devices, SMS messaging capability, person-to-person direct calling, direct download of content such as ringtones, music, and videos, and many other features.

[0023] Significantly, modern mobile devices now involve highly converged PDA and telephone capabilities. New mobile devices possess color displays, touch screens, full telephone capability as well as music playback, streamed videos, memory for data storage (e.g. memory cards), wireless headsets, infrared data connections, and many other features. A system that facilitates convenient, secure, and rapid mobile financial transactions will invariably take advantage of available communication bandwidth and device features in the modern 2.5G and 3G networks and their devices. However, prior to the present invention there has been no effective attempt to identify the usage methodologies and features that consumers want—those that allow convenient, secure, and rapid mobile financial transactions, in a way that is consumer-friendly and allows reduction of personal possession clutter.

[0024] In particular, consumers require strong security in using their devices. They require speedy, convenient checkout if used at retail point of sale (POS). They must be able to "PayAnyone", at any time, in any of a number of different ways. They must be provided with the information they need to conduct a transaction—and only such information as is necessary—and this information must be current. Similarly, financial institutions require strong security, which includes authentication, for transactions initiated in a mobile environment. There must be an opportunity for revenue opportunities as well as user retention. There must be opportunity to lower the expense of customer service by use of automation. For retailers and entities that send bills, there must be rapid payment. Any POS transactions must clear quickly. Charges based on credit cards and debit cards must be authenticated and clear quickly—fraud prevention and reduction is paramount both for financial institutions as well as billing entities and other payees. Facilitation of, or at least compatibility with, customer loyalty programs is highly desirable.

[0025] All of these requirements—some of which are merely desirable but some are absolutely essential—present a challenge to the present day mobile communication and financial services infrastructure. Prior to the present invention, no system has been made that addresses all of these

features, goals, and desires of a mobile communication based financial transaction system in a satisfactory manner.

[0026] Therefore, there is a need for a comprehensive solution that allows consumers using mobile devices to consolidate their bills and other payment obligations, pay such bills and other obligations at anytime and anywhere, using any selectable available funds, to merchants for goods or services, or to anyone or any other designated entity, with knowledge of the amounts to be paid and the funds available balances. And of course, all of this must be convenient, secure, and rapid.

[0027] As will be described and explained in detail below, the present inventors have constructed various systems and methods for completing financial transactions in a mobile environment that meet these and other requirements for an efficient, effective, robust, secure and convenient solution.

SUMMARY OF THE INVENTION

[0028] Briefly described, the present invention relates to methods and systems for conducting financial transactions in a mobile environment utilizing a mobile device such as a mobile telephone or wireless connected personal digital assistant (PDA) that communicates with a mobile financial transaction system that stores user information and transaction information. In particular, the present invention relates to methods and systems for making a payment in a mobile environment using a mobile device.

[0029] Aspects of the invention are embodied in mobile devices, in software for mobile devices (e.g. in the form of computer-implemented methods), in a mobile financial transaction system (MFTS), in software for mobile financial transaction systems (e.g. in the form of computer-implemented methods), in systems that combine aspects of mobile devices and mobile financial transaction systems, and in software for such systems (e.g. in the form of software for mobile devices and related systems that effect computer-implemented methods).

[0030] In one aspect, the present invention relates to methods and systems for making a mobile financial payment using a mobile device connected for communications with a wireless network. This aspect involves: (i) providing a mobile financial transaction system (MFTS) coupled for wireless communications with a mobile device of a user, (ii) providing one or more selectable payees for selection by the user using the mobile device, (iii) receiving user input at the user's mobile device corresponding to selection of a payee for a payment to make and a payment source for making a payment, (iv) in response to the user input at the user's mobile device, generating a mobile payment instruction comprising information corresponding to the payment to make and a payment source for making the payment, and (v) wirelessly communicating the mobile payment instruction from the user's mobile device to the MFTS.

[0031] In a preferred embodiment, the MFTS is coupled for electronic communications with one or more payment instruction recipients that can make a payment to a payee in behalf of the user. The MFTS includes a mobile financial transaction system (MFTS) database for storing user information, payment to make information associated with the one or more payment instruction recipients and/or payees, and payment source information associated with at least one account associated with at least one financial service provider.

[0032] Further aspects of the invention at the MFTS involve: (vi) in response to receipt of the mobile payment instruction, retrieving information from the MFTS database corresponding to an identified payee for receiving the payment indicated by the mobile payment instruction and information corresponding to the selected account at the selected financial service provider identified in the mobile payment instruction, (vii) generating a MFTS payment instruction to a payment instruction recipient, and (viii) communicating the MFTS payment instruction from the MFTS to the selected payment instruction recipient. The payment instruction recipient, in response to receipt of the MFTS payment instruction, effects a payment to the identified payee. The payment instruction recipient can be a financial service provider, a billing aggregator, or a separate billing entity. The MFTS payment instruction includes at least information identifying the selected account at the selected financial service provider, an amount, and information corresponding to the identified payee.

[0033] In one embodiment, the one or more selectable payees are payees for which payment information has been pre-stored at the MFTS. In another embodiment, the one or more selectable payees are payees to which a payment was previously made and for which payment information is already extant on the mobile device. In one aspect, the payment to make information comprises a bill, and the payee is a billing entity.

[0034] In one embodiment, the payment to make information includes information corresponding to one or more of the following: a recurring bill, a bill from a billing aggregator, a bill from an individual billing company, a "pay anyone" payment. The payment to make information may be provided to the MFTS by an external source, input by the user via an Internet-accessible web site accessible by the user for input of payment to make information and payee information, or input by the user at the mobile device. The external source for the payment to make information can be a bill presentment system that provides bill information from a plurality of billing entities or an individual billing entity.

[0035] Another aspect of the invention involves providing a Mobile Wallet application on the user mobile device. A Mobile Wallet application is a mobile device application that provides functionality for viewing and selecting bills to be paid or other payments to make, viewing and selecting payment sources for making such payments, viewing balances, etc. In one aspect, the Mobile Wallet application provides a display on the mobile device of selectable commands including one or more of a View Bills command, a View Payment Sources command, and a Pay Bill(s) command.

[0036] In an exemplary aspect, the View Bills command allows user input corresponding to selection of a payment to make. In a related aspect, the user activation of the View Bills command causes the MFTS to retrieve bill information from a bill presentment system and communicate the bill information to the mobile device upon receipt of such information from the bill presentment system. In another aspect, the user input corresponding to selection of a payment source for making a payment is provided in response to display of a View Payment Sources command. In yet another embodiment, the user activation of the View Payment Sources command causes the MFTS to retrieve current account information from one or more financial service providers and communicate the current account information

to the mobile device upon receipt of such information from the one or more financial service providers.

[0037] In one embodiment, the identified payee corresponds to a billing entity that communicated bill information to the MFTS. In a related aspect, the identified payee is an entity to which the user made a payment in the past, and identifying information relating to the payee is stored in the mobile device; the prior payee can be selected for receiving another payment without first requiring a bill or other document from the payee.

[0038] In another aspect, the MFTS database stores transaction information corresponding to a user's financial transactions. Such transaction information can include payment to make information in addition to other information utilized to track status of payments. The transaction information can include one or more of the following items of information: a user ID number, a transaction identifier, a bill received date, a bill due date, an amount, a financial service provider identifier, an account identifier, a payee identifier, a pending/complete flag, and/or other data items relating to user transactions.

[0039] According to another aspect, in response to completion of a predetermined stage in making a payment, a payment confirmation message is communicated from the payment instruction recipient to the MFTS. Upon receipt of the payment confirmation message by the MFTS, a corresponding payment confirmation message is communicated from the MFTS to the mobile device.

[0040] According to yet another aspect of the present invention, user input for selection of a payment method for making a payment is received and the selected method for making the payment is included in the mobile payment instruction. The selectable payment methods include: a recipient-defined method, an ACH funds transfer, a paper check, and a stored value (SV) card.

[0041] In a preferred embodiment, the MFTS is coupled for electronic communications with a user's computer via a data communications network such as the Internet. A web application in association with the MFTS is also provided. User information corresponding to financial service providers, accounts at financial service providers, payment methods, and/or payees is received via the web application. Such user information is stored in the MFTS database for use in connection with making or receiving payments via the web application. Transaction information corresponding to transactions conducted via the user's mobile device can be retrieved and displayed via the web application to the user via user's computer.

[0042] In one embodiment, a cached account balance is stored in the mobile device representative of a balance in at least one account of the user as of a particular date. The user's mobile device receives updated account balance information from the MFTS in response to predetermined actions by the user or by the MFTS. After updated account balance information is received from the MFTS, such updated account balance information corresponding to the account is communicated to and displayed to the user via the mobile device.

[0043] From the foregoing, those skilled in the art will understand and appreciate that with its various aspects for a mobile device, a mobile financial transaction system, a web interface, and combinations of functionality, a system constructed in accordance with aspects of the inventions provides mobile device users with unprecedented convenience and flexibility in monitoring bills to pay and other payments to make, information about current account balances provided in real time, and other improved functionality for mobile device users that have heretofore not been possible at reasonable economic cost and convenience.

[0044] These and other aspects, features, and benefits of the present invention(s) will become apparent from the following detailed written description of the preferred embodiments taken in conjunction with the following drawings, although variations and modifications therein may be affected without departing from the spirit and scope of the novel concepts of the disclosure.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0045] FIG. **1** is a high level overview of exemplary aspects for a mobile financial transaction system (MFTS) that embodies aspects of the present invention.

[0046] FIG. **2** is a more detailed overview of an exemplary mobile financial transaction system (MFTS) according to an exemplary aspect of the invention.

[0047] FIG. **3**, consisting of FIG. **3**A and FIG. **3**B, is a computer software architecture diagram illustrating various computer program modules that provide computer-implemented method steps for a cellphone or mobile device application (FIG. **3**A) and computer-implemented method steps for operations of the MFTS system (FIG. **3**B), in accordance with exemplary aspects of the invention.

[0048] FIG. **4** is a flowchart showing the operation of the main program of a mobile financial transaction system (MFTS) constructed according to exemplary aspects of the present invention.

[0049] FIG. **5** is a flowchart showing the operation of the main program of a mobile financial transaction system (MFTS) constructed according to exemplary aspects of the present invention.

[0050] FIG. **6** illustrates exemplary database schemas (data table layouts) for a mobile financial transaction system (MFTS) user database according to an exemplary aspect of the invention.

[0051] FIG. **7** illustrates an exemplary database schema (data table layout) for a mobile financial transaction system (MFTS) transaction database in accordance with exemplary aspects of the invention.

[0052] FIG. **8** is a flow chart diagram illustrating computer-implemented method steps of a computer program embodying operations of a mobile device communication interface for the MFTS in accordance with exemplary aspects of the invention.

[0053] FIG. **9** is a flow chart diagram illustrating computer-implemented method steps of a computer program embodying operations of a financial service provider (FSP) communications interface for the MFTS in accordance with exemplary aspects of the invention.

[0054] FIG. **10** is a flow chart diagram illustrating computer-implemented method steps of a computer program embodying operations of a user web application input/output (I/O) interface for the MFTS in accordance with exemplary aspects of the invention.

[0055] FIG. **11** is a flow chart diagram illustrating computer-implemented method steps of a computer program embodying operations of a web application for enrolling a new user in accordance with exemplary aspects of the invention.

[0056] FIG. **12** is a flow chart diagram illustrating computer-implemented method steps of a computer program embodying operations of a web application for a registered user in accordance with exemplary aspects of the invention.

[0057] FIG. **13** shows a sequence of mobile device screen displays for viewing selectable payment sources and account balances according to an exemplary aspect of the invention.

[0058] FIG. **14** is a sequence diagram illustrating computer-implemented method steps for viewing payment sources and account balances according to an exemplary aspect of the invention.

[0059] FIG. **15** shows a sequence of mobile device screen displays for viewing bills according to a preferred embodiment and an alternative embodiment of the present invention.

[0060] FIG. **16** is a sequence diagram illustrating computer-implemented method steps for viewing bills according to a preferred embodiment and an alternative embodiment of the present invention.

[0061] FIG. **17** shows a sequence of mobile device screen displays for paying a bill according to an exemplary aspect of the invention.

[0062] FIG. **18**A shows a sequence diagram illustrating computer-implemented method steps for paying a bill according to a preferred embodiment of the present invention, and FIG. **18**B shows a sequence diagram illustrating computer-implemented method steps for paying a bill according to an alternative embodiment of the present invention.

[0063] FIG. **19** is a sequence of mobile device screen views from a payer's perspective as a user uses a "PayAnyone" payment option, selects a name from a list, and uses a "recipient defined" payment method according to an exemplary aspect of the invention.

[0064] FIG. **20** is a sequence of mobile device screen views from a payee's perspective of a "PayAnyone" using a "recipient defined" payment option according to an exemplary aspect of the invention.

[0065] FIG. **21** shows a sequence diagram illustrating computer-implemented method from a payer's perspective as a user uses a "PayAnyone" payment option, selects a payee, and selects a payment method according to an exemplary aspect of the invention.

[0066] FIG. **22** shows a sequence diagram illustrating computer-implemented method from a payee's perspective as a user uses a "PayAnyone" payment option, selects "recipient defined" payment method, selects a payment method, and receives the payment according to an exemplary aspect of the invention.

[0067] FIG. **23** shows a sequence of mobile device screen views from a payer's view of a "PayAnyone" payment feature with selection of an ACH payment method according to an exemplary aspect of the invention.

[0068] FIG. **24** shows a sequence of mobile device screen views from a payee's perspective of a "PayAnyone" payment feature with ACH payment method according to an exemplary aspect of the invention.

[0069] FIG. **25** is a sequence diagram illustrating computer-implemented method steps for a "PayAnyone" payment feature with ACH payment method according to an exemplary aspect of the invention.

[0070] FIG. **26** shows a sequence of mobile device screen views from a payer's perspective as a user uses a "PayAnyone" payment feature and selects a paper check payment method according to an exemplary aspect of the invention.

[0071] FIG. **27** shows a sequence of mobile device screen views from a payee's perspective of a "PayAnyone" payment feature with a paper check payment method according to an exemplary aspect of the invention.

[0072] FIG. **28** is a sequence diagram illustrating computer-implemented method steps for a "PayAnyone" payment feature, involving a paper check payment method according to an exemplary aspect of the invention.

[0073] FIG. **29** shows a sequence of mobile device screen views from a payer's perspective as a user uses a "PayAnyone" payment feature and selects a stored value (SV) card payment method according to an exemplary aspect of the invention.

[0074] FIG. **30** shows a sequence of mobile device screen views from a payee's perspective of a "PayAnyone" payment feature with the stored value (SV) card payment method according to an exemplary aspect of the invention.

[0075] FIG. **31** is a sequence diagram illustrating computer-implemented method steps for a "PayAnyone" payment method involving use of a stored value (SV) card payment method according to an exemplary aspect of the invention.

[0076] FIG. **32** shows a sequence of mobile device screen views as a user transfers funds or account balances according to an exemplary aspect of the invention.

[0077] FIG. **33** is a sequence diagram illustrating computer-implemented method steps for funds transfer or balance transfers between accounts of payment sources according to an exemplary aspect of the invention.

[0078] FIG. **34** shows a sequence of mobile device screen views that illustrate receipt of payment for a payee with a mobile device, with optional installation of a mobile device application to the payee's mobile device, according to an exemplary aspect of the invention.

[0079] FIG. **35** is a sequence diagram illustrating computer-implemented method steps whereby a payee downloads and installs a mobile device application from the MFTS system as a part of the viral financial commerce system according to an exemplary aspect of the invention.

[0080] FIG. **36** is a sequence of mobile device screen views from a user's perspective of changing a personal identification number (PIN) according to an exemplary aspect of the invention.

[0081] FIG. **37**, consisting of FIGS. **37**A-**37**D, comprises screen displays of the web application input/output interface illustrating how a user enrolls for use of a mobile financial transaction system through a web application user site according to a preferred embodiment of the present invention.

[0082] FIG. **38**, consisting of FIGS. **38**A-**38**D, comprises screen displays of the web application input/output interface illustrating how a user manages financial accounts of a mobile financial transaction system through a web application user site according to a preferred embodiment of the present invention.

[0083] FIG. **39**, consisting of FIGS. **39**A-**39**B, comprises screen displays of the web application input/output interface illustrating how a user manages payees of a mobile financial transaction system through a web application user site according to a preferred embodiment of the present invention.

[0084] FIG. **40** is a web application account summary display screen in accordance with alternative exemplary aspects of the invention.

[0085] FIG. **41** is a web application billing entity details display screen in accordance with alternative exemplary aspects of the invention.

[0086] FIG. **42** is a web application payment source details display screen in accordance with alternative exemplary aspects of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0087] Prior to a detailed description of the invention(s), the following definitions are provided as an aid to understanding the subject matter and terminology of aspects of the present invention(s), are exemplary, and not necessarily limiting of the invention(s), which are expressed in the claims. Whether or not a term is capitalized is not considered definitive or limiting of the meaning of a term. As used in this document, a capitalized term shall have the same meaning as an uncapitalized term, unless the context of the usage specifically indicates that a more restrictive meaning for the capitalized term is intended. A capitalized term within the glossary usually indicates that the capitalized term has a separate definition within the glossary. However, the capitalization or lack thereof within the remainder of this document is not intended to be necessarily limiting unless the context clearly indicates that such limitation is intended.

Definitions/Glossary

[0088] ACH: an acronym for "Automated Clearing House," an electronic banking network that processes volumes of credit and debit transactions in accordance with by rules and regulations established by the National Automated Clearing House Association (NACHA) and the U.S. Federal Reserve (Fed).

[0089] Application: a computer program that operates on a computer system, e.g., but not limited to, a computer program operated within the MFTS, or a computer program operated within a cellphone or mobile device (a mobile application). Further examples of applications include programs that perform a search in a database, receive and store information in a temporary memory of a mobile device, display selected information on a mobile device, etc., and virtually any other type of program that generates transactions or is responsive to transactions.

[0090] Bill information: information provided by a billing entity, or a bill aggregator, relating or corresponding to a bill to be paid; typically consists of all information provided by the billing entity that would appear on a bill to be paid and provided to a user or a billing aggregator. (See "summarized bill information.")

[0091] Billing entity: a payee; an individual person, business, or entity that provides a bill that can be paid to a user. The term generally includes any payee, whether or not a bill is sent to prompt payment, although a billing entity typically may be expected to provide a document or message (a bill) indicating an amount due to the billing entity, whereas a "pay anyone" type payee, while generally considered a billing entity for purposes of aspects of the invention, may not necessarily require a bill prior to sending a payment.

[0092] Billing (bill) aggregator: an entity that provides a service of collecting information relating to bills to pay or other payment obligations to an entity with whom a user or consumer maintains a financial relationship, and in the context of the invention, provides information about one or more bills to pay to a mobile financial transaction system constructed as described herein, and optionally serves as a financial service provider that handles bill payment for a user.

[0093] Bill presentment: the presentation or presentment of one or more of payment obligations of an entity (such as bills to pay or payments to make), e.g. by a bill aggregator, and the electronic communication of one or more such payment obligations, to the entity for review and provision of payment instructions. Bill presentment may be provided on a bill by bill basis from a billing entity, or may be a grouping or aggregator of bills by a billing aggregator that provides a service of collecting bills to pay an entity.

[0094] Consumer: an individual person or other entity that accesses or uses a mobile device to perform certain functions of a mobile financial transaction system (MFTS), in accordance with exemplary aspects of the inventions. Generally synonymous with user, below.

[0095] DBMS: database management system.

[0096] Enterprise: an organization or business entity that utilizes the present invention. An Enterprise can be a business, a government agency, a person, or virtually any other organization that conducts business transactions reflective of its business activity.

[0097] Entity: something that has a separate and distinct existence or conceptual reality outside the present invention. One example is a billing entity, which sends out billing information about a payment obligation.

[0098] Financial Service Provider (FSP): an entity that provides financial services on behalf of its customers, such as a bank, credit card company, credit union, debit card company, gift card company, payment service company, or other financial institution, and especially serves as a Payment Source (PS). As used herein, an FSP is an entity that provides financial services on behalf of users with mobile devices in accordance with exemplary aspects of the invention. A FSP may also be a payment instruction recipient and effect a payment.

[0099] I/O: input/output.

[0100] LAN: local-area network, a collection of computers that are connected for electronic communications, typically located geographically close together (that is, in the same building).

[0101] Mobile Communication Service Provider (MCSP) (generally synonymous with wireless service provider): an entity that provides for communication services for mobile devices to the MFTS, and perhaps to other network-connected entities. For example, a cellphone service provider typically can serve as a MCSP.

[0102] Mobile client (generally synonymous with mobile application): a computer program that runs on a mobile device, to provide services and operations as described in this document, in accordance with exemplary aspects of the invention.

[0103] Mobile device: any device used for communication over a wireless communication networks, such as a cellular phone, a walkie-talkie, a personal digital assistant (PDA), a pager, a smart phone, or any combination thereof. Mobile devices operative in the present invention typically run a mobile client software program to effect the functionality described herein. Generally synonymous and used inter-

changeably with mobile phone, but a mobile device need not necessarily be a telephone-type instrument.

[0104] Mobile Financial Transaction System (MFTS): a system constructed as described in this document, that facilitates financial transactions by use of mobile devices.

[0105] MFTS payment instruction (MFTSPI): a form of Payment Instruction (PI)(see below) that comprises a communication initiated by the MFTS and transmitted to a payment instruction recipient such as a financial institution to instruct that institution to make a payment to an identified selected entity.

[0106] Mobile Payment Instruction (MPI): a form of Payment Instruction (PI)(see below) that is generated and provided from a mobile device in accordance with exemplary aspects of the invention.

[0107] Mobile Wallet: a name given to a mobile device application that provides functionality for viewing and selecting bills to be paid or other payments to make, viewing and selecting payment sources for making such payments, viewing balances, etc., in accordance with exemplary aspects of the invention.

[0108] PayAnyone: a feature of aspects of the present invention that allow a user to pay a person having a wirelessly connected mobile device, without regard to whether that person is physically present, mainly by way of communicating messages to the payee's wireless device, soliciting instructions, and determining a preferred method for receipt of the payment by the payee.

[0109] Payee: a person or an entity receiving payment. A payee may also be a payment instruction recipient.

[0110] Payer: a person or an entity making a payment. A payer is also a person or an entity sending out a payment instruction.

[0111] Payment Instruction (PI): a collection of information that typically includes one or more selected payments to make, at least one payment source for use in making the payment, and other information. A mobile payment instruction (MPI) is initially generated and provided from a mobile device in accordance with exemplary aspects of the invention. An MFTS payment instruction (MFTSPI) is a communication initiated by the MFTS and transmitted to a payment instruction recipient to instruct that recipient to make a payment to an identified entity.

[0112] Payment Instruction Recipient (PIR): an entity to whom a payment instruction is given for purposes of making a payment; a payment instruction recipient may itself make a payment, or may provide an instruction to another entity to make the payment, such as a financial service provider. For example, a payment instruction recipient may be a financial service provider, a bill aggregator, or a billing entity (e.g. a company that has authorization from a payer to draft a payment directly from a payer's bank).

[0113] Payment method: the manner in which a payment is provided to a payee by a payment instruction recipient or its agent, i.e. a financial instrument of some sort provided to a payee; a payment can be made by various means including but not limited to paper check, stored value card, ACH funds transfer, crediting a credit card account, wire transfer, money order, credit to a PayPal or other online financial account, another type of financial instrument, etc. In accordance with aspects of the invention, a payment method may be chosen by a payer in certain embodiments, or may be chosen by a payee in other embodiments. A payment source differs from a payment method in that a payment source provides funds for an instrument of a chosen payment method.

[0114] Payment to Make (PM): A payment obligation of a mobile device user, for which an instruction to make a payment is made using aspects of the invention. Such obligations include any bills that a person or a family receives on a regular basis such as water bills, electric bills, gas bills, mortgage payments, automobile payment, insurance payments, telephone and/or mobile phone bills, credit card bills etc. These payment obligations also include any payments that a person needs to make occasionally such as gasoline purchase, movie theater tickets, any cash-only purchases as well as payment to any individuals.

[0115] Payment Source (PS): funds or money available to a person or family, usually through an account that can be accessed by aspects of the present invention. These sources include credit card accounts, debit card accounts, checking and/or saving accounts, department store credit card accounts, etc.

[0116] Payment source information: information relating to a payment source that is stored at the MFTS, and a portion of which (summarized payment source information) is communicated to user's mobile device.

[0117] Protocol: A set of formal rules describing how to transmit data, especially across a network. Low level protocols define the electrical and physical standards to be observed, bit- and byte-ordering and the transmission and error detection and correction of the bit stream. High level protocols deal with the data formatting, including the syntax of messages, the terminal to computer dialogue, character sets, sequencing of messages etc.

[0118] Stored Value (SV) card: a payment card, typically including a magnetic stripe or other electrical, magnetic, or electronic information carrying medium, that is accepted as a form of payment by certain commercial enterprises; money can be "loaded" onto a SV value card through various different mechanisms and systems and then can be used to pay bills, purchase goods, etc. A stored value (SV) card is not a debit card or a credit card, although a SV card bears certain physical resemblance to such other types of cards.

[0119] Summarized bill information: a reduced subset of bill information that is displayed to a user via a user's mobile device.

[0120] Summarized payment source information: a reduced subset of information relating to an account and/or a financial institution that is displayed to a user via a user's mobile device.

[0121] Transaction: a set of system actions that result in a completed business activity, for example, the following are exemplary transactions: the transfer of a certain amount of money (funds) from one person to another; the debiting of a credit card account of one person (e.g. a payer) and the corresponding crediting of a bank account of another person (e.g. a payee); the payment of a bill; the issuance of an instruction to issue a stored value (SV) card.

[0122] SMS: short message service, a text communication service available on many digital mobile devices or phones that permits the sending of short messages (also known as text messages, messages, or more colloquially SMSes, texts or even txts) between mobile devices or phones.

[0123] User: an individual or other entity that accesses or uses a mobile device to perform certain functions of a mobile financial transaction system. See also Consumer. As

used herein, these terms are generally synonymous. A user may also use a web interface to access the MFTS for configuration and use, as described herein.

[0124] User/payee: an MFTS system user and also a payee who receives payments.

[0125] User/payer: an MFTS system user and also a payer who makes payments.

[0126] User identifier (user ID): a code used to identify a user to the MFTS, or to a financial service provider, or to another component that requires information identifying a user for some purpose in connection with the invention.

[0127] UI: User Interface. Typically means a software application with which a User interacts for purposes of entering information, obtaining information, or causing functions of an associated system to execute; includes a mobile device user interface.

[0128] WANs: wide-area networks, a collection of computers that are connection for electronic communications, typically where the computers are further apart than a LAN and are connected by telephone lines, fiber optic cables, satellite transmission, or radio waves.

[0129] WLAN: wireless local area network, e.g. a technology that is used to connect devices, including mobile devices, laptops, desktop computers, entertainment equipment, etc. through a wireless radio signal. Examples include the known WiFi and WiMAX data communication standards.

System Overview

[0130] In a best mode contemplated by the inventors, aspects of the present invention are preferably implemented using mobile devices coupled for electronic (preferably wireless) communications with a mobile financial transaction system (MFTS). Mobile devices include such items as cellphones and PDAs that are connected for data communications via a wireless network to an MFTS. The MFTS is in turn connected to allow remote network access (e.g. Internet access) by users for account setup, configuration, editing, monitoring of transactions, etc. As will be known by those skilled in the art, such mobile devices are essentially small, hand-held computing devices that include features such as microphones and speakers (to enable telephone usage), a wireless signal circuit such as a digital radio, a microprocessor as a central processing unit (CPU), a color or other display, a keyboard or keypad, a stylus, a scroll wheel, control buttons, Bluetooth wireless signaling, infrared data signaling, etc. The MFTS is similarly a general purpose computing device containing one or more processors and/or central processing units (CPU), data storage in the form of disk drives and random access memory (RAM), communication interfaces such as LAN connections, WAN connections, Internet connections, Ethernet connections, etc.

[0131] Accordingly, it will be understood that various embodiments of the present invention described herein are preferably implemented as a special purpose or general-purpose computer including various computer hardware as discussed in greater detail below. Embodiments within the scope of the present invention also include computer-readable media for carrying or having computer-executable instructions or data structures stored thereon. Such computer-readable media can be any available media which can be accessed by a general purpose or special purpose computer, or downloadable to a mobile device through wireless communication networks. By way of example, and not limitation, such computer-readable media can comprise physical storage media such as RAM, ROM, flash memory, EEPROM, CD-ROM, DVD, or other optical disk storage, magnetic disk storage or other magnetic storage devices, any type of removable non-volatile memories such as secure digital (SD), flash memory, memory stick etc., or any other medium which can be used to carry or store computer program code in the form of computer-executable instructions or data structures and which can be accessed by a general purpose or special purpose computer, or a mobile device.

[0132] When information is transferred or provided over a network or another communications connection (either hardwired, wireless, or a combination of hardwired or wireless) to a computer, the computer properly views the connection as a computer-readable medium. Thus, any such a connection is properly termed and considered a computer-readable medium. Combinations of the above should also be included within the scope of computer-readable media. Computer-executable instructions comprise, for example, instructions and data which cause a general purpose computer, special purpose computer, or special purpose processing device such as a mobile device processor to perform one specific function or a group of functions.

[0133] Those skilled in the art will understand the features and aspects of a suitable computing environment in which aspects of the invention may be implemented. Although not required, the inventions will be described in the general context of computer-executable instructions, such as program modules, being executed by computers in networked environments. Such program modules are often reflected and illustrated by flow charts, sequence diagrams, exemplary screen displays, and other techniques used by those skilled in the art to communicate how to make and use such computer program modules. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types, within the computer. Computer-executable instructions, associated data structures, and program modules represent examples of the program code for executing steps of the methods disclosed herein. The particular sequence of such executable instructions or associated data structures represent examples of corresponding acts for implementing the functions described in such steps.

[0134] Those skilled in the art will also appreciate that the invention may be practiced in network computing environments with many types of computer system configurations, including personal computers, hand-held devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, networked PCs, minicomputers, mainframe computers, and the like. The invention may also be practiced in distributed computing environments where tasks are performed by local and remote processing devices that are linked (either by hardwired links, wireless links, or by a combination of hardwired or wireless links) through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

[0135] An exemplary system for implementing the inventions, which is not illustrated, includes a general purpose computing device in the form of a conventional computer, including a processing unit, a system memory, and a system bus that couples various system components including the system memory to the processing unit. The computer will

typically include one or more magnetic hard disk drives (also called "data stores" or "data storage" or other names) for reading from and writing to. The drives and their associated computer-readable media provide nonvolatile storage of computer-executable instructions, data structures, program modules, and other data for the computer. Although the exemplary environment described herein employs a magnetic hard disk, a removable magnetic disk, removable optical disks, other types of computer readable media for storing data can be used, including magnetic cassettes, flash memory cards, digital video disks (DVDs), Bernoulli cartridges, RAMs, ROMs, and the like.

[0136] Computer program code that implements most of the functionality described herein typically comprises one or more program modules may be stored on the hard disk or other storage medium. This program code, as is known to those skilled in the art, usually includes an operating system, one or more application programs, other program modules, and program data. A user may enter commands and information into the computer through keyboard, pointing device, or other input devices (not shown), such as a microphone, game pad, satellite dish, scanner, or the like. These and other input devices are often connected to the processing unit through known electrical, optical, or wireless connections.

[0137] The main computer that effects many aspects of the inventions will typically operate in a networked environment using logical connections to one or more remote computers or data sources, which are described further below. Remote computers may be another personal computer, a server, a router, a network PC, a peer device or other common network node, and typically include many or all of the elements described above relative to the main computer system in which the inventions are embodied. The logical connections between computers include a local area network (LAN) and a wide area network (WAN) that are presented here by way of example and not limitation. Such networking environments are commonplace in office-wide or enterprise-wide computer networks, intranets and the Internet.

[0138] When used in a LAN networking environment, the main computer system implementing aspects of the invention is connected to the local network through a network interface or adapter. When used in a WAN networking environment, the computer may include a modem, a wireless link, or other means for establishing communications over the wide area network, such as the Internet. In a networked environment, program modules depicted relative to the computer, or portions thereof, may be stored in a remote memory storage device. It will be appreciated that the network connections described or shown are exemplary and other means of establishing communications over wide area networks or the Internet may be used.

Consolidation of Payment Obligations

[0139] With the foregoing implementation architecture in mind, please refer now to FIG. **1**, which provides an overview of a mobile financial transaction system (MFTS) **18** and certain features according to an exemplary aspect of the invention. A user **12** of a mobile device **15** (such as a cellphone or wireless PDA) accesses the MFTS **18** to select payments to make ("PM") and to select payment sources ("PS") for making such payments, in the manner that will be described. The major inputs to the MFTS **18** comprise payments to make **20** (hereinafter "PM") and payment sources **30** (hereinafter "PS").

[0140] PAYMENT TO MAKE (PM): A payment to make (PM) **20** comprises any and all payment obligations and/or instructions, whereby money or credits are transferred from one person or entity to another. These obligations include bills that a person or a family receives on a regular basis such as water bills, electric bills, gas bills, mortgage payments, automobile payment, insurance payments, telephone and/or mobile phone bills, credit card bills, etc. These payment obligations may also include any payments that a person or a family initiates such as gasoline purchases, movie theater tickets, any cash-only purchases, other retail payments at point-of-sale, as well as payment to an individual. Accordingly, PMs may occur either by presentment of a bill by a billing entity or in response to initiation by a user.

[0141] Certain PMs **20** that constitute household bills may be communicated to the MFTS through a bill presentment channel of the MFTS. In accordance with an exemplary aspect of the invention, regular household bills are communicated to the MFTS at a predetermined interval or on request of the user by communication with an electronic bill aggregator, such as CheckFree Corporation, that provides a service of "bill presentment" electronically.

[0142] PMs **20** that constitute "occasional" purchases (e.g. at retail establishments) or payments to individuals are typically initiated by the user, as opposed to provided in the first instance to the MFTS by an aggregator or by a specific billing entity. Such user-initiated transactions are typically sent to the MFTS via wireless communications devices through the services of a mobile communication network (not shown in this figure). Such PMs may be characterized as "PayAnyone" transactions as they contemplate the making of a payment to any identified entity including an individual person as well as a commercial entity, at the initiation of the user.

[0143] Generally speaking, information associated with a PM **20** typically includes the name(s) of the account owner (s) (i.e. the person who is responsible for making the payment, if a typical household bill), a mobile device number associated with the account and/or account holder, account numbers, account balances, due date, minimum payments, electronic payment account numbers, addresses of the billing entities, etc. This information is generally the same whether the PM is the result of bill presentment or from user initiation.

[0144] PAYMENT SOURCES (PS): The payment sources (PS) **30** comprise any and all funds available to a person or a family for use in making payments. These fund sources include credit card accounts, debit card accounts, bank checking and/or saving accounts, department store credit card accounts, etc. These funds are usually divided into two major categories: banking entities and credit entities. Entities that provide and/or maintain such funds are typically financial service providers (FSPs), which are often financial institutions (FI). Banking entities usually include checking and/or savings accounts where the money available to a person or a family is kept. The credit entities usually include all credit facilities available to a person or a family.

[0145] Generally speaking, information associated with a payment source (PS) **30** includes the name(s) of the account owner(s) (i.e. the person who owns or controls the funds), account numbers, account balances, credit available and credit limits for a credit card or other credit facilities, available cash advance amount, names of other authorized

users or co-owners of the account, special personal identification numbers (PIN), restrictions on use of the account, etc.

[0146] Still referring to FIG. **1**, the major output from the MFTS system **18** comprises a subset of information related to one or more payments to make (PM), a subset of information related to one or more payment sources (PS), both of which are provided from the MFTS **18** to an individual mobile device **15** and displayed and/or presented to a user **12** for reaction and response. In response to presentation of a PM (or initiation of a PM), the mobile device **15** provides a payment instruction to a payment instruction recipient such as a financial service provider or financial institution to make a payment, in accordance with the information in the payment instruction.

[0147] The overall methodology for making a payment in accordance with exemplary aspects of the invention involves seven primary steps. Interactions between the MFTS **18** and mobile devices **15** are established through communication services provided by a mobile communication service provider (MCSP, not shown in FIG. **1**) and involve the first four steps of the methodology. The seven primary steps are as follows:

[0148] 1. A first step is to push out PM information (step 1 shown in a triangle) and a PS information (step 1 shown in a square) from the MFTS **18** to a mobile device **15**, as shown at Step 1.

[0149] 2. A second step is for a user **12** of a mobile device **15** to view available payments to make (step 2 shown in a triangle) and payment sources (step 2 shown in a square) available for use in making selected payments, as shown at Step 2.

[0150] 3. A third step is for a user to activate a pay bill function, as one example, using the mobile device application on a mobile device **15**, which results in construction of a mobile payment instruction (MPI) based on the information input by the user **12**, as shown at Step 3.

[0151] 4. A fourth step is the communication of the mobile payment instruction (MPI) from the mobile device **15** to the MFTS for handling, as shown at Step 4.

[0152] 5. A fifth step in the overall methodology, but which does not involve the mobile device or communications with the MCSP, is the construction of an MFTS payment instruction utilizing information from the mobile payment instruction, and communication of that MFTS payment instruction to a payment instruction recipient, as shown at Step 5.

[0153] 6. A sixth step in the overall methodology of the invention is the transfer of funds to selected payee by a payment instruction recipient, typically through a financial service provider, using a selected payment source, as shown at Step 6.

[0154] 7. A seventh step in the overall methodology of the invention is for the financial service provider to send a payment confirmation message back to the MFTS upon successful processing of the MFTS payment instruction.

[0155] More details regarding these steps will now be provided.

[0156] With regard to Step 1, the information pushed out to the mobile device includes a subset of payment to make information as shown at Step 1 (PM) and/or a subset of payment source information as shown at Step 1 (PS). The information pushed out does not include all available information received by the MFTS from the payment to make and/or payment sources. Rather, a reduced subset of the payment to make information and/or the payment source information is pushed out to the mobile device to facilitate a mobile payment or payment source view. In accordance with exemplary aspects of the invention, the information is reduced so as to provide quicker and more concise information to a user that facilitates a decision about making payment and what fund source to utilize. For bills, this reduced information typically only includes the name(s) of the billing entities, a balance due or payment due, and a due date for the payment to make. For payment sources, the consumer's account name(s), current balance, funds available etc will be shown.

[0157] With regard to Step 2, a user **12** of a mobile device **15** views payments to make as shown at Step 2 (PM) and views payment sources for use in making a payment as shown at Step 2 (PS). In accordance with an exemplary aspect of the invention, the mobile device user **12** is notified via a text message (SMS) when a new payment to make is received by the MFTS **18** and/or an update is received by the MFTS from a financial institution for an account associated with a mobile device through other communication means. According to another exemplary aspect, the mobile device **15** retrieves information from the MFTS relating to new payments to make or updated financial account information, upon activation of selected functions on the mobile device such as "view bills," "pay bills," "pay anyone," as will be described in detail in connection with various functional software modules, herein.

[0158] In accordance with another exemplary aspect of the invention, when a mobile device user **12** is ready to review the payments to make, he/she can launch a "mobile wallet" application that runs on the mobile device to review the PM and PS. A PM is viewed through a "View Bills" (also called "View Payment to Make") function and a PS is viewed through a "View Payment Sources" function. An exemplary display screen of information displayed through these functions is shown in FIG. **1**. With the "View Bills" function, the mobile device user can review bills received to date and decide which bill(s) to pay at what time. Through the "View Payment Sources" function, a mobile device user can view and decide what fund source(s) to use for paying a bill of his/her choice. The selection made in this step is not transmitted to the MFTS until a "Pay Bills" function is activated. It should be understood that viewing payments to make and payment sources does not necessarily require that the user select a bill for payment, although that is one of the primary intended functions of the invention.

[0159] With regard to Step 3, the user invokes a "Pay Bills" function in the mobile device application on the mobile device **15** to select a payment to make and a corresponding payment source, which causes the mobile application to construct a mobile payment instruction (MPI). This step includes selecting a payment to make, selecting a payment source, and constructing the mobile payment instruction. The mobile payment instruction typically includes billing entity information, an amount to pay, the date and/or time to pay, and a selected payment source for this payment.

[0160] With regard to Step 4, the mobile application provides the mobile payment instruction (MPI) via the wireless connection from the mobile device to the MFTS for handling.

[0161] With regard to Step 5, the MFTS processes the MPI and constructs an MFTS payment instruction to a payment instruction recipient, which in some cases is a selected financial service provider or financial institution associated with the selected payment source. The complete MFTS payment instruction typically includes information contained in the mobile payment instruction, together with selected other information stored in the database of the MFTS associated with the mobile device users such as the mobile device user's account number, the appropriate account to use for payment, the amount of the payments, the date and/or time to pay, account credentials, etc.

[0162] With regard to Step 6, the payment instruction recipient effects the payment by various means, for example it can make the payment itself, or provide instructions to a selected financial institution to use the selected payment source (PS) identified in the MFTS payment instruction to transfer funds to an account or other payment vehicle of the identified entity associated with the payment to make (PM).

[0163] With regard to Step 7, the financial service provider (FSP) communicates a confirmation message back to the MFTS upon successful processing of the MFTS payment instruction.

[0164] It should be particularly appreciated that because the information provided to the mobile device is a selected and reduced subset of the information that is typically associated with a financial transaction for making an electronic payment using a selected payment source, the mobile device user only sees the minimally required information he or she needs to decide to make a particular payment, and what source to use. The more detailed and comprehensive information required to consummate a transaction is stored in the MFTS, transparently to the user, but retrieved and utilized to make the payment using the selected payment source. Advantageously, the user is presented with the required but limited information needed to make payments quickly, concisely, and efficiently, using his or her mobile device, at a place and time of his or her convenience. Yet, the full details of the transaction are preferably captured and stored by the MFTS, and may be accessed and viewed by the users at their convenience, for example through a web interface, as will be described in greater detail later.

[0165] More details on the implementation of these general steps will be provided below.

[0166] Referring now to FIG. **2**, as system **200** in accordance with aspects of the invention includes the MFTS **18**, a mobile communication service provider (MCSP) **110**, a communications network **120** such as the Internet or private network, a bill presentment system **190**, a web interface for users **140**, mobiles device(s) **15**, connections or interfaces to billing/payment entities **180** and payment sources **30**, and other components for certain purposes.

[0167] The MFTS **18** includes a computer system comprising a database **158**, telecommunications interfaces **152**, and software. The MFTS **18** supports three major interfaces or communication methods: a financial service provider (FSP) communication interface **156**, a wireless or mobile device (mobile client) interface **152**, and a world wide web (WWW) or Internet user interface (UI). As known to those skilled in the art, an "interface" is a means or method for interaction between machines, devices, computer programs or other complex tool, and a user interface (UI) is a means or method by which a user interacts with a particular machine, device, computer program or other complex tool. A user interface provides a means of input (allowing a user to send information to a system such as the MFTS) and a means of output (allowing the MFTS system to display information to the user). These inputs and outputs are transported via the Internet and viewed by the users using a web browser program such as Netscape Navigator, Internet Explorer, Firefox, or any other web browsers. According to aspects of the invention, users provide personal information to register for service, input personal and financial information to the MFTS, and verify such information through a display on the user's computer system.

[0168] The financial service provider (FSP) communication interface **156** is an interface to financial entities **30** that provide payment sources (PS) and a bill presentment interface **155** to billing/payment entities **180** for payments to make (PM). The computer system of the MFTS connects to the computer systems of financial entities through various types of computer networks, such as a frame secured dedicated path **160**, local-area networks (LANs), wide-area networks (WANs), etc. as well as the known Internet **120**.

[0169] The wireless or mobile device (mobile client) interface **152** provides connections to a user's mobile device **15**. The computer system of the MFTS has a plurality of interfaces to communicate to users' mobile devices through various wireless telecommunication service providers providing voice/data service with CDMA, GSM, GPRS, other 2G wireless data communication services, and newly emerging 3G wireless data services. As known to those skilled in the art, in addition to the standard voice function of a mobile telephone, many mobile devices support many additional services such as SMS for text messaging, packet switching for access to the Internet and MMS for sending and receiving photos, sound, music, and/or video. The system **18** thus preferably includes an SMS generator **151** for generating SMS message. The mobile device communication interfaces **150** allow the users to receive financial and other information wherever they are (provided that they are within the coverage area of their MCSP), interact with the MFTS **18**, and complete various financial transactions.

[0170] The world wide web (WWW) or Internet user interface (UI) comprises one or more web applications **154** for a user to access the MFTS for registration for service, configuration and account setup, maintenance of accounts, viewing of payments to make and payment sources and status, etc. Preferably, user account financial information could be submitted to the MFTS from enrollment for service, for example through a business arrangement with a selected financial institution that has a relationship with an operator of the MFTS. Alternatively, the user can also user a web user interface to enter user account financial information.

[0171] Still referring to FIG. **2**, in certain aspects of the invention the MFTS **18** communicates with a user **12** via his or her mobile device(s) **15** and/or his or her associated computer **140**, a mobile communication service provider **110**, a data communication network such as the Internet **120**, a secured dedicated network path **160**, financial service providers (FSPs) **30**, that provide payment sources **30**, billing entities **180**, and/or a bill presentment system **190**.

[0172] The mobile devices **15** communicate with the MFTS **18** via a wireless connection (illustrated as antenna **112**), using a wireless communication service provided by a mobile communication service provider (MCSP) **110**. The mobile devices **15** comprise any devices that are connected for data communications with a mobile communication network via the MCSP **110**. Such devices **15** may include a pager **15***a*, a personal digital assistant (PDA) **15***b*, cellular or mobile phone **15***c*, or any other electronic device that includes functionality of a PDA or mobile phone, with the capability of receiving information via a wireless link, receive user input, and transmit data (e.g. a payment instruction) to the MFTS.

[0173] The present invention will be described in terms generally applicable to various types of mobile communication services provided by an MCSP **110**. Those skilled in the art will understand and appreciate that the invention is not limited to any particular type of mobile, or wireless, communication standard, but may be implemented using any of a number of different but functionally equivalent wireless data communication standards. At the present time in the United States, digital cell phone networks are primarily based on two underlying standards: GSM (Global System for Mobile communications) and CDMA (Code Division Multiple Access). Some MCSPs use GSM, while others use CDMA. Yet others use a standard called PCS, which is based on CDMA but uses different frequencies. Furthermore, so called "broadband" wireless data communication standards know as WiFi and WiMAX, which are currently used for WLAN implementations, are also usable for implementing embodiments of the invention, but such standards are not at the present time widely deployed in handheld mobile devices.

[0174] These and other, perhaps not yet created, wireless data communication standards may be employed in constructing embodiments of the inventions described herein, without undue experimentation as those skilled in the art will understand how to employ such technologies in making embodiments of the inventions.

[0175] It will also be understood that presently-contemplated upgrades to both GSM and CDMA mobile wireless standards, as well as upgrades to other data communication standards, will be useful in constructing embodiments of the inventions. For example, to better handle data traffic (in addition to voice traffic), many GSM networks now operate using a standard called GPRS (General Packet Radio Service) that can carry data at up to 56 Kbps—about the same speed as a dial-up connection—together with the GSM signals that carry the voice traffic. More recently, the networks that use GSM have added an enhancement called EDGE (Enhanced Data rates for GSM Evolution) that increases the data transmission speed to 144 Kbps. CDMA networks have also upped their data speeds using a standard known as 1xRTT (Radio Transmission Technology) measuring throughput at 144 Kbps. A further recent upgrade for CDMA networks is called 1xEV-DO (Evolution-Data Only) which can carry data at a theoretical maximum of several megabits per second—as fast as present day DSL or cable Internet connections. Further still, some MCSPs now provide a service called UMTS (Universal Mobile Telecommunications System), an upgrade to GSM networks that speeds connections to a maximum of 384 Kbps and allows for simultaneous voice and data, a desirable feature for users to make and receive voice calls while simultaneously using data services such as wireless laptop use.

[0176] It is expected that as demand for wireless data communications increases, MCSPs will introduce even faster standards and enhancements to their networks. For example the contemplated Rev A EV-DO will speed up EV-DO networks to 1.8 Mbps upstream and 3.1 Mbps downstream, and HSDPA (High-Speed Down Packet Access), an upgrade to UMTS that promises speeds of 1.8 Mbps and also allows for simultaneous voice and data.

[0177] Further still, it should be understood that the technologies for short text messaging (e.g. SMS) are typically implemented using the above-described data communication technologies to carry text messages. Such wireless data communication technologies are also used to support functions such as wireless Internet browsing on mobile devices; downloading of music, ringtones, videos, photographs; and protocol support for wireless applications (e.g. a mobile application constructed as described in this document).

[0178] Accordingly, those skilled in the art will understand that numerous equivalents for the elements of the invention that provides the wireless connection between the mobile devices **15** and the MFTS **18**, for supporting the mobile application and facilitating transactions the manner described herein, are contemplated for use in constructing embodiments of the invention.

[0179] The data network **120**, which includes the well-known Internet, offers accessibility to the MFTS **18** through wired or wireless connections. Users **12** can access the Internet **120** through their home/office connection as well as through their mobile devices **15**. A user's computer, shown at **140**, is connected to the Internet **120** through their home/office connection, or wirelessly connected through a mobile communication service provider. According to aspects of the invention, users have the flexibility to access billing information and payment information either with a computer online with web view access or via a mobile device **15** with mobile views.

[0180] It will be appreciated that, in general, a mobile view will provide less information to the user than a web view, because mobile devices typically have smaller display screens (to facilitate mobile use) and users are often desirous of using certain basic functionality quickly and efficiently in a mobile environment, provided that they have more detailed information available via other means, at a later time. However, the present invention specifically contemplates modes of operation where further transaction details may be obtained through a function of the mobile device, as well as through web views using a computer **140** connection for Internet usage.

[0181] The MFTS **18** includes several software components, described in greater detail later in this document, that execute on a computer server associated with the MFTS. Such components include an SMS generator **151**, MFTS mobile device communication interfaces **150**, one or more web applications **154**, a plurality of partner financial service provider (FSP) interfaces **156**, and a user database **158**.

[0182] The mobile device communication interfaces **152** are preferably an HTTP Remote Procedure Call (RPC) interface that provides mobile clients with access to financial services available on the MFTS. The mobile client interface is preferably designed to facilitate communications between the MFTS **18** and the mobile users, including all data transmissions and receptions, as well as SMS transmissions

and receptions through the SMS generator **151**. The SMS generator is a software component that receives a message for communication to a mobile device and converts the message into SMS format, which is usually purely textual information, and transmits the message to a MCSP in the SMS format as specified by the MCSP. Details of the required SMS format for a particular MCSP may be obtained by inquiry of the applicable MCSP.

[0183] The web applications **154** reside on the server of the MFTS, and comprises one or more of the following major components: a User Site **153**, and an Administration (Admin) Site **157**.

[0184] A User Site **153** is a web application (HTML) whose purpose is to allow users to enroll or register for services provided by the MFTS **18**, manage their mobile clients, and perform other user-related functions such as account maintenance, adding a new payee, verifying account information for payment sources or payments to make, etc. A User Site **153** is used for a user to enroll to receive services by providing appropriate information such as name, address, mobile number, etc., to obtain a username and a password for security purposes, and to provide the MFTS **18** with detailed information about a user's billing entities and their payment sources such as account number, access/authentication methods etc.

[0185] An Administration Site **157** is an application (typically web or HTML) used by the MFTS Production Operation personnel to administer the system. It is typically used by information technology (IT) administrators of the MFTS **18**, troubleshooting, answer inquiries, account maintenance, view transaction history, general system monitoring, etc.

[0186] The MFTS **18** also comprises multiple financial service provider communication interfaces **156** to partner Financial Service Providers (FSPs) **30**, which are entities that provide functions such as payment source detail, bill aggregation or bill payment connectivity, or are entities to whom payment instructions are sent on behalf of a user. The financial service provider communication interfaces **156** facilitate electronic data communication information transfer between the MFTS and individual financial service providers such as banking entities, credit entities, etc. The technical requirements for these interfaces vary in their implementation and may need to be customized to accommodate each individual financial service institution. Such interfaces are typically implemented as real time web services interfaces or batch mode file transfer protocols, depending on the capabilities and requirements of the participating partner financial service providers. Details of the data communication requirements of specific FSPs may be obtained from the FSP directly.

[0187] A special secured dedicated network path **160** such as a frame relay, a private network, an internet virtual private network (VPN), or a web service is preferably used for data communications between the MFTS **18** and various FSPs to ensure the security of the financial information transmission. Details about the particular forms of security, protocols, requirements, etc. will be established between the MFTS **18** and each financial institution that participates in the system and methods described herein.

[0188] Still referring to FIG. **2**, a user database **158** associated with the MFTS **18** stores information related to all users, financial service providers that serve users, billing entities that serve the users, payees and how to make payments to them, and other related information. Details about the information stored in the user database **158** are provided in connection with FIG. **6** and the associated discussion.

[0189] As previously described, FSPs that provide payment sources (PS) **30** include banking entities such as banks, credit unions, savings and loans, brokerage firms that provide savings/checking/money market accounts, and other financial institutions; credit entities such as credit card issuing companies, banks and/or department stores, gasoline companies, etc.; and any other financial institutions with whom the users of the MFTS do business. Payment sources **30** provide payments **194** to selected billing entities **180**, in the manner described herein.

[0190] Billing entities **180** include service companies that serve the users such as gas **185**, water, electricity **181**, phone/cell phone **183**, satellite/cable/Internet providers, credit card companies, and any other entities that send a bill to a user for products purchased or services rendered. As will be understood, many billing entities **180** send bills **192** on a regular basis (often monthly). Bills can also come from billing entities that provide services to users such as insurance companies, homeowner associations, trash pickup, pest control, auto repair, lawn & garden, landscaping, cleaning, etc. Some entities do not send bills on a monthly basis, but on a semi-annual, quarterly, or annual basis, or on demand when a service is rendered. Occasionally, people have the need to pay others individually such as co-workers, friends, family members, etc. All of these bill or non-bill payment obligations are referred as a payment to make (PM).

[0191] According to one exemplary aspect of the invention, a bill presentment system **190** can be utilized to receive bills from billing entities **180** and aggregate them into a package for presentment to a user, electronically or otherwise. A bill presentment system **190** can be either a service or component of the MFTS **18** or an independent service entity. For example, CheckFree Corporation, Norcross, Ga., provides a billing aggregation and bill presentment service. A bill presentment system retrieves bills from one or more individual billing entities and presents the bills to the MFTS system; information relating to the collected/retrieved bills is stored in the user database **158** of the MFTS **18**.

[0192] It will be understood and appreciated that a billing aggregator and the MFTS **18** may be constructed as a separate systems, operated by the same or by different entities, or may be constructed as an integrated system wherein the aggregator functions and the MFTS functions are carried as complementary and intercommunicating computer processes. Thus, although FIG. **2** shows the MFTS **18** and the aggregator/bill presentment system **190** as separate entities, those skilled in the art will understand that such functionality can be provided in an integrated system.

[0193] According to an exemplary aspect of the invention, the mobile devices **15** may be configured to operate in conjunction with a billing entity such as a retail establishment by receipt of a payment to make (PM) from a radio frequency identification (RFID) device **187**. Various forms of RFID-based payment terminals are now becoming available in the realm of commerce. As will be known to those skilled in the art, RFID-based payment terminals are operative to detect the presence of an RFID electronic circuit, perhaps contained in a mobile device, in proximity to an RFID-based payment terminal, and automatically transmit a wireless (WiFi, Bluetooth, infrared, etc.) signal constituting payment information in return to the associated device. It is

contemplated that a mobile device **15** can be configured to receive a payment obligation (a PM) from a merchant at point-of-sale (POS) via a wireless communication in a direct manner, and thereby provide the user the capability and opportunity to pay a billing entity for the goods or services provided, as described herein.

[0194] Also shown in FIG. **2** is a special financial service provider (FSP) **175** that provides a special holding account on behalf of the MFTS **18**, for purposes of holding funds in connection with transactions on a temporary or interim basis. The holding account FSP **175** provides an FDIC-insured account for holding funds in connection with escrow-type transactions wherein release of payment to a billing entity **180** is conditioned on some event such as delivery of particular goods or services, or specific authorization from a user, or other purposes. The holding account FSP **175** may be utilized in the following exemplary manner: upon selection of a payment source (PS) by a user for making a payment, the selected payment source can be instructed, with a payment instruction, to transmit the funds to the holding account **175**, where such funds will be held on behalf of the user until a release event (e.g. delivery of goods, execution of an agreement, or other predetermined event), at which time the holding account **175** will transmit the funds to the indicated billing or payment entity.

General Operation of MFTS

[0195] Prior to discussing the software architecture of the preferred embodiments of the invention, the overall operation of the disclosed MFTS **18** will be briefly described. As will be understood, much of the functionality of the embodiments of the invention are implemented in computer software and involves user interaction with his or her mobile device, creation of data records, communications between mobile devices and the MFTS **18**, and communications between the MFTS **18** and various other parties and their systems such as financial institutions, billing entities, person to whom payments are made, etc. Still referring in this regard to FIG. **2**, the overall operation of the MFTS **18** according to certain aspects of the invention includes the following exemplary steps:

[0196] 1. A customer or user **12** first registers with the MFTS **18** and creates an account with the MFTS service. This registration is completed via the user web site interface **154** either through a computer **140** with a internet connection, or through a mobile device **15** that has Internet access capabilities. The account owner (user) chooses or is given a username and a password for security and authentication purposes. A user profile is created for the account and necessary information such as a mobile device identification number or phone number associated with the account is entered and saved to the user database **158** in a user record. All billing entities for payments to make (PM) that the user wishes the MFTS to serve are entered by the user into the user database, including account number, name and address of the account owner, billing cycles, and any other related information. Likewise, one or more payment sources (PM) are also entered into the user database, including the bank routing number(s) and account number(s), name(s) and address(es) of the account owner(s), access codes such as PIN, access methods, credit card number(s), expiration date(s) of the credit card(s), etc. Alternatively, the FI information can be pulled into the MFTS through the FSP communication interface **156**.

[0197] 2. According to one exemplary aspect of the invention, the user **12** downloads to his/her mobile device **15** a mobile client (also called a mobile application or a "Mobile Wallet") from the MFTS main website, as shown at **215**. The downloaded mobile application may be (a) downloaded to the user's computer **140** for later synchronization and/or loading into with the mobile device for situations where a mobile device's software must be loaded from a PC, or (b) alternatively directly downloaded via the wireless network into the mobile device for situations where a mobile device is capable of direct application download. The mobile client or application is configured and certified for the brand and model of mobile device **15** possessed by the user **12**. For example, the mobile application in the disclosed embodiment is an application that resides on the user's mobile device. It will be understood that, according to a preferred exemplary aspect of the invention, because the mobile client is an application that runs independently on the mobile device and does not require an active communication connection to the MFTS **18**, it can operate in an offline mode when or where the mobile device is out of its coverage area by utilizing local storage on the mobile device. The ability to utilize local storage on the devices allows data caching, which speeds up end user interactions and the ability to queue user-initiated transactions until connectivity is restored. Additionally, offline support allows for eliminating intermittent signal activity that could impact the user experience seen in WAP-based solutions in the marketplace today.

[0198] 3. At predetermined intervals, the MFTS sends requests to a billing aggregator (e.g. bill presentment system **190**) or to the billing entities **180** to retrieve the bills **192** of MFTS users. Alternatively, the MFTS may receive bills from billing entities at certain billing cycles, from a billing aggregator or directly from a billing entity.

[0199] 4. The MFTS receives the bills and notifies the user of the due bill via SMS (according to one aspect). The user then launches the mobile client software on the mobile device **15**, which communicates with the mobile device communication interface **152** to see the bill that is payable. The SMS message preferably only contains brief and abbreviated information as simple as the name of the billing entity and amount due; additional information may be obtained by the mobile device (see next step).

[0200] 5. The user opens the Mobile Wallet application on his/her mobile device(s) to view received bill(s) via a request to all applicable billing entities.

[0201] 6. If the user decides to pay a bill, the user can select one of the available payment sources (PS) and select one of possible plurality of bills (PM) to make a payment. A payment instruction is formed by the user by selecting a PM and selecting the PS for the PM.

[0202] 7. The user is preferably presented with a confirmation screen on the mobile device that presents the basic information about the bill to pay, the timing on the payment, the balances available, etc., before committing the payment to the system. If the user confirms

the payment, the mobile device **15** sends an abbreviated mobile payment instruction to the MFTS **18**.

[0203] 8. In response to receipt of the mobile payment instruction from a mobile device, the MFTS **18** appends other related information to form a complete payment instruction (MFTS payment instruction) that instructs a selected financial service provider to complete the payment transaction by transferring funds from a selected PS to the payee, using a payment method that has either been preselected or selected as a part of the PM and PS selection process.

[0204] Further details about specific communications between the mobile device **15**, the MFTS **18**, FSPs with payment sources **30**, billing entities **180**, bill presentment system **190**, etc. are provided in various flow charts and diagrams, elsewhere in this document.

Software Architecture

[0205] The software architecture of the mobile financial transaction system (MFTS) is shown in FIG. **3**. According to one embodiment of the present invention, the software of the MFTS comprises two major components: a mobile device application **400** ("Mobile Wallet") and MFTS software **500**. The mobile device application **400** resides on a mobile device and is accessed by the owner of the mobile device. The MFTS software application **500** resides on a server computer connected to the Internet and it is accessed by users through their Mobile Wallet application and web browsers.

[0206] Referring now to FIG. **3**A, a software architecture diagram of a mobile device application **400** ("Mobile Wallet") is shown according one embodiment of the present invention. The mobile device application **400** comprises: a mobile device main program **335** for controlling the operation of the mobile device application **400**; a mobile device input/output interface **331** for displaying messages, receiving user selections or inputs, and facilitating the user's operation; a security manager **333** for providing security measures for wireless communication; a mobile device storage interface **337** for storing and retrieving data to/from a local storage device **341** such as a non-volatile memory device within the mobile device; and a mobile device communication interface **339** for communicating with the mobile device radio hardware **343** on the mobile device, which in turn communicates with the mobile communication service providers (MCSPs) **110** according to their specific protocols.

[0207] FIG. **3**A also illustrates a number of routines or functions **301**, **303**, **305**, **307**, **309**, **311**, **313**, **315**, and **321** that are provided by the mobile device software or mobile wallet application **400**. Such routines or functions provide user functionality on the mobile device, as shown. A View Payment Sources routine **301** provides a display of payment sources on the user's mobile device; details of this routine are provided in FIGS. **13** and **14**. A View Bills routine **302** provides a display of bills or payments to make on the user's mobile device; details of this routine are provided in FIGS. **15** and **16**. A Pay Bills routine **305** provides for selecting of a bill to pay or a payment to make on the user's mobile device; details of this routine are provided in FIGS. **17** and **18**. A Pay Anyone by Name routine **307** provides for making a payment to a person by name on the user's mobile device; details of this routine are provided in FIGS. **19-22** and **26-28**. A Pay Anyone by mobile number routine **309** provides for making a payment to a person by mobile number on the user's mobile device; details of this routine are provided in FIGS. **23-25** and **29-31**. A Balance Transfer routine **311** provides for moving funds between a user's accounts via the user's mobile device; details of this routine are provided in FIGS. **32** and **33**. A Download Application routine **313** provides for downloading a Mobile Wallet application to a user/payee's mobile device from the MFTS, in connection with receiving a payment to allow use of aspects of the invention by payees in connection with receiving a payment; details of this routine are provided in FIGS. **34** and **35**. A Change PIN routine **315** allows a user to change his or her personal identification number (PIN) via the mobile device; details of this routine are provided in FIG. **36**. A Receive SMS (text message) routine **321** provides for sending a text message (SMS) to a payee, to advise a payee that a payment has been received; details of this routine are provided in FIGS. **15** and **20**.

[0208] Referring now to FIG. **3**B, a software architecture diagram of the MFTS software **500** is shown according one embodiment of the present invention. The MFTS software **500** comprises: an MFTS main program **350**; an MFTS mobile device communication interface **150** for communicating with mobile communication service providers **110**; a web application interface **154** for receiving user's enrollment, registration, retrieving and updating information through a user web site over the Internet **120**; a P2P service **375** for facilitating person to person financial transactions; a storage/database (DB) interface **377** for storing and retrieving data to/from a MFTS user database **158**; a financial account service **379** for facilitating user authentication; a financial service provider (FSP) communication interface **156** for communicating with financial service providers **30**, as well as MFTS bank holding account **175** (if applicable); and a bill presentment interface **155** for receiving bills from various billing entities **180** through a bill presentment system **190**.

[0209] The MFTS main program **350** interacts and coordinates with the other modules and services in the MFTS, and acts as a "traffic cop" for information routed between the various storage and communication interfaces.

[0210] The preferred web application input/output interface **154** allows users to enroll or register with the MFTS system, to add/edit/view/delete mobile clients, add/edit/view/delete credit card/bank accounts, and add/edit/view/delete payees or billing entities. The web application interface **154** further allows user to initialize a mobile client, and to unlock a locked mobile device after a series of failed logins. Exemplary displays associated with the preferred web application interface **154** are shown and described in connection with FIGS. **10-12**.

[0211] The preferred web application interface **154** provides a number of functions or routines for users to access via an Internet (web) connection, if desired. It will be appreciated that users may prefer to conduct certain types of functions such as enrollment, adding a payee, changing configurations of the operations, etc. via an Internet web interface instead of via a mobile interface. For example, and in accordance with aspects of the invention, functions that are provided in the preferred embodiment via a web interface include enrollment **351** (see e.g. FIG. **37**); editing a mobile client **353** (see e.g. FIGS. **37**B, **37**D); editing credit card and/or bank accounts **355** (see e.g. FIGS. **38**A-**38**D); editing or adding a payee **357** (see e.g. FIGS. **39**A, **39**B);

initializing a mobile client **359** (see e.g. FIGS. **37**A, **37**C); and unlocking a mobile client **361** (see e.g. FIG. **37**A). Details of the preferred software routines are provided in connection with the referenced figures.

[0212] The preferred input/output interface **154** may be replaced with an alternative embodiment of the interface **154'**, which provides a different web user interface functionality and display, as described in connection with FIGS. **40-42**.

Mobile Device Software

[0213] FIG. **4** is a flowchart of the main program **335**, which is one of the software modules of the mobile device or "Mobile Wallet" software **400** that runs on a mobile device **12** in accordance with aspects of the invention. It will be understood from FIG. **3**A that the mobile device main program **335**, in the disclosed embodiment, is the main program loop of the mobile wallet software **400** that coordinates the operations of the other mobile device software modules including the mobile device input/output interface **331**, a security manager module **333**, a mobile device storage module **337**, and a mobile device communication interface module **339**.

[0214] In typical use, a mobile device user turns on his/her mobile device, reviews any recent text messages (in some embodiments), navigates to or "launches" the mobile device application **400** by initiating the operation of the mobile device main program **335**, views the displays generated by the program, and interacts with the program to provide commands and inputs, e.g. to view a bill, or select a payment source, or make a payment. In accordance with aspects of the invention, a user may launch the mobile device application **400** in response to receipt of a text message indicating that a new bill is available to be paid (or other message from the MFTS), or may independently launch the mobile device application to invoke a function of viewing a bill, paying a bill, etc.

[0215] In FIG. **4**, a first step **405** involves the mobile device checking whether a text message (SMS) has been received. For example, according to an aspect of the invention a text message is sent by the MFTS to a mobile device to inform the user that a new bill has been received and can be paid, or that a payment has been received from another user. See FIGS. **15** and **20** in this regard.

[0216] It will be understood that a received text message may or may not be related to the MFTS or any functions thereof. However, any unrelated text messages will be ignored for the purpose of discussion here and it is assumed that all messages received are related to the MFTS and its operations. It will also be understood that in some mobile devices text messages are received by an independent process or module and stored in memory for access by other processes, while text message receipt and processing could be optionally incorporated as an integrated function within the mobile device software **400**. If a text message relating to an MFTS function has been received, whether by an independent process in the mobile device or integrally within the application, at step **460** the user may open the text message and determine what to do in response to the message.

[0217] At step **470** the user may elect to download the mobile device software (e.g. download the Mobile Wallet software), if they are not currently an enrolled user. The user will be provided with information as to how to access and download the software. More information is provided about enrollment elsewhere in this document. The user would be required to download the Mobile Wallet software and execute it on his/her mobile device before any of the other functionality in FIG. **4** can be invoked.

[0218] After step **460**, the program loops to step **490** to look for an exit (terminate) command or event, and can loop back to step **405** in a continuous loop and repeat the operations.

[0219] Returning to step **405**, if no text message is received, the program control passes to step **410**, where the user may elect to activate the mobile wallet software **400** and utilize the functions provided thereby. If not (i.e. there is no user command to enter the mobile wallet software at step **410**), control loops back to test for text messages and/or activation of the mobile wallet software.

[0220] If at step **410** the user has launched operation of the mobile wallet software **400**, control passes to step **415** where the user may choose from a list of functions provided by the software on the mobile device. Those functions will be described below. The program loops continuously awaiting user input of a selected function, which includes an "exit" command as shown at step **490**.

[0221] In accordance with one embodiment of the invention, at step **415** the user may choose to invoke or run the following functions provided by the mobile device main program **335**:

[0222] 1. View payment sources and balances as shown in step **420** (see FIGS. **13** and **14** for further discussion);

[0223] 2. View bills as shown at step **425** (see FIGS. **15** and **16** for further discussion);

[0224] 3. Pay bills as shown at step **430** (see FIGS. **17**, **18**A and **18**B for further discussion);

[0225] 4. Invoke a "Pay Anyone" function as shown in step **435** (see FIGS. **19-31** for further discussion);

[0226] 5. Request an account balance transfer as shown in step **440** (see FIGS. **32** and **33** for further discussion); and

[0227] 6. Change the personal identification number (PIN) as shown in step **445** (see FIG. **36** for further discussion).

[0228] Other functions are also provided according to an aspect of the invention, if provided with an "inbox" and "outbox" function for viewing incoming and outgoing payments:

[0229] 7. View Inbox payments as shown at step **450** (see FIGS. **20**, **22-24** for further discussion); and

[0230] 8. View Outbox payments as shown at step **455**.

[0231] It should be understood that the functions of view inbox payments (step **450**) and view outbox payments (step **455**) are optional functions for an embodiment where a listing of incoming payments from other users (inbox payments) is maintained in the mobile device, and/or a listing of outgoing payments that have been generated and sent from the mobile wallet software is maintained in the mobile device while the payment is pending, for viewing independently of the operation of the mobile wallet software.

[0232] Still referring to FIG. **4**, after the user invokes a particular function, appropriate program instructions for effecting those functions are executed by the mobile device. Exemplary displays and discussion of such functions is provided in connection with the referenced figures in FIG. **4**, and the reader is referred to such discussions elsewhere. After each function is performed, the mobile device appli-

cation proceeds to step **490** and either loops back to test for input of another user function or exit. The user can either continue further operation of the mobile device application or terminate the application. If the user decides to continue, the mobile device application returns to step **405** to check text messages or continue operation of the mobile wallet application.

[0233] FIG. **5** is a flowchart of the MFTS main program **350**, which is one of the MFTS software modules **500** that runs on a computer system or server in an MFTS **18** in accordance with aspects of the invention. This main program **350** coordinates the other programs and functions of the MFTS as shown in FIG. **2**, e.g. MFTS mobile device communication interface **150**, SMS generator **151**, web applications **153**, FSP communication interface **156**, bill presentment interface **155**, accessing and maintenance of the user database **158**, etc. It will be understood from FIG. **3**B that the MFTS main program **350**, in the disclosed embodiment, is the main program loop of the MFTS software modules **500** that coordinates the operation of other software modules associated with and forming a part of the MFTS **18**.

[0234] In typical use, the MFTS **18** operates continuously to monitor for inputs from various sources. The primary inputs come from user enrollment, where a user inputs information to establish an account or relationship with the MFTS system operator, from mobile devices as users view and pay bills, from communications with billing entities, financial institutions, and/or FSPs to receive bills to pay, provide payment instructions to such institutions and partners, and receive information such as account balances and payment confirmations. Those skilled in the art will understand that the software **500** is preferably constructed to run on a computer server in a multi-threaded, multi-tasking, web-enabled, secure, real-time 24/7 computing environment, that is message-driven by the various entities with which the system communicates.

[0235] In FIG. **5**, the process for the MFTS main program **350** starts with determining that an input from an associated entity (e.g. user via mobile device, user via web interface, FSP, etc.) has been received and must be processed. The system determines at step **505** if an input has been received from the mobile device communication interface **152**, at step **510** if an input has been received from a web application **154**, at step **515** if an input has been received from the bill presentment system interface **155**, and at step **520** if an input has been received from a financial service provider (FSP) interface **156**. At step **530**, the program **350** then branches to or executes to an appropriate routine or interface to carry out the specific function associated with the incoming message. Specifically in accordance with aspects of the invention, such routines or interfaces comprise (a) handling communications and messages with a bill presentment service via the bill presentment interface **155**; (b) handling communications and messages with a web-accessing user or administrator via the web application interface **154**; (c) handling communications and messages with mobile devices via the mobile device communication interface **152**; (d) handling communications and messages relating to a person to person (P2P) type payment through a person to person payment service **375**; (e) handling communications and messages relating to financial accounts of a user via a financial account service **545**; and (f) handling communications and messages relating to financial service providers (FSPs) via the FSP communication interface **156**.

[0236] As described above briefly in connection with FIG. **3**B, a mobile device user may wish to enroll as a registered member of the MFTS, after receiving a payment from a registered user, or at his/her own will. The user may access a web site designated by the MFTS using his/her computer connected to the Internet and web browser to use the web application. The web site may contain information related to the services and benefits the MFTS provides and a specific page for user enrollment. If the user decides to enroll, he/she then accesses the web application, which is effected by the web application interface **154**, and selects a function to perform.

[0237] As shown generally in FIG. **3**B, typical web-accessible functions provided to a user include the following:

[0238] 1. Enrolling a new mobile client to the MFTS (see FIG. **37**A for a preferred embodiment and FIG. **40** for an alternative embodiment);

[0239] 2. Editing a mobile client including adding, editing, viewing and deleting a mobile client (see FIGS. **37**B and **37**D for a preferred embodiment and FIG. **40** for an alternative embodiment);

[0240] 3. Editing credit card and/or bank accounts including adding, editing, viewing and deleting credit card and/or bank accounts (see FIGS. **38**A-D for a preferred embodiment and FIG. **42** for an alternative embodiment);

[0241] 4. Editing a payee including adding, editing, viewing and deleting a payee (see FIGS. **39**A-B for a preferred embodiment and FIG. **41** for an alternative embodiment);

[0242] 5. Initializing a mobile client including downloading software to a designated mobile device, setting up a password, and activating the mobile device (see FIGS. **37**A and **37**C for a preferred embodiment); and

[0243] 6. Unlocking a mobile client after the mobile device is locked (perhaps accidentally or to prevent fraud) after a predetermined number of failed logins (see FIG. **37**A for a preferred embodiment).

[0244] Returning to FIG. **5**, after each function is performed, the MFTS main program **350** continues to run by looping back to test for new input at steps **505**, **510**, **515**, and **520**.

User Database and Schemas

[0245] Although not shown specifically as an independent step or process in FIG. **5**, but shown in FIG. **3**B, those skilled in the art will understand that the MFTS **18** includes a storage/database (DB) interface **377** for storing and retrieving data to and from the MFTS user database **158**. This database **158** stores two primary categories of data: user data and transaction data. User data comprises information about individual users of the system including their respective payees, financial institutions, and accounts. Transaction data comprises information that is specific to a particular transaction of a particular user, e.g. when a user provides the system with an instruction to pay a particular bill. The transaction information is a record of each transaction that is initiated by a user. Both the transactions data and user data are stored in tables in the user database **158** arranged in a particular format or schema in accordance with aspects of the invention.

[0246] FIG. **6** illustrates database schemas (data table layouts) for the user database **158** in a mobile financial

transaction system (MFTS) according to an exemplary aspect of the invention. The user database **158** comprises several data tables that are related: a master user table **610**, a user financial accounts table **620**, a financial service provider (FSP) table **630** and a payees table **640**. These tables store data associated with users, accounts of users, financial service providers (payment sources) associated with users, and payees associated with users. As is known to those skilled in the art, database tables typically comprise a plurality of records, each record containing one or more fields or items of data that are associated. Further, those skilled in the art will understand that a "record," in database parlance, is a single instance or data item, usually consisting of a collection of one or more fields or sub-items of information, each field or sub-item typically having a field identifier in a schema that identifies what the information in the field represents; an array or collection of multiple records is often referred to as a "table" or a "database." Databases or tables often include one or more index fields or items that allow rapid access to a particular record so that the record may be identified, retrieved, and utilized in a transaction or updated with new information as needed.

[0247] The master user table **610** comprises a set of information (a record) for each registered MFTS user. In one aspect of the invention as shown in FIG. **6**, the set of information comprises a user identifier or user ID, a name (e.g. the full name of a user), a user name (e.g. a login name associated with a user), and other information that allows a particular user of the system to be identified as enrolled for use of the system. Further information that can be included in the user table **610** comprises an account number (e.g. an account number of a user with an entity that operates the MFTS), the user's contact information such as mailing address, residential phone number and mobile phone number, phone number for the mobile device associated with the MFTS, email address and password, etc. As will be understood, a mobile device will typically provide a user identifier in some form to the MFTS, upon login of the user, so as to allow the system to authenticate the user for purposes of using the system to make payments, view bills, obtain real time account balances, etc. in accordance with various aspects of the invention.

[0248] The set of information in the master user table **610** preferably further comprises pointers to entries in a user financial accounts table **620**, a financial service provider table **630**, and a payee table **640** associated with the user. As known to those skilled in the art, a "pointer" in a database is information that allows a computer program module to locate and retrieve related information in another table in the database.

[0249] In accordance with an aspect of the invention, each user may have a plurality of financial accounts and a plurality of financial service providers for such accounts. For each user, the user financial account table **620** comprises information about one or more accounts of a user with at least one financial institution or financial service provider (FSP), which information includes the user's account number with a particular financial institution, the financial account type (e.g. checking, savings, credit card, money market, etc.), the account number of the user in his/her financial institution, an index or pointer to a particular financial institution (shown as "FSP ID" (provider number) or provider in the financial service provider table **630**, etc. Other information relating to identification and/or utilization of a user's financial accounts may also be stored and is contemplated.

[0250] The financial service provider table **630** comprises information corresponding to one or more financial service providers associated with a user. For each financial service provider entry in the table **630**, the table includes information including but not limited to an index number and/or identifier (ID) associated with an associated financial account in the user financial account table **620**, the provider's name and/or nickname, type of service provided (e.g. a bill presentment service, a bank, a credit facility, etc.), an account number with the financial service provider (not shown), associated password (not shown), account holder's contact information, verification data, etc. Other information relating to identification and/or utilization of a user's financial service providers may also be stored and is contemplated.

[0251] Payee information is stored in a payee table **640**. Payee information is information that is needed to identify a particular payee to whom a payment is or may be sent, and how that payee should be paid. A plurality of payees can be set up for each user of the MFTS. Payees may be billing entities that provide services such as water, gas, electrical power, communication services such as local phone or mobile phone services, mortgage, credit card, and/or other companies providing monthly bills or otherwise providing bills on a regular basis. On the other hand, payees may also be an individual (e.g. a user's peer, colleague, acquaintance, relative, etc.) to whom a user may have an occasional payment obligation. The payee table **640** comprises information relating or associating a particular user to one or more payees, including an account number or identifier associated with the user of the MFTS that ties that payee to a particular user, a payee number or identifier (e.g. payee ID) that identifies the payee, an account number associated with the payee, payment periods, payment authorization, etc. Other information relating to identification and/or utilization of a user's payees may also be stored and is contemplated. In accordance with aspects of the invention, a particular payee associated with a user is identified in the payee table **640**, through provision of information to the MFTS through a mobile payment instruction, which causes the MFTS to access the table **640** to obtain information about the payee so that a payment can be made to that payee.

[0252] Referring now to FIG. **7**, a transaction table **710** is maintained in a transaction database **705** for storing information relating to mobile transactions such as payment source balance inquiries, payment to make inquiries, and payments made by a user. Those skilled in the art will understand that each payment or each inquiry transaction from a mobile device results in creation of at least one record that is stored in the transactions table, for purposes of creating an audit trail, a dated record of transactions, and facilitating database commit and rollback operations. Each transaction record comprises information including but not limited to: a transaction identifier (a unique identifier), date and time stamp for the start and end, user name or ID, or both, selected one or more transaction-related financial institutions, their names, or nicknames, or coded identifiers, selected account, the nature of the transaction, timers for synchronized responses, balance amounts for each account related to an inquiry, balance due amount related to a bill inquiry, payee name or coded identifier, or both, payee

phone number, amount paid, status flag relating to a payment as pending/complete. It will be appreciated that a transaction is typically initiated at a mobile device, but can also be initiated by the user **12** using the web application. The transaction is sent to the MFTS. The MFTS processes the inquiry or payment, creates a transaction record **715** corresponding to the transaction in a transaction table **710** of the transaction database **705**, stores the record in the transactions table **710**, creates a MFTS payment instruction (MFTSPI) for a selected particular financial institution or payment source (PS), and transmits the MFTSPI to that financial institution or PS. Upon completion of the payment by the PS and receipt of a payment confirmation message back from the PS, the corresponding transaction record **715** in the table **710** is updated to indicate that the payment has completed, e.g. by changing a status flag from pending to complete. According to one embodiment of the present invention, the record for a completed transaction is moved to a log file according its completion time for archive. Other information relating to transactions and their status may also be stored and is contemplated.

Mobile Device Application Flowcharts

[0253] The mobile device application flowcharts are shown in FIGS. **8-9** according to embodiments of the present invention. In FIG. **3**A, a mobile device communication interface **339** is used to facilitate the communication between the mobile device main program **335** and the mobile device radio hardware **343**. The mobile device communication interface **339** communicates with the MFTS mobile device communication interface **150** in the MFTS **18** via wireless communications through the MCSP **110**.

[0254] A flowchart of the MFTS mobile device communication interface **150** is shown in FIG. **8**. It will be understood that this process **150** on the MFTS side communicates with similar processes in the mobile device, via the mobile device communication interface **339** in a mobile device. In this flowchart, the MFTS mobile device communication **150** interface first establishes communication link to the mobile communication service provider (MCSP) the user subscribed in step **805**. The mobile device communication interface is set up between a mobile device and the MCSP and the interface receives data communication from both sides. The mobile device communication interface **150** comprises a continuous loop shown in step **810** to check if any new message is received from either the MCSP or a mobile device. If no message is received, the loop continues until a new message is received. When the mobile device communication interface **150** receives a message, it checks in step **815** to determine where the message comes from by checking the sender/receiver information. If the message comes from a mobile device that is requesting information from the MFTS server, the mobile device application proceeds to step **840** to add a task to processing queue and set a timer to wait for a response from the MFTS server through the MCSP in step **845**. The mobile device communication interface waits until it receives a response from the MFTS server or the timer times out, whichever comes first. If the mobile device communication interface receives a response within a predetermined timeout period, the message is sent to the mobile device in step **850**. Otherwise, if the MFTS mobile device communication interface **150** does not receive any response in time, then an error message is sent to the mobile device notifying the user a failure occurred. Both step **850** and step **820** converge in step **825** to extract a subset of information from the message or the response received from the MCSP. The information extracted in step **825** is sent to the user's mobile device for display in step **830**. After the message is displayed, the mobile device communication interface goes back to wait for next message in step **860** until the user turns off the mobile device and terminates the mobile device application.

Mobile Client Security Aspects

[0255] In order to use the MFTS **18**, a user **12** with a suitable mobile device **15** must register for service with an entity that operates an MFTS **18** constructed in accordance with exemplary aspects of the invention. This registration process necessarily involves the input and storage of important personal and financial information about the user either manually or via external system. Safety and security of the personal and financial information mandates that the MFTS **18** provide security guarantees and measures from MFTS administrators. According to an exemplary aspect of the invention, the disclosed MFTS **18** implements strong security measures on both ends of the mobile communication: (1) at the mobile client, and (2) at the MFTS server system itself. In accordance with exemplary aspects of the invention, one or more of the following security measures are implemented in the MFTS **18** with respect to communications with mobile devices:

[0256] Secure Mobile Client Delivery: In accordance with one aspect of the invention, the mobile application is delivered (e.g. by downloading) into a mobile device via a secure wireless delivery method. In accordance with this aspect, the mobile application is constructed as a wirelessly-deliverable or downloadable application or "applet" that is downloaded into a mobile phone from a central site, e.g. from the MFTS **18**. Those skilled in the art will understand that a number of different but generally equivalent programming environments currently exist to develop applications for various types of mobile phones and wireless data communication technologies.

[0257] One known secure delivery methodology is the BREW™ wireless content delivery platform for CDMA communication technologies provided by Qualcomm, Inc. Details of the application development and delivery methodology for Qualcomm-compatible mobile devices are available from the manufacturer.

[0258] Another delivery method is via a JAVA™ Archive file, also called a JAR, the platform for which is available from Sun Microsystems, Inc. In this case, the mobile application is constructed as a downloadable JAVA™ application that is downloaded into a JAVA-compatible mobile phone. Those skilled in the art will understand that the Java 2 Micro Edition (J2ME) programming environment may be used to develop applications for certain types of mobile phones (e.g. Motorola). Such applications are also called "applets" or "midlets", but essentially are computer programs that run within the specific operating environment of the particular type of mobile phone. Details of the J2ME application development environment are available from the manufacturer.

[0259] Preferably, the JAR file used to distribute the mobile client application is digitally signed with a code signing digital key issued to the MFTS **18** by an authentication process, e.g. a digital key process provided by VeriSign, Inc. This allows users to verify the authenticity of the

mobile client application. Details of the mobile security techniques provided by VeriSign are available in the literature and web site of VeriSign, Inc.

[0260] SSL communication to MFTS Server: Those skilled in the art will understand the significance of security for communications between users and the MFTS **18** via either a mobile device or via the web interface. Accordingly, preferably all HTTP communications to the server in the MFTS **18** are via HTTPS, i.e. secured via the known Secure Sockets Layer (SSL) protocol. As will be known to those skilled in the art, SSL is a protocol developed by Netscape Communications Corporation for transmitting private documents via the Internet. SSL uses a cryptographic system that uses two keys to encrypt data—a public key known to everyone and a private or secret key known only to the recipient of the message. Details of the SSL security protocol are available from the manufacturer.

[0261] Alternatively, a lesser level of security may be implemented for wireless communications by use of the known Wireless Transport Layer Security (WTLS). However, it will be understood that WTLS may not be as secure as the SSL protocol, because it uses weaker encryption algorithms and several exploits have been identified for the protocol. In addition, data communicated with WTLS is decrypted at the WAP gateway and re-encrypted via SSL to the destination host, which provides an opportunity for compromising the WAP gateway to intercept sensitive transmissions.

[0262] The MFTS mobile client application preferably makes a direct SSL connection to the MFTS server and is not as susceptible to the security issues plaguing WTLS and WAP applications. It will therefore be appreciated that if HTTPS is used for all communications between the mobile client and the MFTS server, the underlying mobile data transmission technology such as GPRS and CDMA between the mobile device and the MFTS should have no significant bearing on the security of the data for transactions.

[0263] Digital Keys on Client: According to another exemplary aspect of the invention, a unique digital key is issued to each client (mobile device) for use in digitally signing all communications to the MFTS server. This strongly authenticates the mobile client to the server and dissuades attempts to impersonate or spoof the mobile client. It will be appreciated that such a methodology affords stronger security than online banking sites that require only a username and password for access, which are much easier to compromise than digital keys. It is believed that use of the MFTS mobile client to access financial services is equally if not more secure than commonly used browser based online banking systems that require only a password for authentication.

[0264] PIN Required to Unlock Client: According to another aspect of the invention, further security for the mobile device **15** is provided by requiring the user to enter a PIN to unlock the mobile client each time it is launched. This prevents use of the application if the phone is stolen or "borrowed". PIN lockout is also preferably implemented on the mobile client so that the client will lock down after several failed login attempts and not permit further attempts until the client is unlocked by the user contacting support or logging into the MFTS system (e.g. via the web application) and invoking a procedure to unlock the mobile client. This prevents efforts to use "brute force" to guess the PIN. It will be appreciated that the combination of a PIN and the digital certificate creates a two-factor authentication mechanism for use of the mobile wallet software **400** on a mobile device.

[0265] Mobile Client Deactivation in Event of Theft or Loss: If the user's mobile device is stolen or lost, the user can access the MFTS **18** via the web application to deactivate the mobile client. This will prevent further communication between the mobile client and the MFTS and delete all demographic information from the mobile client about the user's mobile wallet.

[0266] Encryption of Data Placed in Local Storage: All data placed into local storage on the mobile device **15** is preferably encrypted. This insures that if the mobile device is lost or stolen, the data stored in the mobile client in local storage is unreadable. However, it will be appreciated that, because the mobile device does not store full information regarding the user's accounts, banks, account numbers, etc., but only stores a reduced set of information, represented by codes, the risk of compromise of the user's confidential information is reduced. For example, the mobile device only stores information indicating that a user has an account e.g. My Checking or xxxxxx2125), but the user's account number is stored in the MFTS **18**, not in the mobile device. This aspect is believed to be a particular advantage of the architecture of a mobile financial transaction system constructed in accordance with the present invention—providing and storing a reduced subset of information in the mobile device, with more complete information stored in a secure server, enhances the overall security for mobile transactions.

[0267] Verification of Phone Number Possession: In accordance with yet another aspect, further security is provided by verification that a payment instruction originates from a particular mobile number associated with a user. This security measure is implemented in the disclosed embodiment by providing the mobile number associated with the mobile device as a part of the mobile payment instruction (MPI) to the MFTS **18**, preferably encrypted together with other information of the MPI. The MFTS is responsive to the MPI to parse out the mobile number and determine if the payment instruction has originated from a mobile number that is consistent with both the account identified as a payment source (PS), as well as the name of the payee as having already been entered and stored in the payee table in the user database.

[0268] According to yet another exemplary aspect of the invention, during an enrollment process, an SMS containing a predetermined verification code is sent to the phone number entered when setting up the mobile client. This code must be entered by the user when online at the user site web application **153** to successfully initialize a mobile client for operations. This prevents a person from registering a phone number they do not have possession of with the intent of committing fraud.

[0269] One Time Password Used to Initialize Mobile Client: Still further security is provided by requiring entry of an initialization code or password the first time the mobile client is run to trigger the generation and installation of the client's digital certificate. This initialization code is a one-time expiring one time password that is presented to the user at the user site web application **153** during the initialization process for the mobile client. This process establishes a difficult-to-forge link between a user account and an instance of the mobile client on the user's mobile device.

[0270] Mobile Client Initialization: The following steps describes the best mode currently contemplated for a process

of user enrollment in a system constructed in accordance with exemplary aspects of the invention and installing the mobile client:

[0271] 1. A user with an Internet-accessible computer (e.g. computer **140** in FIG. **2**) navigates to the Internet-accessible user site web application **153** in their browser and completes the enrollment form displayed by the web application. (NOT SHOWN.) The user provides the requested information by entering information into appropriate fields in the data form displayed. Alternatively, enrollment could be implemented by a third party enrollment system with whom the MFTS system operator maintains a relationship, e.g. an associated financial service provider.

[0272] 2. When enrollment is complete, the user accesses a mobile client management section of the user site web application **153** and adds a new mobile client. Alternatively, addition of a new mobile client could be implemented by a process provided by a third party with whom the MFTS system operator maintains relationship, e.g. an associated financial service provider or mobile communication service provider.

[0273] 3. The user then enters the phone number of the mobile device on which he/she wishes to install the mobile client and clicks an initialize button.

[0274] 4. Another step involves generation of a verification code to activate the mobile client on the mobile device:

[0275] (a) In accordance with one exemplary aspect of the invention, the MFTS **18** sends an SMS to the phone number specified; this SMS contains a verification code. The user is then prompted by the mobile application to enter the verification code to activate the mobile client to conduct transactions.

[0276] (b) In accordance with another aspect, the user views the verification code in the SMS and enters the verification code into a browser verification screen at the user site web application **153**. Presumably, the mobile phone with verification code will be in the user's immediate possession during enrollment. The user then clicks a "verify" button to activate the mobile application.

[0277] 5. Another step involves generation of an initialization code and downloading of the mobile application into the mobile device (for a new installation of the mobile device software):

[0278] (a) According to one exemplary aspect of the invention, a user with Internet access to the user site web application is next presented with an initialization code for the mobile client. This initialization code is later entered into the mobile device (see below) upon prompting, for activating the mobile client.

[0279] (b) According to another exemplary aspect of the invention, on the mobile device, the MFTS **18** sends the mobile device a second SMS that contains a clickable link for downloading the mobile client. The user then clicks the link and downloads the application into the mobile device.

[0280] 6. After the mobile client is finished downloading into the device and activated by the user, it will present a screen prompting for the initialization code. The user will then key in the initialization code into the mobile client.

[0281] 7. The initialization code is then communicated from the mobile device **15** to the MFTS **18**, to be used for device and mobile client authentication. When a valid initialization code is received by the MFTS **18**, a unique digital key is placed onto the mobile client.

[0282] 8. Upon receipt of a digital certification from the MFTS **18**, the mobile client then prompts the user to enter and confirm a PIN.

[0283] 9. After the PIN is received and stored, the mobile device is ready for use, and displays a main menu screen that allows entry of billing entities, payment sources, viewing of balances in accounts that were previously entered by the user via the user site web application **153**, etc.

MFTS Server System Security Aspects

[0284] In accordance with exemplary aspects of the invention, various security measures are implemented in the MFTS **18** by various software routines appropriate for the various entities with which the MFTS communicates. One or more of the following security measures are implemented in the preferred MFTS **18**:

[0285] Web Applications Require SSL: Preferably, all externally accessible web applications that run at the MFTS **18** (e.g. the web applications **154** including User Site **153** and the Admin Site **157**) only permit SSL secured connections. If a user tries to initiate a plain HTTP connection to one of the web applications, it will be redirected to an HTTPS connection.

[0286] Password Complexity Requirements: Passwords for web application logins preferably must meet stringent complexity requirements. Password protection can be implemented at various stages of the operation.

[0287] Account Lockout and Password Reset: Preferably, but optionally, accounts will be locked out after several failed login attempts to the user site web application **153**. Users whose accounts have been locked out will have to activate an Account Unlock function provided at the user site **153** and enter the correct reply to a password reset question they established during enrollment to unlock the client and reset their password. If the user is unable to remember the correct reply, they will have to contact a customer service facility (web site, representative, etc.) to have their account unlocked and password reset.

[0288] Security of FSP Interfaces: Interfaces to FSPs are preferably secured with mechanisms appropriate to the nature of the interface and/or as required by the particular FSP. Any interface using the public Internet for data transmissions is preferably secured via encryption and authentication requirements that are acceptable in the financial services industry. Details of security requirements for communications with particular FSPs should be obtained from the FSP.

[0289] From the foregoing, it will be understood and appreciated that various mechanisms may be employed, singularly or in combination, to ensure security in an equivalent manner as described above for communications with the MFTS **18**, whether via mobile devices **15** or via the user site

153. Other security measures and techniques may occur to those skilled in the art, while remaining within the scope of the invention.

MFTS Interface Software Routines

[0290] As described above in connection with FIG. **3**B and FIG. **5**, the MFTS software **500** comprises various program modules including the main program **350** (FIG. **5**) and various communication interfaces for handling communications and functions associated with the various entities involved in a system constructed in accordance with the disclosed aspects of the invention. Other software or program modules include an MFTS mobile device communication interface **150**, a web application interface **154**, a financial service provider communication interface **156**, and a bill presentment interface **155**. Further software routines include a P2P service **375**, an SMS generator **151**, and a financial account service **379**.

[0291] Turn next to FIG. **8** for a description of the MFTS mobile device communication interface software or routine **150** in accordance with an aspect of the invention. The MFTS mobile device interface software **150** preferably runs as a continuous independent process on the MFTS server computer, asynchronous to other processes, and provides for handling of communications and messages between the MFTS **18** and the mobile devices of users. By use of the term "interface," we mean a computer program or routine **150** and associated hardware such as a communications component or storage element that is driven by the program. The interface **150** handles messaging between the various processes in the MFTS **18** and mobile devices, for example, when a user at a mobile device generates a command to "View Bills" or "Pay Bills," that command is received over a wireless network and processed by the MFTS mobile device communication interface **150** as described herein, to cause the MFTS **18** to carry out functions in accordance with the invention.

[0292] Starting at step **805**, the first step taken is for the interface to establish communication with a mobile communication network, that is, with particular mobile communication service providers (MCSP), so that communications between the MFTS **18** and mobile devices that subscribe for service with particular networks may be established. Essentially, this is an initialization process that involves determination of appropriate protocols for communications with a specific MCSP and establishing contact with an MCSP by exchanging messages in a manner corresponding to the communication protocol. After establishing communications, the interface tests at step **810** for receipt of a message either incoming from a mobile device or from another process within the MFTS **18**, for example, if a billing entity or bill presentment system provides information about a new bill for a particular user.

[0293] At step **815**, the interface determines whether an incoming message is a task-initiating message (for example, from a mobile device in an affiliated mobile network) or is a message from another MFTS process (for example, a response message from the FSP interface **156**). If the incoming message is a task-initiating message, the interface process proceeds to step **840**, where a new processing task is created and added to a processing queue for the interface **150**. For example, a processing task derived from a mobile device incoming message may be a mobile payment instruction (MPI), or a "View Bills" instruction, or a "Balance Transfer," or other of the various functions of the mobile wallet. Typically, a processing task will generate a new transaction record that is stored in the transaction table in the user database **158**. Thus, at step **842**, a new transaction record (if appropriate for the incoming message) is created and stored in the transaction database.

[0294] At step **845**, the interface sets a timer (a predetermined time period) appropriate for the particular task and process, and initiates a timing loop. Control then passes to step **850**, where the interface tests for expiration of the predetermined time period. If the timer has expired, an error condition has occurred (the task added to the queue has not been properly processed in time), and at step **855** an error message is generated and sent to the user's mobile device that triggered the task.

[0295] If an appropriate response from the queued task is received within the predetermined time, control from step **850** passes to step **860**, where the transaction record created in conjunction with the incoming message is updated with any information that resulted from processing the queued task. For example, if the task involved making a payment using a particular payment source to a particular payee, and the payment is accepted and timely handled by the selected financial service provider, the transaction record is updated to indicate confirmation of the payment.

[0296] After the transaction record is updated (if applicable), control passes to step **870**, and a corresponding message relating to the task-initiating message is sent out to the requesting user's mobile device or other task-initiating process. For example, if a payment instruction was received from a mobile user and that payment instruction was duly and timely processed, a payment confirmation message is sent to the user's mobile device.

[0297] Returning to step **815** in FIG. **8**, if the MFTS mobile device communication interface **150** determines that an incoming message is from another MFTS process (e.g. a response message or other non-task-initiating message), control passes to step **820**, where the message is processed. For example, a message from another MFTS process could be a message provided by a billing presentment system that a new bill for payment has been received for a particular user, or a message provided by a financial service provider with information as to balances available in particular accounts for a particular user. In accordance with aspects of the invention, a message from various other processes and associated entities may include information that is not required by the mobile device interface, i.e. only a reduced set of information is to be provided to the mobile device. Specifically, a financial service provider (FSP) **30** may provide information about a user's financial accounts that is more comprehensive (i.e. "excessive") than required for display and handling on a mobile device, in that all of the information from the FSP is not needed or desired for display on the mobile device. In such cases, a reduced set of information appropriate for display on the mobile device, as shown in various exemplary mobile device displays shown elsewhere in this document, is prepared for sending to the mobile device as a message. In such a case, at step **825** a subset of information that was received and/or stored in the MFTS is prepared for transmission to a selected user's mobile device.

[0298] Control passes from step **825** to step **860**, where any corresponding transaction records associated with the message (if any) are updated with information from the

message of the MFTS process. Then, at step **870**, an appropriate message to the mobile device corresponding to information in the message processed (step **810**) is prepared for transmission to the mobile device. The process **150** then loops back to process any other messages that may have arrived.

[0299] After step **870**, the process **150** loops back to step **810** to process another incoming message. From the foregoing, those skilled in the art will understand and appreciate how the MFTS mobile device communication interface **150** is operative to process messages from either mobile devices or from other MFTS processes, communicate relevant information in the form of tasks for processing by other MFTS processes, update any corresponding transaction or user database records, and/or communicate appropriate return messages to a user's mobile device or other message-delivering sources.

[0300] Turn next to FIG. **9** for a description of the financial service provider (FSP) interface software or routine **156** in accordance with an aspect of the invention. The financial service provider (FSP) interface **156** preferably runs as a continuous independent process on the MFTS server computer, asynchronous to other processes, and provides for handling of communications and messages between the MFTS **18** and the financial service providers of users.

[0301] Although FIG. **9** shows exemplary steps of an interface for communications between the MFTS **18** and one or more FSPs **30**, it should be understood that a similar methodology is employed for the bill presentment interface **155**, the financial account service **379** (for third party user authentication), the P2P service **375**. All are similar continuous, independent asynchronous computer-implemented processes that receive messages from either another MFTS process or from a third party connected for communications with the MFTS, process those messages by determining an appropriate destination (e.g. storage of data in the user database **158** to update user information or to create or update a transaction record, communication to a mobile device, etc.), and forwarding processed information to such destinations. Accordingly, the discussion of FIG. **9** will be understood as generally applicable to other communication interface processes, except as noted.

[0302] Starting at step **905**, the first step taken is for the interface **156** to establish communication with a financial service provider (FSP) **30** so that communications between the MFTS **18** and the FSP may be established. Essentially, this is an initialization process that involves determination of appropriate protocols for communications with a specific FSP and establishing contact with an FSP by exchanging messages in a manner corresponding to the communication protocol. After establishing communications, the interface tests at step **910** for receipt of a message either incoming from a mobile device (via MFTS the mobile device communication interface **150**) or from another process within the MFTS **18**, for example, if a user has initiated a transaction via the web application interface **154**.

[0303] At step **915**, the interface determines whether an incoming message is a task-initiating message or is a return/response message from an FSP **30**. A task-initiating message is a message that causes the interface to initiate a communication to a particular FSP **30**, for example from a mobile device (MFTS mobile device communication interface **150**) or from another MFTS process such as a web application initiated payment instruction. If the incoming message is a task-initiating message such as from a mobile device, the interface process proceeds to step **940**, where a new processing task is created and added to a processing queue for the interface **156**. For example, a processing task derived from a mobile device incoming message may be a mobile payment instruction (MPI), or a "Pay Bill" instruction, or a "Balance Transfer," or a "View Payment Sources," or other of the various functions of the mobile wallet. For the FSP communication interface **156**, a typical new processing task is in the form of a MFTS payment instruction (MFTSPI) that is communicated to a selected FSP **30**, so as to instruct that FSP to make a payment on behalf of a user, using a selected account as payment source (PS).

[0304] As mentioned in connection with FIG. **8**, and in accordance with an exemplary aspect of the invention, a processing task derived from a mobile device incoming message generates a new transaction record that is stored in the transaction table in the user database **158**. It will be understood that information from this transaction record is utilized in the processing task for the queue in interface **156**, for example, in assembling the information required for the MFTSPI to the selected FSP **30**. Further, it will be understood that the transaction record is updated if necessary with information from the FSP upon receipt of a response.

[0305] At step **945**, the interface sets a timer (a predetermined time period) appropriate for the particular task and process, and initiates a timing loop. Control then passes to step **950**, where the interface tests for expiration of the predetermined time period. If the timer has expired, an error condition has occurred (the task added to the queue has not been properly processed in time), and at step **955** an error message is generated and sent to the process that triggered the task.

[0306] If an appropriate response from the queued task is received within the predetermined time (e.g. a response from the FSP containing information about the user's account balance, a payment confirmation, or other information), control from step **950** passes to step **960**, where the transaction record created in conjunction with the incoming message is updated with any information that resulted from processing the queued task. For example, if the task involved making a payment using a particular payment source to a particular payee, and the payment is accepted and timely handled by the selected financial service provider, the transaction record may be updated to indicate confirmation of the payment. As discussed in connection with FIG. **8**, the MFTS mobile device communication interface **150** may be responsible for updating the corresponding transaction record, but it will be appreciated that other circumstances may require that the FSP communication interface update a transaction record. Other information associated with the task and received from the FSP may also result in updating other records in the user database **158**, e.g., the addition of a new account of a user with a selected FSP will require addition of a record in the user financial accounts table **620** (FIG. **6**), or a closed account status of a particular FSP with a user will require updating (or deletion) of a record in the financial service provider table **630** (FIG. **6**).

[0307] After a transaction record or other user database table is updated (if applicable) at step **960**, control passes to step **970**, and a corresponding message relating to the response from the FSP is sent out to the process that initiated the communication, e.g. to the requesting user's mobile device. For example, if a payment instruction was received

from a mobile user and that payment instruction was duly and timely processed by a selected FSP, a payment confirmation message is sent to the user's mobile device. In accordance with an exemplary aspect of the invention, messages of this type such as a confirmation message is in the form of a message passed to the MFTS mobile device communication interface **150**.

[0308] Returning to step **915** in FIG. **9**, if the FSP communication interface determines that an incoming message is from the FSP (as opposed to the mobile device communication interface or other task-initiating interface), control passes to step **920**, where the message is processed and any response information from the FSP is received. After step **920**, control passes to step **970**, where information corresponding to the message from the FSP is forwarded to the intended destination, e.g. to the mobile device communication interface or to a web application interface that initiated a payment instruction.

[0309] After step **970**, the process **156** loops back to step **910** to process another incoming message. From the foregoing, those skilled in the art will understand and appreciate how the FSP communication interface **156** is operative to process messages from various MFTS processes (such as from the MFTS mobile device communication interface **150**), communicate relevant information to a selected FSP, receive a response message, update any corresponding transaction or user database records, and/or communicate appropriate return messages to a user's mobile device or other message-delivering source.

[0310] Turn next to FIG. **10** for a description of the web application interface software or routine **154** in accordance with an aspect of the invention. The web application interface **154** preferably runs as a continuous independent process on the MFTS server computer, asynchronous to other processes, and provides for handling of communications and messages between the MFTS **18** and users who access the MFTS via the Internet **120** using a web browser on a computer **140** (FIG. **2**), as opposed to a mobile device. As will be understood by those skilled in the art, the web application interface serves as the main program loop for displaying an Internet-accessible web page (such as the User Site shown in FIG. **37**) for user access to the MFTS **18** via the Internet to conduct transactions, view account history, add payees, add financial institutions and accounts, etc. It will be recalled from FIG. **3**B that, in accordance with exemplary aspects of the invention, the web application interface **154** provides for several primary web-accessible functions including enrollment of a new user, editing a mobile client, editing credit card or banks accounts, adding a new payee or editing information about a payee, initializing a mobile client, unlocking a mobile client, and other operations.

[0311] Starting in FIG. **10** at step **1005**, the first step taken by the web application interface software **154** is to initialize the interface so that it is ready to communicate with users via the Internet. Those skilled in the art will understand that such initialization operations entail initializing any associated hardware so that it can send and receive TCP/IP packets that are conventional for Internet communications. Control then passes to step **1010** where the process loops awaiting receipt of TCP/IP packet(s) from a web browser of a user or prospective user who navigates to the User Site. In response to receipt of packet(s), control passes to step **1015**, where the packets are received and parsed to determine their contents.

[0312] After step **1015**, control passes to inquiry step **1020**, where in the inquiry is made whether the user sending the packets has been authenticated and established a communications session. If not, control passes to step **1025**, where a login operation (i.e. user authentication and session establishment) is carried out, in the manner that will be known to those skilled in the art. If the user cannot be authenticated, other processes (not shown) are carried out to allow a new user to enroll or register, or the entity attempting to communicate with the MFTS is refused access (i.e. the packet(s) are ignored or dropped). If at step **1020** the user was previously authenticated in a prior operation and a session established, or after the login/authentication step **1025**, control passes to step **1030** for display of appropriate information corresponding to the current status of the session.

[0313] At step **1030**, the web application interface **154** provides return packets to the user corresponding to display of a web page appropriate for the state of the current session with the user. For example, if the user is initially logging in for authentication, a conventional user login screen for entry of username and password (not shown) is provided. As another example, if the user is in the process of managing information about their mobile device, a User Site screen such as shown in FIG. **37**A is displayed. As another example, if the user is adding or editing information about a mobile device, a User Site screen such as is shown in FIG. **37**B is displayed.

[0314] After the display step **1030**, control passes to step **1040**, where the interface receives and processes any packet (s) that include information input by the user in response to the displayed web page. Afterward, at step **1045**, the interface stores any received information from the user and generates any message(s) that would be required for delivery to other processes or interfaces in the MFTS **18**. For example, the user's input may require updates to certain tables in the user database **158**, or may require generation of a payment instruction or a "View Bills" command that requires a communication to a financial service provider **30**.

[0315] Control then passes to step **1050**, where the interface determines if any messages have been received from any process or interfaces in the MFTS. For example, if the user's input required generation of a payment instruction or a "View Bills" command that required a communication to a FSP, a return or response message will eventually be returned to the web application interface containing the requested information. If such a message is received, control passes to step **1055**, where the message is processed, which may include updating the web page with any information in the received message. From step **1050** (if no message from another process has been received) or from step **1055** (after processing any message), control returns to step **1010** to await further user web application interaction, i.e. receipt of additional packets.

[0316] From the foregoing, those skilled in the art will understand and appreciate how the web application interface **154** is operative to process web interactions from users via the Internet or from other MFTS processes.

[0317] As will be recalled from the discussion above, the web application interface **154** provides for several web-accessible functions such as enrollment of a new user, editing a mobile client, editing credit card or banks accounts, adding a new payee or editing information about a payee, initializing a mobile client, unlocking a mobile client, and

other operations. One of these exemplary functions is the enrollment of a new user, i.e. a person must be registered or enrolled to use the service provided by the operator of the MFTS. According to an aspect of the invention, a new user can access the MFTS **18** via the Internet and provide information to the system for enrollment for service.

[0318] Turn in this regard to FIG. **11** for a discussion of a web application **1100** for enrolling a new user to use the MFTS **18** in accordance with exemplary aspects of the invention. The new user web application **1100** is exemplary of a process that is subsidiary to the general web application user interface **154** of FIG. **10**, in that the process of FIG. **11** utilizes the web interface **154** for interactions with the user via the Internet, but the steps of FIG. **11** are specific to the process of enrolling a new user. Specifically, it will be understood that a new user will not pass the authentication step in FIG. **10**, and will typically be presented with a "new user" web page that includes controls that allow a user to input personal information and configure an account.

[0319] Starting at step **1105** in FIG. **11**, the MFTS generates an "enroll new user" web page (not shown) that includes information needed by the new user and provides for controls and data entry fields for entry of information required by the MFTS to enroll a new user. At step **1110**, the new user enters information prompted on the "enroll new user" web page, for example, name, address, telephone number, email address, and other information. The enrolling user must also enter certain information about billing entities (i.e. payees), financial institutions or financial service providers (FSP) **30** with whom the new user maintains a relationship and accounts, and information about specific accounts maintained with such financial institutions or FSPs that can be selected as a payment source. At step **1115**, the system test for a user command to edit information about a billing entity or a payment source. If the command is associated with a billing entity, control branches to step **1120**, where the system tests for a command to enter a new billing entity or to edit information about an existing billing entity (for example, if one or more billing entities have already been entered for this enrolling new user at this point in the processing).

[0320] At step **1120**, if a command has been received to enter information about a new billing entity, control passes to step **1125** for receipt and storage of information about new billing entity or payee. It will be understood that information about a billing entity is stored in the payees table in the user database **158** (see FIG. **6**). If no command is received to enter information about a new billing entity, control passes to step **1130** to test for a command to edit an existing billing entity. At step **1130**, if a command has been received to edit information about an existing billing entity, control passes to step **1135** for receipt and storage of edited information about the existing billing entity or payee. Upon completion of any billing entity input or editing, control passes to step **1160** and either loops back to step **1115** or tests for user logout.

[0321] Returning to step **1115**, the system tests for a user command to edit information about a billing entity or a payment source. If the command is associated with a payment source such as a financial institution or financial service partner, control branches to step **1140**, where the system tests for a command to enter a new payment source or to edit information about an existing payment source (for example, if one or more payment sources have already been entered for this enrolling new user at this point in the processing).

[0322] At step **1140**, if a command has been received to enter information about a new payment source, control passes to step **1145** for receipt and storage of information about new payment source. It will be understood that information about a payment source is stored in the user financial accounts table and/or the financial service provider table in the user database **158** (see FIG. **6**). If no command is received to enter information about a new payment source, control passes to step **1150** to test for a command to edit an existing payment source. At step **1150**, if a command has been received to edit information about an existing payment source, control passes to step **1155** for receipt and storage of edited information about the existing payment source. Upon completion of any payment source input or editing, control passes to step **1160** and either loops back to step **1115** or tests for user logout.

[0323] Turn next to FIG. **12** for a discussion of a registered user web application **1200** that allows a registered or enrolled user to access and use the MFTS **18** in accordance with exemplary aspects of the invention. The registered user web application **1200** is exemplary of a process that is subsidiary to the general web application user interface **154** of FIG. **10**, in that the process of FIG. **12** utilizes the interface **154** for interactions with the user via the Internet. However, the steps of FIG. **12** are specific to the process whereby a registered user uses the Internet to add or edit information about billing entities or payees, and/or information about payment sources. Specifically, it will be understood that a registered user will log in and be authenticated at the authentication step in FIG. **10**, and will typically be presented with a registered user web page that includes controls that allow a user to input and edit information about billing entities and payment sources. Thus, at step **1205**, the registered user first logs in to the web application and provides his or her login and password information, and is presented with a "registered user" web page containing information specific to the billing entities and payment sources associated with that registered user.

[0324] It will be appreciated from reviewing FIGS. **11** and **12** that the overall structure of the processes **1100** and **1200** are similar. Accordingly, those skilled in the art will understand and appreciate that the remaining steps in FIG. **12** are similar to those in FIG. **11** and need not be discussed further herein.

Mobile Device Operation

[0325] FIG. **13** and the figures that follow accompany the following discussion of exemplary display screens generated on a mobile device **15** by a mobile client application, in connection with viewing payment sources and account balances, in accordance with exemplary aspects of the invention. Before the presentation of exemplary sequences of screen views of a mobile device **15**, it should be noted that in the drawings which follow, a payer's view is represented by a rectangular screen view with four rounded corners, while a payee's view is represented by a rectangular screen view with four square corners. A payee's view is provided in connection with certain payment sequences and methods in aspects of the invention, for example certain types of "PayAnyone" payments involve sending a message to a user of a mobile phone (a second user, a user other than the user

who is making the payment), display of a text message, and (if selected) downloading of the mobile application into the second user's mobile device. Such payee views have the squared corners in the drawing figures.

[0326] It will be understood that different mobile devices typically have different screen appearances, different screen sizes, different screen layouts and fonts, etc. However, the main messages for display are presented in the following drawings. The message texts, fonts, lines of text display may vary depending on the mobile devices. Alternative embodiments will become apparent to those skilled in the art. Viewing, selecting a payment source, and viewing the account balance of each available account are basic functionalities of the MFTS mobile application.

[0327] It will also be understood from the following description that various methods for selecting a payee (e.g. select payee by name, select by mobile phone number, etc.) are contemplated in various aspects of the inventions, that various methods for communicating the fact of a payment to a payee (e.g. by text message, by display of a message on a payee/user's mobile device, etc.) are contemplated in various aspects of the inventions, that various methods for effecting the payment (e.g. paper check, ACH transfer, stored value card, etc.) are contemplated in various aspects of the inventions, and that various methods for selecting an applicable payment method (e.g. payer selects, payee selects) are contemplated in various aspects of the inventions. Those skilled in the art will therefore understand and appreciate that the foregoing various aspects may be combined in various ways to provide flexibility and choice in payee identification and selection as well as payment method selection, as will be described in connection with the various exemplary mobile device user screen views for various embodiments and aspects of the inventions.

Mobile Device Operation—Viewing Payment Sources and Account Balances

[0328] Referring now to FIG. **13**, a series of user screen views **1300** of a mobile device as the user views the Payment Sources (PS) is presented according an exemplary aspect of the invention. Typically, a user is presented with a selection screen on their mobile device, for example screen **1302**, allowing selection of an application for execution on the mobile device. As shown in the screen view **1302**, "Mobile Wallet" is one of the options of applications. The user can use a stylus, multifunction button, trackwheel, or other navigation input device or control to highlight the selection, or use the numeric keypad to make the selection by numeric entry. For example, the user can use arrow keys on the mobile device to navigate and highlight the "Mobile Wallet" and press "Select" Key to go to the "Mobile Wallet" application. Alternatively, the user may press the numeric "1" key to go directly to the "Mobile Wallet" application.

[0329] It should be understood that a similar entry and selection mechanism, as described for selecting an application, is used for selection of data items on the various mobile device display screens in the several views discussed. These details will not be repeated to avoid needless repetition.

[0330] In response to selection of the Mobile Wallet application in screen **1302**, a login screen **1304** is displayed. In this screen, the user is prompted to enter a predetermined number of digits as a PIN or pass-code to enter the "Mobile Wallet" as a security measure. In alternative embodiments, a login screen **1304** or equivalent functionality can be placed at other locations of the screen or in other situations, as when a user turns on the mobile device, chooses applications, selects "Mobile Wallet", views bills, pays bills, or other appropriate location and/or circumstance. In the descriptions of other drawing figures of other payment scenarios, the application selection screen **1302** and login screen **1304** are omitted, but it will be understood that such functionality can be provided if desired.

[0331] In response to entry of a valid login or PIN, screen **1306** is displayed on the mobile device. This screen **1306** preferably comprises a menu of available options of the Mobile Wallet application according to an exemplary aspect of the invention. In this embodiment, the available applications include: (1) View Payment Sources, (2) View Bills, (3) Pay Bills, (4) "PayAnyone", (5) Balance Transfer, and (6) Change PIN. Other functions can also be provided for selection here for various embodiments or implementations.

[0332] When the user highlights the "View Payment Sources" option and presses the "Select" button or enters "1", a new screen view **1308** displaying one or more registered payment sources available to the user is shown. A scrolling bar (not shown) may be included on the screen if the screen is not large enough to display all payment sources. The user activates a navigation tool to highlight a payment source and presses "Select" to select a particular payment source. Selection of a particular payment source results in a display of information **1310** relating to the selected payment source, for example the balance(s) of various accounts of the user. For example, screen **1310** shows a current balance, available credit, and available cash advance amount for the user, in connection with the financial service provider's logo to facilitate brand recognition. Display of the financial institution's logo is optional; some model mobile devices may not have graphic capability and may only display the name of the payment source rather than the logo.

[0333] Screen **1310** also shows exemplary "Back" and "Next" keys or buttons on the screen view that may be used to navigate the available payment sources. When the "Next" key is pressed, other payment source views, for example screens **1312**, **1314**, and **1316** are displayed in a sequence, until a "Select" key is pressed. In this example, the Discover Card is displayed as selectable payment source as shown in screen view **1312**. Other selectable payment sources "Georgia Savings & Loans" and "Bank of USA" are displayed in screen views **1314**, **1316** respectively. The account balances and other related information of these payment sources are also displayed with these screen views.

[0334] According to an exemplary aspect of the invention, the balances available to the user are retrieved from by the MFTS **18** during a communication session between the MFTS **18** and the mobile device **15**, so that real time (when mobile device is within the range of wireless service) account balances are displayed to the user, the last known balance stored in the memory of the mobile device may be displayed. It will be appreciated that as the user is viewing the payment sources and their account balances in the various payment sources screens **1300**, the mobile device **15** is communicating with the MFTS **18** and receiving real-time balance information from the corresponding financial institutions. According to another exemplary aspect of the invention, in the event that wireless signal is not available to the mobile device, or MFTS **18** is unable to communicate with a particular financial service provider/payment source **30**, the last (most recent) balance information, will be pulled

from the mobile device **15**, as such information is cached in local memory of the mobile device. In the event that the mobile client retrieves the balance from offline storage, the date/time of the last successful request to the server will be displayed.

[0335] Still referring to FIG. **13**, in accordance with an exemplary aspect of the invention, the mobile client application is configured so that one particular payment source is automatically selected as a default payment method, for use automatically and by default by the user unless overridden. Screen **1318** reflects selection of a particular payment source (e.g. Bank of USA) as a default payment source. Thus, when the "Select" key is pressed as shown in screen view **1316**, the user elects the specific payment source displayed on the screen as a default payment method. In screen **1316** the default payment source selected is "Bank of USA". Screen **1318** preferably provides a prompting message "Use as Default Payment Source?" for confirmation by the user. Other payment sources, such as different credit cards, are also available for selection as the default payment source. Preferably, the selected default payment source will remain until it is changed by the user upon a subsequent execution of the View Payment Sources screen **1308**. According to a variation of this aspect, the system also includes code for the mobile application and/or the User Site that allows a user to change the default payment method on the fly.

[0336] According to an aspect of the invention, the user's selection and activation of a View Payment Sources command on the Mobile Wallet application causes the generation of a mobile payment instruction to the MFTS, which responds by requesting real time updated account balance information from the payment sources available to the user and provides such updated account balance(s) to the user's mobile device. It will be appreciated that such updated account balance information includes all types of payment sources including bank accounts, credit cards, credit unions, or any other financial account that can be accessed by a system and with methods as described herein.

[0337] FIG. **14** is a sequence diagram illustrating a method **1400** for viewing payment sources and account balances according to one exemplary aspect of the invention. In FIG. **14** and other sequence diagrams, it will be understood that the oblong objects across the top of drawing represent entities that communicate electronically via the exchange of signals, messages, data packets, TCP/IP, etc.; that the rectangular boxes along a line extending vertically downwardly from a communicating entity represent steps taken by that entity; that lines with arrows extending between rectangular boxes represent communications directed from one entity to another entity; and that time proceeds in a direction from top to bottom of the drawing figure. This convention is utilized in all sequence diagrams illustrating embodiments and aspects of the invention, unless otherwise noted.

[0338] Several entities are illustrated in FIG. **14**: a user's mobile device **15**, the MFTS server **18**, and various financial institutions (FI) with which a user **12** (not shown) has business relationships such as (FI-**1**) **30**A and (FI-N) **30**N. Usually, communications between the mobile device **15** and the MFTS **18** are provided by a wireless carrier network, not separately shown in the drawing. Communications between the MFTS **18** and a payee, or a payee's financial institutions, or any third party service providers, are typically provided by a telecommunication network, an Internet service provider, a dedicated communication path, or any other available secure communication networks, although not separately shown in the drawing.

[0339] Starting in FIG. **14** at step **1402**, the user opens a "Mobile Wallet" application on the mobile device **15**; he/she is preferably required to log in by providing a password or PIN for verification as indicated at step **1404**. The password or PIN is entered by the user, is validated locally and the signed, encrypted messages are sent to the MFTS for authentication via an authentication message (AM) **1406**. At step **1408**, the MFTS **18** validates the login and allows the Mobile Wallet application to execute, for example, by providing a communication or authentication confirmation message (ACM) **1410** back to the mobile device **15** that includes a signal or validation code that allows the Mobile Wallet application to execute on the mobile device **15**. If the user enters an incorrect password or PIN a predetermined number of times in a row, preferably he/she is denied service and the mobile device is locked. In this case the user is required to take steps (not shown) to access the User Site **153** or contact a customer service representative to unlock the mobile device.

[0340] If password or PIN is entered correctly, the authentication confirmation message **1410** from the MFTS **18** informs the mobile device **15** that the login is valid and launches the "Mobile Wallet" application on the mobile device **15**, as shown at step **1412**. At step **1414**, the user is presented with a screen (e.g. FIG. **13**) that allows viewing and selection of payment sources and account balances.

[0341] Also at step **1412**, the user can make a selection on screen **1306** (as shown in FIG. **13**) to View Payment Sources. According to one exemplary aspect of the invention, the MFTS **18** automatically retrieves account balances for various payment sources (and retrieves bills to be paid), upon login at step **1412**. According to another exemplary aspect of the invention, the MFTS retrieves such information in response to specific activation of the corresponding function, e.g. selection of View Payment Source (screen **1306** in FIG. **13**) sends a message to the MFTS to cause retrieval of payment source information such as account balances, and selection of View Bills (also screen **1306**) sends a message to cause retrieval of payments to make.

[0342] In an exemplary embodiment, the mobile device **15** communicates a request to view payment sources and account balances to the MFTS **18**, and the MFTS corresponding interacts with the available payment sources to retrieve their respective account information as shown at step **1418** by sending out requests **1420**A or **1420**B to their corresponding financial institutions **30**A, or **30**B. In accordance with a preferred embodiment of certain inventions, real-time information of all payment source accounts available to the user is collected and sent back to the MFTS as shown at steps **1422** and **1424** through messages **1426** and **1428**. Although only two financial institutions are shown in FIG. **14** for illustration purposes, it will be understood that the system is operative to communicate with some or all available and registered financial institutions associated with the user.

[0343] At step **1430**, the MFTS **18** collects and accumulates account balance information from the various financial institutions associated with the user, and sends one or more messages **1432** containing this information to the mobile device **15**. According to one aspect of certain inventions, a collection of account balance information is accumulated

and communicated to the mobile device in a single communication. According to another aspect, account balance information for a particular financial institution is communicated to the mobile device as quickly as possible after it is received, as the various systems of financial institutions are independent and operate asynchronously with respect to other systems.

[0344] At step **1434**, upon receipt of the account balances from financial institutions, information of all registered accounts is provided for the user to view. He/she can then use the navigation controls to view selected payment sources and account balances. The user can also perform other functions such as selecting a default payment method as described in connection with FIG. **13**.

[0345] According to an exemplary aspect of the present invention, after the user enters a valid password or PIN, the login is validated by the MFTS system **18**. At this point, the MFTS can start to gather information for the user prior to the selection of any Mobile Wallet options. In one embodiment, the MFTS system **18** sends out balance requests to part or all of user's billing entities to retrieve up to the minute balance information from these billing entities. In another embodiment, the MFTS system **18** sends out payment source information requests to part or all of user's financial service providers to retrieve up to the minute (real time) balance information from these entities. These operations are completed before the user even starts to make any Mobile Wallet selections. The information retrieved from the billing entities and financial service providers is stored (cached) in a temporary database or memory in the use's mobile device, and/or is cached in the MFTS system. The user is likely to make some selection of the mobile wallet operation after he/she logs into the mobile wallet. When he/she makes any selection of the mobile wallet operation such as view bills, view payment sources, etc., the user will receive updated information from the temporary database or cache in the MFTS system immediately. Therefore the MFTS provides a prompt response to the user with information received prior to the user's selection of the mobile wallet operation. It will be appreciated that an advantage of this approach is a quick response and virtually "real time" updating of account balance information in a user's mobile device.

Viewing Bills

[0346] FIG. **15** is a series of user screen views **1500** of a mobile device as the user views bills to pay according aspects of the invention. The user has at least two ways to view his/her bills according to such aspects. A first method **1500***a* start with user activation of the "Mobile Wallet" application and a second method **1500***b* starts with receipt of an SMS text message from the MFTS **18**.

[0347] The first method **1500***a* starts at screen **1502**. When the user uses the "Mobile Wallet" application to view the bills, he/she selects the "Mobile Wallet" option from the mobile device screen view **1502** and is presented with a login screen view **1504**. After the user logs in and provides a valid password (or is otherwise authenticated to the mobile device **15**), he/she is presented with a number of choices as shown in screen **1506**, e.g. View Payment Sources, View Bills, Pay Bills, etc, "PayAnyone", Balance Transfer, Change PIN, etc. In accordance with this exemplary aspect of the invention, the user selects the "View Bills" option or presses the numeric key "2". In response to selection of the View Bills option by either method, the user is presented with a View Bills screen **1512**.

[0348] According to another aspect, a second method **1500***b* involves receipt of an SMS text message, instead of in response to user activation of the mobile wallet application. Screen **1522** shows an exemplary text message display screen that includes a number of text messages that the user has received, e.g. Power Bill Due, Get Milk & Juice, Gas Bill Due, Phone Bill Due, etc. In this example, several of the SMS messages in the user's text message display screen relate to payment of bills, but not all messages are bill payment related. As is known, a user may receive a number of different text messages relating to a number of different subjects. In accordance with certain aspects of the inventions, the receipt of an SMS message relating to payment of a bill can prompt the user to activate the Mobile Wallet application, or the reading of an SMS message relating to a bill due can activate the Mobile Wallet application, or the receipt of an SMS message containing predetermined codes can automatically activate the Mobile Wallet application under certain predetermined circumstances.

[0349] In accordance with one exemplary aspect of the invention, a bill aggregator (e.g. an operator of a bill presentment system **190** as shown in FIG. **2**) receives a number of bills to pay on behalf of a user, and presents information regarding those bills to the user via a text message, so that the user is notified that a new bill has been received and can obtain more information about the bill, or can activate the Mobile Wallet application to pay the bill. In accordance with this exemplary aspect of the invention, when a new bill is received at the MFTS server from a bill presentment system, the user is notified by a short text message. This short message is preferably brief and only informs the user that a new bill has arrived. In one embodiment, the message is limited to the name of the billing entity (e.g. power company, gas company, etc.), the total amount due, and the due date. Other information may be provided in the SMS message, if desired, but in accordance with this exemplary aspect of the invention the information is limited to the foregoing information so that the user may quickly and efficiently be notified of only the most important information.

[0350] In the example of FIG. **15**, assume that the user has selected the message Power Bill Due, as shown at screen **1524**. When the "Read" key is pressed, in accordance with this exemplary aspect of the invention, a text message relating to a bill to pay (e.g. "XXX Bill Due") is automatically detected by the mobile application as relating to a bill to pay and launches the Mobile Wallet application on the mobile device. In response to launching of the Mobile Wallet application, the user is presented with a login screen **1526** to allow user to enter a password or PIN. After the user logs in and provides a valid password (or is otherwise authenticated to the mobile device **15**), he/she is presented with the View Bills screen **1512**.

[0351] Either of methods **1500***a*, **1500***b* lead to the View Bills screen **1512**. Due to the limited size of the mobile device screen, it will be understood that content of the "View Bills" screen is not as detailed as paper version of bills that users receive regularly. However, in accordance with exemplary aspects of the invention, some or all of following information are displayed in some embodiments of the invention: (1) the name of the billing entity; (2) the date when the bill was received; (3) the amount due, and (4) the

due date. Other related information such as minimum payment amount, outstanding balance, billing cycle, last payment amount and date etc. may also be displayed depending on the size of the mobile device screen. An optional scrolling bar may be added for a larger display.

[0352] Display screens **1512**, **1514**, **1516** illustrate a succession of different bills that user sees when using the navigation controls (e.g. the Next button), to cause display of bills that can be paid in accordance with exemplary aspects of the invention. When the user presses the "Next" key as shown in mobile device screen view **1512**, the next bill is shown in the next mobile device screen view **1514**. The user may use the "Back" and "Next" keys to view each individual bill until the "Select to Pay" key is pressed as shown in mobile device screen view **1516**.

[0353] FIG. **16** is a sequence diagram illustrating a method **1600** for viewing bills according to an exemplary aspect of the invention. The method or process **1600** involves communications or messages between a mobile device **15**, the MFTS **18**, and at least one billing entity. In accordance with a currently contemplated best mode, a bill presentment system **190** receives bills from a number of different billing entities on behalf a user, and provides information to the MFTS **18** relating to a plurality of bills from a plurality of billing entities. FIG. **16** therefore illustrates this mode or embodiment, but it will be understood and appreciated that the MFTS **18** may communicate separately and independently with billing entities, without requiring that all bills or payments to make be provided by a bill presentment system **190**.

[0354] In one preferred embodiment, the user views bills by opening his/her/mobile device's mobile wallet option as shown in step **1612**. In accordance with an alternate exemplary aspect of the inventions, a billing entity provides information to a bill presentment system **190**, as shown at step **1602**. The bill presentment system **190** communicates a message **1606** to the MFTS **18** as shown at step **1604**. At step **1608**, the MFTS **18** sends a short text message (SMS) **1610** containing selected abbreviated information to the user through the SMS generator **151** (FIG. **2**) and wireless network service provider **110**. As discussed earlier, the user opens the Mobile Wallet or reads the text message when it is convenient to him/her as shown at step **1612**. He/she is prompted to login and the password or PIN is validated step **1614**. In response to validation by the mobile application of the user via login of password or through other authentication means, the mobile application sends an authentication message (AM) **1616** to the MFTS **18**. At step **1618**, the MFTS **18** validates the login from the authentication message **1616** and communicates an authentication confirmation message (ACM) **1620** back to the mobile device **15** that allows the Mobile Wallet application to execute. At step **1622**, the mobile device opens the Mobile Wallet application, which allows the user to view more detailed information about a bill to pay or payment to make. At step **1624** the user selects the "View Bills" option (a shown and described in connection with FIG. **15**). At step **1626**, the user selects one bill to view. In response to selection of a bill to view, the mobile device **15** communicates a request message **1628** to the MFTS **18** to request information relating to the selected bill.

[0355] At step **1630**, the MFTS **18** receives the request for information relating to the selected bill and generates a message **1632** to the bill presentment system **190**. At step **1634**, the bill presentment system retrieves information relating to the selected bill (or optionally, for one or more bills associated with the particular user) and retrieves detailed billing information. Preferably, therefore, all bills associated with the user are forwarded to the MFTS via a message **1636**. At step **1638**, the MFTS **18** receives the detailed billing information from the bill presentment system **190** and stores the detailed billing information in the MFTS database in a table of detailed billing information (see FIG. **6**). The MFTS **18** then prepares a message **1639** with selected reduced information appropriate for the mobile device (i.e. a subset of detailed billing information) and forwards the message containing a subset of the detail billing information to the user's mobile device **15**. At step **1640**, the user views his/her due bills, via screens as shown in FIG. **15**.

[0356] Although FIG. **16** shows a sequence of steps for obtaining bill information from a bill presentment system, it will be understood that the steps are similar for obtaining information from a billing entity independently. From the foregoing, it will be appreciated that an aspect of the present invention involves a method for obtaining selected reduced information relating to payments to make (bills to pay) and this information is obtained from one or more billing entities, either independently or from a bill presentment system **190**.

Paying Bills

[0357] FIG. **17** is a series of user screen views **1700** of a mobile device that relate to a user paying his/her bill(s). As in other aspects of the invention described elsewhere, a user is preferably required to activate the Mobile Wallet application on their mobile device and be authenticated (i.e. log in) for use of the application on that particular mobile device. Thus, screen **1702** shows a number of selectable applications such a Mobile Wallet, Download Music, Games, etc., and screen **704** shows a login screen that is generated upon initial execution of the Mobile Wallet application upon selection in screen **1702**. After the user logs into the "Mobile Wallet" application as shown as screens **1702**, **1704**, a Mobile Wallet screen **1706** is displayed. In accordance with exemplary aspects of the invention, the Mobile Wallet screen includes a number of selectable options that provide for various functions relating to mobile financial transaction viewing, monitoring, and payment. For example, screen **1706** shows options for View Payment Sources, View Bills, Pay Bills, "PayAnyone", Balance Transfer, and Change PIN. In accordance with the aspect of paying bills, the Pay Bills option is shown highlighted (selected), indicating that the user has elected to activate the Pay Bills function of the mobile application. The user can activate this function by selecting Pay Bills from the menu on screen **1706** or may press the "3" key on the keypad. In response, the Mobile Wallet application presents a display screen Pay Bills as shown at **1708**.

[0358] In accordance with exemplary aspects of the invention, the Pay Bills screen **1708** provides a list of selectable pending bills. In one embodiment, the list can be arranged so that the latest bill is listed at the top and oldest bill is listed at the bottom, as shown in screen view **1708**. Other arrangements such as the oldest bills are listed first can also be implemented. According to one exemplary aspect of the invention, and as shown in screen **1708**, when the "Pay Bills" function is selected, the oldest bill is automatically

highlighted for the user to pay first, e.g. "Phone Bill Due Nov. 17, 2005 $34.45". In this as in other exemplary aspects of the invention, a user navigates the list by using up and down navigation controls and selects the one that he/she wishes to pay by pressing the "Select" Key when an appropriate bill is highlighted.

[0359] In response to selection of a particular bill, information about the selected bill is displayed to the user, as shown in screen **1710**. In accordance with exemplary aspects of the invention, selected information relating to the selected bill is displayed, for example the name of the billing entity, the date the bill was received, the amount of the bill, optionally a minimum payment, and the due date, as shown in screen view **1710**. Optionally, but not shown in screen **1710**, the overall balance due on an account may be shown. The exemplary screen **1710** also preferably includes a Pay, Back, and a Next button as navigation controls that permit viewing other bills in a sequential list of bills. As will be appreciated, the Pay button or control is used to pay the bill currently on display.

[0360] According to exemplary aspects of the invention, when the "Pay" key is pressed, the Mobile Wallet application provides a screen view **1712** that allows the user to select the amount to pay. In a preferred embodiment, the user is offered following options: (1) to pay the minimum amount due; (2) to pay the full amount due; or (3) to pay a user specified amount. The first two options are self-explanatory and lead to proper payment based on the information on the record. The third option provides the user with flexibility to specify a desired amount. If the third option is selected, the Mobile Wallet application provides a screen view (not shown) that allows entry of a desired amount to pay. The exemplary screen **1712** also preferably includes a Pay, Back, and a Next button as navigation controls that permit viewing other bills in a sequential list of bills, or proceeding with payment of the selected bill. As will be appreciated, the Pay button or control is used to pay the amount currently selected.

[0361] Continuing with screen **1712**, when the user has decided the amount to pay and the "Pay" key is pressed, a screen view **1714** is displayed that shows a default payment source (Bank of USA, in this case) and its related information. In the exemplary screen **1714**, the default payment source Bank of USA has three selectable accounts, e.g. a Savings Balance, a Checking Balance, and Other (e.g. a money market account or perhaps a borrowing account). According to an exemplary aspect, a particular default account is shown highlighted (e.g. the Checking Balance), to indicate to the user that the Checking Account for this payment source is the default payment source that will be utilized unless overridden by the user by other means.

[0362] According to an exemplary aspect of the invention, the screen **1714** further includes text prompting the user to confirm the currently displayed default payment source, e.g. the text reads "Pay with default payment source?" If the user presses the "Select" key in screen view **1714**, indicating confirmation that the current bill is to be paid with the default payment source, then the Mobile Wallet application generates a screen view **1716** that includes information confirming the payment and updating the payment source information. At this point, the user can either press the "Done" button to complete the mobile payment transaction or press "Next" to make other payments. In accordance with exemplary aspects of the invention, the amount of the current payment ($34.45 in the example shown) is subtracted from the balance shown on the default payment source (the Checking Balance), so that the user's payment source information is instantaneously updated to reflect the payment (i.e. the Checking Balance is reduced by $34.45, as shown between screens **1714** and **1716**. This occurs in exemplary embodiments even though the amount of the bill has not yet actually been debited from the user's bank account.

[0363] FIG. **18**A is a sequence diagram illustrating a method **1800** for paying a bill according to a preferred embodiment of the present invention. The method or process **1800** involves communications or messages between a mobile device **15**, the MFTS **18**, at least one billing entity (e.g. a bill presentment system **190** or a separate billing entity), and a selected financial institution **30** that serves as a selected payment source (PS). In this example, the user's default financial institution (FI) **30**A is described as the selected payment source.

[0364] It is assumed in FIG. **18**A that the user has previously viewed payment sources and account balances, and has selected a particular bill to be paid. Thus, the initial step of the process **1800** is step **1802**, where the user has received information about all bills to pay and is ready to select a particular bill to pay, e.g. via screen **1708** in FIG. **17**. When the user is ready to pay a bill, at step **1804** he/she selects a particular bill to pay. As shown in the exemplary screen views **1712** and **1714**, the user selects a payment source and decides/enters an amount to pay in the step **1806**. In response to entry of an amount to pay, a mobile payment instruction (MPI) message **1808** is communicated from the mobile device **15** to the MFTS **18** that includes the desired amount and identifies the financial institution selected for making the payment. At step **1810**, the MFTS **18** receives the MPI message, and prepares an MFTS payment instruction (MFTSPI) message **1812** to the selected financial institution **30**A. The MFTSPI message **1812** is preferably an inquiry message to the financial institution to verify whether the selected payment source has sufficient funds for making the payment, and/or an instruction to make the payment if sufficient funds are available.

[0365] Further at step **1814**, the MFTSPI message **1812** is communicated to the financial institution **30**A, and received at step **1814**. If sufficient funds are not available to cover the payment, the Fi **30**A generates and communicates a reply message **1816'** (not shown) to the MFTS **18** to advise that funds are not available and in turn, the MFTS sends an acknowledgement message (not shown) to the user that the requested payment failed. Otherwise, the FI prepares a funds available message (FAM) **1816** indicating that sufficient funds are available and transmits this message to the MFTS. At step **1818**, the MFTS **18** receives the funds available message and prepares a corresponding funds available message **1820** to the mobile device **15** that permits the Mobile Wallet application to proceed with generating a payment instruction message. This funds available message is received at the mobile device at step **1822**, where the Mobile Wallet application proceeds with processing the payment. Step **1822** includes actions such as generating a payment confirmation display for the user, e.g. screen **1714** (FIG. **17**), which requests that the user confirm "Pay with default Payment Source?" It will be of course appreciated that the user could decline payment with the default payment source and use the navigation controls to select a different payment

source, in which case further and correspondingly appropriate messages from the Mobile Wallet application are generated and returned to the MFTS **18**.

[0366] In response to the user confirmation of the payment source, e.g. via confirmation of the default payment source, the Mobile Wallet application generates and transmits a message **1824** indicating confirmation of the payment to the MFTS **18**. The payment confirmation message from the mobile device **15** is received at the MFTS **18** at step **1826**. At step **1826** the MFTS **18** receives the confirmed payment instruction from the mobile device **15** and constructs a payment source payment instruction message **1828**. According to an exemplary aspect of the invention, as shown in FIG. **18**A, a payment source payment instruction message **1828** is communicated to the bill presentment system **190**. In the event of utilization of a bill presentment system **190**, at step **1830** the system **190** receives the payment source payment instruction **1828**, generates a corresponding payment instruction message **1832** to the financial institution **30**A, and processes the payment internally, e.g. by clearing the bill due from the user's queue of unpaid bills.

[0367] At step **1834** the financial institution **30**A receives the payment source payment instruction, from a bill presentment system **190** and responds accordingly. As will be appreciated, the financial institution takes steps internally to withdraw funds or enter a debit on behalf of the user from the selected account, and generate an appropriate payment instrument to the billing entity. The generation of an appropriate and selected payment instruction, for example a paper check, an ACH funds transfer, a stored value card, etc. is described elsewhere herein.

[0368] Upon completion of appropriate steps to generate and transmit a payment to the billing entity at step **1834**, a payment confirmation message **1836** is generated by the financial institution **30**A and transmitted to the Bill Presentment System **190**. At step **1831**, the Bill Presentment System **190** receives the payment confirmation message, clears the bill on record, generates a mobile payment confirmation message **1837**, and communicates this message **1837** to the MFTS **18** as shown in step **1838**. The MFTS **18** receives the confirmation message **1837** and forwards another confirmation message **1840** to the mobile device **15**. At step **1842**, the mobile device **15** receives the mobile payment confirmation message **1840** and displays payment confirmed information, e.g. display screen **1716** in FIG. **17**.

[0369] Referring now to FIG. **18**B, an alternate embodiment of the present invention is shown. Here the steps/messages **1802** through step **1826** and the step/message after **1838** are the same or similar to the steps/messages shown in FIG. **18**A. At step **1826** the MFTS **18** receives the confirmed payment instruction from the mobile device **15** and constructs a payment source payment instruction message **1828'**. A payment source payment instruction message **1828'** is communicated to the bill presentment system **190**. In the event of utilization of a bill presentment system **190**, at step **1830'** the system **190** receives the payment source payment instruction **1828'**, generates a corresponding payment instruction message **1832'** to the financial institution **30**A, and processes the payment internally, e.g. by clearing the bill due from the user's queue of unpaid bills.

[0370] At step **1834'** the financial institution **30**A receives the payment source payment instruction, from a bill presentment system **190** and responds accordingly. Upon completion of appropriate steps to generate and transmit a payment to the billing entity at step **1834'**, a payment confirmation message **1836'** is generated by the financial institution **30**A and transmitted to the MFTS **18**.

[0371] From the foregoing, it will be appreciated that variations on the above-described process will occur to those skilled in the art.

PayAnyone Payment Method

[0372] FIG. **19** and FIG. **20** illustrate exemplary display screens on a mobile device **15** of a user/payer and a second user/payee, respectively, in connection with a "PayAnyone" payment process. A "PayAnyone" payment process is a payment method for paying an entity other than a user's preregistered regular billing entities or service providers. Examples include making payments at point of sale, with the identity of the payee determined at the time of making the payment; making a payment to an individual that possesses a mobile device capable of running the Mobile Wallet application (but perhaps not yet downloaded and operational); making a payment to an individual or other entity that does not possess a mobile device but requests a certain form of payment such as a paper check, electronic funds transfer, stored value card, etc. Numerous variations on the "PayAnyone" payment method will occur upon consideration of the following display screens and process steps.

[0373] It will thus be appreciated that certain options of the "PayAnyone" payment method contemplate payment to an entity that has registered with the MFTS **18**, and other options contemplate payment to an entity that was not previously registered. The "PayAnyone" payment method allows users to send other registered or non-registered people payments as an alternative to cash. The method also contemplates making payments anywhere—at point of sale, locally, across country, and across national borders (of course within the confines of applicable currency regulations) without physically handling of cash or checks. The method also contemplates receipt of a payment by the recipient and relatively fast (virtually instant) availability of the funds.

[0374] Key issues in a "PayAnyone" payment method include (1) identification of a payee and (2) the manner and/or form of making the payment. According to one exemplary aspect of the invention, a user is given a choice of either selecting a payee from a list provided by the MFTS through the mobile device, or selecting/entering a payee by entering/selecting a mobile phone number associated with a payee. Similarly, and according to an exemplary aspect of the invention, there are several different ways for the payee to receive payments. For example, the user/payer can select a payment method from following payment methods: (1) "Recipient Defined", (2) "Bank Draft" (or ACH electronic transfer), (3) "Paper Check" and (4) "Stored Value Card". The "Recipient Defined" method allows the payee to choose one of the three remaining methods, i.e. "Bank Draft", "Paper Check" and "Stored Value Card".

[0375] It is to be noted that the payee selection and payment method selection are entirely independent. The following descriptions of preferred embodiments of a "PayAnyone" illustrate that various payee selections and payment method selections are contemplated as exemplary aspect of the inventions. For example, in FIG. **19** and FIG. **26**, a payee is chosen by selecting a name from a list, while in FIG. **23** and FIG. **29**, a payee is chosen by entering a payee's mobile phone number. In FIG. **19** through FIG. **31**,

all four different payment methods are discussed. Any combinations of payee selection and payment method selection are possible in light of the following teaching. The description of the exemplary embodiments of the invention has been presented only for the purpose of illustration and description and is not intended to be exhaustive or to limit the invention to the precise forms disclosed.

[0376] PayAnyone with Recipient Defined Payment Method: FIG. **19** shows a sequence of payer's mobile device screen views **1900** as a user uses "PayAnyone" option, selects a name from a list, and uses a "Recipient Defined" payment method according to an exemplary aspect of the invention. Screens **1902**, **1904**, **1906** are exemplary screens for displaying selectable applications, login, and selection of Mobile Wallet applications that have been described elsewhere herein and will not be repeated. It will, however, be seen in screen **1906** that one of the selectable options is a "PayAnyone" option, shown highlighted and therefore selected. In response to selection of the "PayAnyone" option in screen **1906**, in accordance with one exemplary aspect of the invention the user is presented with a short menu shown in screen view **1908** to allows selection of a payee by name or by mobile phone. In accordance therewith, the user can either select a payee's name from a list or select/enter a payee's mobile phone number.

[0377] In this example, assume that the user selects the "Paying by Name" option from the menu. In response to selection of this option, a screen is displayed on the mobile device comprising a list of pre-entered payees, e.g. screen **1910**, with names Jane Bennett, John Doe, Robert Johnson, Carol Jones, etc. As shown in screen **1910**, the payee name John Doe is shown highlighted and therefore selected for action. Information relating to the names on the list in the screen **1910** may be stored locally in the mobile device and/or in the MFTS **18** user database.

[0378] Although not discussed in connection with FIG. **19**, it will be understood that that the user may select the "Paying by Mobile Phone" option in screen **1908** and enter a mobile phone number for a different form of payment, as discussed elsewhere herein.

[0379] As in other mobile device screen displays described herein, a scroll bar navigation control on the right of the display screen indicates that the name list is larger than the mobile device can display and allows scrolling down the list. Likewise, the user can activate the "Back" or "Next" keys or navigation control to navigate the name list and a payee is selected on the list by using a "Select" key.

[0380] Continuing with the example, in response to selection of a particular payee in screen **1910** (e.g. John Doe), a screen **1912** is presented that allows the user to enter an amount to pay. In the example, the user has entered $123.45. The user then presses the "Next" button, which results in a display screen **1914** that requests confirmation of the default payment source. At this point, the user can also use the "Back" key to make further changes or press the "Cancel" key to abandon the payment.

[0381] In response to user entry of an amount to pay, the Mobile Wallet application presents the exemplary screen view **1914**, that, as in previous examples, permits the user to select an account from several available accounts of the default payment source. As in a previous example, the Bank of USA account is shown as a default payment source, and the checking account is shown selected/highlighted as the default account for use. After the selection of a particular account, the user presses the "Select" key to continue the process for making a payment.

[0382] In response to selection of an account in screen **1914**, and according to one exemplary aspect of the invention, the user is presented with a display screen **1916** that allows selection of one of a plurality of different payment instruments or methods for making the payment to the payee. In this example, four choices are provided: (1) Recipient Defined, (2) ACH (e.g. bank draft), (3) Paper Check and (4) Stored Value Card. The user can use the "Back" and "Next" keys to navigate the menu and use the "Select" key to make selection of a particular payment method or instrument. In this example, the "Recipient Defined" payment method is chosen, i.e. the recipient can select the method of receiving payment when information relating to the payment is received by the payee. The selection by the payee of the payment instrument is described in connection with other figures, e.g. see FIG. **20**. As will be seen in FIG. **20**, the payee is given the choice of selecting from ACH, Paper Check, or Stored Value Card; such steps and displays for the recipient/payee are discussed in connection with FIG. **20**.

[0383] Continuing with FIG. **19**, in response to user selection of the payment method or instrument, the Mobile Wallet application generates a display screen **1918** that allows user confirmation of the payment. According to one exemplary aspect of the invention, the screen view **1918** displays a confirmation of the payment and the remaining balance of the payment source used in this transaction, for example, the Checking Balance of the default payment source is debited by the amount of the payment $123.45 from that shown in screen **1914**. At this point, the user may press the "Done" button to finish the "PayAnyone" application, or the "Next" button to initiate another transaction.

[0384] Turn next to FIG. **20** for a discussion of the payee's view of the recipient defined payment method. It should be understood that the display screens shown in FIG. **20** assume that the payee/payment recipient possesses a mobile device that is capable of running the Mobile Wallet application, is configured for operation with a system and methods as described herein, and is a registered use of the MFTS **18**. In the event that the payee/recipient is not so configured and registered, he or she may receive a text message (SMS) indicating that the payer wishes to make a payment, and providing instructions to the payee/recipient as to how to download and execute the Mobile Wallet application on his or her mobile device, or take other action to receive the payments. Discussion of such operations and features for a non-registered payee/recipient is provided elsewhere herein.

[0385] Generally, and according to one exemplary aspect of the invention, on the payee side, an SMS text message is received by the payee from the MFTS SMS generator **151** (FIG. **2**). If the payee has the Mobile Wallet application installed on his/her mobile device, he/she can directly invoke the application while reading the SMS text message to receive the payment. Accordingly, FIG. **20** shows a sequence **2000** of user/payee's mobile device screen views in response to receipt of messages and communications generated by a user/payer that has invoked a "PayAnyone" option, selects a name from a list, and uses a "Recipient Defined" payment method.

[0386] Display screen **2002** is an exemplary mobile device display that a payee sees in response to receipt of a message from the MFTS **18**, e.g. an SMS message or a message in a

format especially adapted for communications between the MFTS **18** and the Mobile Wallet application. As shown in screen **2002**, information is displayed to the payee indicating that a person with an identified mobile number (e.g. 404-404-4040) is sending the payee/recipient a payment in the amount of $123.45, and prompting the payee/recipient to select a payment receipt method from a list of several different payment receipt methods. According to an exemplary aspect of the invention, the message from the MFTS **18** either (a) automatically launches the Mobile Wallet application or (b) prompts the payee/recipient to activate the Mobile Wallet application. In either case, the payee is notified that someone (either with a name or a phone number) has sent a payment and the amount of the payment. The payee is requested/prompted to select a payment method from a list of possible payment delivery methods: ACH, Paper Check or Stored Value Card. The payee then makes the selection according to the instruction as shown in screen view **2002**.

[0387] ACH: In response to selection by the payee of the ACH method, according to one exemplary aspect of the invention, the Mobile Wallet application provides a display screen **2010** to effect this method. In accordance with this aspect, the payee is shown a default ACH account with a default bank routing number and account number as shown in screen view **2010**. The screen preferably includes controls for Confirm, Change Account, and Cancel. The Confirm control effectively confirms the displayed default payment receipt method. If the payee confirms the default payment receipt method, another screen view **2012** is displayed that informs the payee the ACH transfer is completed. On the other hand, the payee has the ability to change to another ACH account by selecting the Change Account control, which displays a separate display screen (not shown) for entering a new bank routing number and account number. The Mobile Wallet application then preferably displays another screen similar to that at **2010** upon entry of an alternative bank routing number and account number, followed by a confirmation such as screen view **2012** after the transaction is completed and confirmed.

[0388] Paper Check: In response to selection by the payee of the paper check payment receipt method from screen **2002**, according to one exemplary aspect of the invention, the Mobile Wallet application provides a display screen **2020** to effect this method. In accordance with this aspect, the screen view **2020** displays a default mailing address to which a paper check should be mailed. The exemplary screen also includes selectable controls for Confirm, Change Address, and Cancel. The screen effectively prompts the payee to confirm the displayed default mailing address which is stored in the MFTS **18**. If the payee confirms the default mailing address by pressing "Confirm" control, an exemplary screen view **2022** is displayed to inform the payee that a paper check will be mailed to the default mailing address. On the other hand, the payee has the ability to change to another mailing address by entering a new mailing address by selecting the Change Address control, which displays a separate display screen (not shown) for entering a different mailing address. The Mobile Wallet application then preferably displays another screen similar to that at **2020** upon entry of an alternative mailing address, followed by a confirmation such as screen view **2022** after the transaction is completed and confirmed.

[0389] Stored Value Card: In response to selection by the payee of the Stored Value Card payment receipt method from screen **2002**, according to one exemplary aspect of the invention, the Mobile Wallet application provides a display screen **2030** to effect this method. In accordance with this aspect, the screen view **2030** displays a default stored value card account into which the funds would be deposited. The exemplary screen also includes selectable controls for Confirm, Change Account, and Cancel. The screen effectively prompts the payee to confirm the displayed stored value card account which is stored in the MFTS **18**. If the payee confirms the default stored value card account by pressing "Confirm" control, an exemplary screen view **2032** is displayed to inform the payee that the indicated amount will be deposited in the default stored value card account. On the other hand, the payee has the ability to change to another stored value card account by entering a new account by selecting the Change Account control, which displays a separate display screen (not shown) for entering a different stored value card account number. The Mobile Wallet application then preferably displays another screen similar to that at **2030** upon entry of an alternative stored value card account, followed by a confirmation such as screen view **2032** after the transaction is completed and confirmed.

[0390] According to one exemplary alternative aspect of the invention, the payee/recipient is not required to have the Mobile Wallet application installed on their mobile device, especially for the paper check and stored value options. In accordance with this aspect of the invention, one or more text messages (SMS) containing information essentially as shown in FIG. **20** can be generated by the MFTS **18** and communicated to a mobile device possessed by a payee/recipient, with instructions to the payee/recipient to return a text message (SMS) containing information indicated, e.g. to confirm a default mailing address for a paper check or stored value account, or provide an alternative mailing address or stored value account. It will thus be appreciated that aspects of the invention can readily be constructed using SMS messaging techniques, for payees with mobile devices that do not have the Mobile Wallet application installed or where the payee has not elected to use and run the Mobile Wallet application.

[0391] FIG. **21** is a sequence diagram illustrating a method **2100** for a "PayAnyone" payment method according to an exemplary aspect of the invention. The method or process **2100** involves communications or messages between a mobile device **15** and the MFTS **18**, and allows selection by the user of a particular form of payment for making a payment to a person identified during interactions with the system. This process is in contrast to the previously described method for making a payment to a pre-identified billing entity.

[0392] Starting at step **2102**, the user activates the Mobile Wallet application and logs in or otherwise provides authentication information at step **2104**. An authentication message (AM) **2106** is generated and communicated to the MFTS **18**, which at step **2108** authenticates the user. Upon authentication of the user by the MFTS at step **2108**, an authentication confirmation message (ACM) **2110** is returned by the MFTS **18** to the mobile device **15**, which permits the Mobile Wallet application to execute on the mobile device, as shown at step **2112**. According to one exemplary aspect of the invention, at step **2112** the MFTS **18** also retrieves a predefined payee list associated with the user from the user database and sends

this user's payee list back to the mobile device, where it is displayed to the user (see exemplary screen in FIG. **19**).

[0393] After the Mobile Wallet application is opened at step **2112**, assume that the user selects the "PayAnyone" option in step **2114**. He/she then selects a name from the predetermined payee list or enters a mobile phone number to choose a payee as shown in step **2116**, and enters the amount in dollars and cents to pay in step **2118**. At step **2120**, the user selects one of the available payment methods, e.g. Recipient Defined, ACH, Paper Check, or Stored Value Card, as shown in FIG. **19**. In this example, assume that the user has selected to pay with the Recipient Defined payment method. Information corresponding to the selected payment method is provided in a mobile payment instruction (MPI) message **2122** and forwarded to the MFTS **18** for further processing by the MFTS **18** and other related parties as shown in step **2124**.

[0394] FIG. **22** is a sequence diagram illustrating a recipient defined "PayAnyone" method **2200** according to an exemplary aspect of the invention. The method or process **2200** involves communications or messages between a user/payer's mobile device **15** (not shown here), the MFTS **18**, a payee's mobile device **2202**, a user/payee's financial institution **30**A, a payee's financial institution **2260**, the payee **2270**, and stored value card issuing company **2280**. In this example, assume that in FIG. **21** the user has selected the Recipient Defined payment method at step **2120** and this decision has been communicated to the MFTS **18**. According to one exemplary aspect of the invention, the MFTS sends the payee a text message (SMS) **2206** such as the one shown in screen view **2002** of FIG. **20**, as indicated at step **2204**. This message **2206** informs the payee that a payment of a certain amount is pending and that the payee should make a selection from a list of selected payment methods as shown in step **2208**. The payee then preferably uses his/her mobile device **2202** to make a selection from three payment methods offered in step **2210**. Such a selection may be made by return text message, or by use of the Mobile Wallet application if installed on the payee's mobile device. In any case, a mobile payment instruction (MPI) message **2212** including information relating to a selected payment method is returned to the MFTS **18**, e.g. a message **2212**A for selecting the ACH payment method, a message **2212**B for selecting a paper check, or a message **2206**C for selecting a stored value card payment method.

[0395] ACH payment method: If the payee chooses an ACH payment method, a payment method selection message **2212**A including the payee's ACH account information and payment amount are forwarded to the MFTS **18** through the wireless carrier networks as shown in step **2214**. A corresponding request **2220**A is then sent to the user/payer's financial institution **30**A (the payment source) for payment to a specified bank account of the payee from an account specified by the user, as indicated at step **2222**. Once the user/payer's financial institution **30**A verifies that the user has sufficient funds to cover the payment, the payer's financial institution sends an ACH draft to the specified account of payee's financial institution **2260** as indicated at step **2226**.

[0396] Paper Check payment method: if the payee chooses a paper check payment method, a payment method selection message **2212**B including the payee's mailing address information and payment amount are forwarded to the MFTS **18** through the wireless carrier networks as shown in step **2216**. A corresponding request **2220**B is then sent to the user/payer's financial institution **30**A for generation of a paper check drawn on the specified account of the user/payer and mailing of that check to the payee, as indicated at step **2222**. Once the user/payer's financial institution **30**A verifies that the user has sufficient funds to cover the payment, the payer's financial institution mails a check **2224**B to the payee, the receipt of which by the payee is indicated at step **2228**.

[0397] Stored value payment method: if the payee chooses a stored value card payment method, a payment method selection message **2212**C including the payee's stored value card account information and payment amount are forwarded to the MFTS **18** through the wireless carrier networks as shown in step **2218**. A corresponding request **2220**C is then sent to the user/payer's financial institution **30**A for crediting the payee's identified stored value card account, drawn on the specified account of the user/payer, as indicated at step **2222**. Once the user/payer's financial institution **30**A verifies that the user has sufficient funds to cover the payment, the payer's financial institution credits the identified stored value card account (through **2224**C) in the designated amount, the receipt of which by the payee is indicated at step **2230**. It should be understood that step **2230**, indicating receipt of loaded stored value card, reflects both (a) the crediting of a preexisting stored value card account associated with the payee, or (b) the issuance of a new loaded stored value card to the payee, for example by providing the payee with information indicating a location at which an unloaded stored value card may be obtained and also providing information such as a validation code that would permit the payee to present the unloaded card to a terminal or representative so as to "load" the card with the payment amount. Such details of loading and delivering stored value cards to individuals are known to those skilled in the art and do not form a separate part of the invention.

[0398] It will be understood that, for a payment, these three methods can be used independently or combined so the payee may have the flexibility of allocating a portion of the payment with ACH, and the remaining portion of the payment to paper check and/or stored value card.

Pay Anyone by Phone Number

[0399] FIG. **23** shows a sequence of payer's mobile device screen views **2300** for a "PayAnyone by phone number" payment method according to an exemplary aspect of the invention. In this particular method, the payer/user selects/enters a mobile device phone number to identify a payee. Specifically illustrated is an "ACH" payment method according to an exemplary aspect of the invention. It will be understood that the payer can alternatively select a paper check or stored value card payment method, and that the particular payment method described is merely exemplary.

[0400] As in previously described embodiments and aspects, the user first selects the Mobile Wallet application in screen **2302**, provides authentication information (e.g. a login) via screen **2304**, and is authenticated by the MFTS before being presented with options for making a payment at screen **2306**. Assume that in screen **2306** the user selects the "PayAnyone" option. In response to this selection the user is provided with a short menu of options as shown in screen view **2308** to select a payee, either by name or by mobile phone number. According to this exemplary aspect of the invention, in response to selection of the option

"Paying by Mobile Phone" by either entry of the numeral "2" or activating the Select control, the user is presented with a screen **2310** for entry of the payee/recipient's mobile phone number.

[0401] According to this exemplary aspect of the invention, an exemplary payee's phone number 404-555-2121 is entered as shown in the screen view **2310**. The screen **2310** further includes controls for Next, Back, and Cancel, which operate in the manner as previously described to continue the process, return to a previous screen, or cancel the transaction. In response to the user's activation of the Next control after entry of the payee's phone number, the user is presented with a payment amount data entry screen **2312** for entry of the amount to pay. The user then enters the amount to pay. In this example, the user has entered $123.45. As in other exemplary screens, the amount entry screen **2312** includes a Next, Back, and Cancel control. In response to the user's activation of the Next control, the user is presented with a screen **2314** that displays the default payment source (e.g. Bank of USA), available balances in the default accounts of the default payment source, and prompts the user to confirm the selected default. As in previous examples, the user can activate the "Select" control to select the default account and payment source, or navigate to an alternative payment source.

[0402] After selection and/or confirmation of the payment source via screen **2314**, the user is presented with a screen **2316** that allows selection of a payment method. The user uses the "Back" and "Next" keys to navigate the menu and uses the "Select" control to make a selection. In this example, the "ACH" payment method is shown highlighted and therefore chosen. In response to activation of the Select control in screen **2316**, the user is presented with a screen **2318** that displays a confirmation of the payment, the selected payment method, and the remaining/updated balance of the payment source used in this transaction. At this point, the user may activate the "Done" control to finish the "PayAnyone" application or the "Next" control to initiate another transaction.

[0403] FIG. **24** shows a sequence of mobile device screen views **2400** from a payee's perspective, via a payee's mobile device, for a "PayAnyone" option where a user selects/enters a mobile device phone number and uses an "ACH" payment method according to an exemplary aspect of the invention. As in other embodiments and aspects, the information shown may be presented to the payee either by a sequence of text messages (SMS) or by displays generated by the Mobile Wallet application if loaded and activated on the payee's mobile device.

[0404] As shown in screen **2402**, an SMS text message is received from the SMS generator **151**, or similar information generated by the Mobile Wallet application running on the payee's mobile device. In accordance with this message, the payee is notified that someone with a phone number 404-404-4040 has sent a payment in the amount of $123.45 for delivery via an ACH funds transfer. According to one exemplary aspect of the invention, the message to the payee includes a default payment receipt method, for example, deposit to a predetermined bank (as identified by bank routing number) and account. If generated by the Mobile Wallet application, the screen **2402** preferably includes a "Confirm" control, a "Change Account" control, and a "Cancel" control. By activating the "Confirm" control the payee/recipient can confirm that the displayed ACH bank routing number and account number stored in the MFTS database is correct for the payment. On the other hand, the payee has the ability to change to another ACH account by entering a new account number and bank routing number by activating the "Change Account" control. As in other examples, if the payee activates the "Change Account" control in screen view **2402**, a separate screen (not shown) is displayed at which the payee is allowed to enter another ACH bank routing number and account number.

[0405] If the payee confirms the payment delivery method by activating the "Confirm" control in screen **2402**, a screen view **2404** is shown that prompts the payee to confirm the deposit to the identified ACH account. The screen **2404** also preferably includes a "Done" control, a "Change Account" control, and a "Cancel" control. The "Change Account" control works in the manner described elsewhere. Activating the "Done" control causes display of a screen **2406** that prompts the user to set the currently selected bank account as a default ACH account for the payee. If the payee activates the "Yes" control in screen **2406**, then the default ACH account information is sent back to the MFTS **18** for storage in association with other information relating to this particular payee. Otherwise, the default ACH account is not changed.

[0406] Upon confirmation of the bank account as a default ACH account by activation of the "Yes" control or by activation of the "No" control to leave the identified account intact, a screen **2408** is displayed that prompts the payee/recipient to confirm the deposit of the payment to the currently selected account. A "Yes" and a "No" control are provided to confirm or reject the deposit to the account. If the answer is "Yes", the payee's answer is sent to the MFTS **18** for further processing of the transaction. In response to processing of the transaction by making the ACH payment, according to one exemplary aspect of the invention the payee receives a confirmation message or display **2410** indicating that the received payment will be deposited into the ACH account the payee specified previously. At this point, the payee may activate a "Done" control to finish receiving payment or a "Next" control process another transaction, if applicable.

[0407] FIG. **25** is a sequence diagram of a "PayAnyone" with ACH payment method or process **2500** according to an exemplary aspect of the invention, showing the interactions among a payer/user's mobile device **15**, a payee's mobile device **2521**, the MFTS **18**, a third party payment provider **2560**, and a payee's financial institution **2580**. The third party payment provider **2560**, as in previous aspects, is a payment instruction recipient that effects a payment to the payee, in this case by transferring funds to the payee's financial institution **2580**.

[0408] As in previous methods described elsewhere, steps **2502**, **2504** involve authentication of the user/payer to the MFTS **18** through message **2506**, authentication by the MFTS **18** in step **2508**, and sending an authentication confirmation message **2510** and user's payee list to the user's mobile device **15**. In response to authentication, the user opens the Mobile Wallet application in **2502** and enters the password or PIN in **2504**, the MFTS authenticates the login and sends user's current payee list (**2510**) to the user's Mobile Wallet of his/her mobile device in step **2508**. This action allows the user to proceed with use of the Mobile Wallet application at step **2512**. The user then selects "PayAnyone" in step **2514** and selects a payee name from the

payee list received during the login, or enters a phone number to specify a payee in step **2516**. The user then enters a payment amount with the mobile device in step **2518** and selects the ACH payment method in step **2520**.

[0409] In response to the foregoing steps, a mobile payment instruction (MPI) message **2522** is generated by the Mobile Wallet application and communicated to the MFTS **18**. The MPI **2522** will typically include the payment amount, payment method (in this case an ACH payment), and payee information including the payee's phone number. At step **2524**, the MFTS **18** examines the payment instruction and generates a message **2526** to the payee's mobile device **2521** to request the payee to specify or confirm the ACH method for the payment. This message **2526** is sent to the payee's mobile device and received at step **2528**. According to an exemplary aspect of the invention, the payee can receive the message **2526** via one or more text messages or by a communication that activates an appropriate routine of the Mobile Wallet application (not separately shown). At step **2528** the payee selects an account into which the funds should be deposited. A return payment account selection message **2530** is generated (e.g. a return text message or communication from the Mobile Wallet on the payee's device) that indicates the account into which the payee wishes to deposit the payment. This return payment account selection message **2530** is transmitted back to the MFTS **18** and received at step **2532**.

[0410] At step **2532**, the MFTS **18** receives the payment account selection message **2530** and determines the identity of a third party payment provider (i.e. a payment instruction recipient) that generates the ACH payment transaction. An MFTS payment instruction (MFTSPI) **2534** is generated and communicated to third party payment provider **2560**. This MFTSPI **2534** is received at step **2536**. At step **1562**, the third party payment provider generates an ACH funds transfer (**2538**) and communicates this electronically in the known ACH funds transfer manner to the payee's financial institution **2580**. Receipt of this ACH funds transfer at the payee's financial institution is shown at step **2540**. A payment confirmation message (not shown) is preferably generated either by the payee's financial institution **2580**, or the third party payment provider **2560**, and provided back to the MFTS **18** so that the data records associated with this payment can be updated and any appropriate payment confirmation messages provided to the payee's mobile device and/or the payer's mobile device.

Pay Anyone by Name (Paper Check)

[0411] FIG. **26** shows a sequence of payer's mobile device screen views **2600** for a "PayAnyone by name" payment method according to an exemplary aspect of the invention. In this particular method, the payer/user selects/enters a name to identify the payee. Specifically illustrated is a "paper check" payment method according to an exemplary aspect of the invention. It will be understood that the payer can alternatively select an ACH payment method (as described above) or stored value card payment method, and that the particular payment method described is merely exemplary.

[0412] As in previously described embodiments and aspects, the user first selects the Mobile Wallet application in screen **2602**, provides authentication information (e.g. a login) via screen **2604**, and is authenticated by the MFTS before being presented with options for making a payment at screen **2606**. Assume that in screen **2606** the user selects the "PayAnyone" option. In response to this selection the user is provided with a short menu of options as shown in screen view **2608** to select a payee, either by name or by mobile phone number. According to this exemplary aspect of the invention, in response to selection of the option "Paying by Name" by either entry of the numeral "1" or activating the Select control, the user is presented with a screen **2610** comprising a list of selectable pre-entered payees.

[0413] According to this exemplary aspect of the invention, an exemplary payee's name "John Doe" is shown highlighted in screen **2610** and therefore selected. The screen **2610** further includes controls for Select, Up, and Down, which operate select a particular name or navigate the list of pre-entered names. In response to the user's activation of the Select control after a particular payee's name, the user is presented with a payment amount data entry screen **2612** for entry of the amount to pay. The user then enters the amount to pay. In this example, the user has entered $123.45. As in other exemplary screens, the amount entry screen **2612** includes a Next, Back, and Cancel control. In response to the user's activation of the Next control, the user is presented with a screen **2614** that displays the default payment source (e.g. Bank of USA), available balances in the default accounts of the default payment source, and prompts the user to confirm the selected default. As in previous examples, the user can activate the "Select" control to select the default account and payment source, or navigate to an alternative payment source.

[0414] After selection and/or confirmation of the payment source via screen **2614**, the user is presented with a screen **2616** that allows selection of a payment method. The user uses the "Back" and "Next" keys to navigate the menu and uses "Select" control or a numeric key to make a selection. In this example, the "Paper Check" payment method is shown highlighted and therefore chosen. In response to activation of the Select control in screen **2616**, the user is presented with a screen **2618** that requests a confirmation of the payment and the selected payment method, e.g. "Send a paper check to Mr. John Doe's default address?" At this point, the user may select a "Yes," "No," or "Cancel" control. In response to selection of the "Yes" control is screen **2618**, the user is presented with a screen **2620** that requests confirmation of the transaction and includes information about the transaction including the name and mailing address of the payee. The screen **2618** includes a "Pay," "Change Address," and "Next" control that operate to confirm the payment, or change the payee's address.

[0415] In response to selection of the Pay control, indicating confirmation of the payment, screen **2622** is displayed. Screen **2622** displays confirmation information that a payment in the indicated amount of $123.45 will be made to John Doe by paper check, together with updated account balance information reflecting deduction of the payment amount from the account balance as reflected in the MFTS **18** records. At this point, the user may activate the "Done" control to finish the "PayAnyone" application or the "Next" control to initiate another transaction.

[0416] FIG. **27** shows a sequence of mobile device screen views **2700** from a payee's perspective, via a payee's mobile device, for a "PayAnyone" payment method, where a user, selects/enters payee's name and uses a paper check payment method according to an exemplary aspect of the invention.

As in other embodiments and aspects, the information shown may be presented to the payee either by a sequence of text messages (SMS) or by displays generated by the Mobile Wallet application if loaded and activated on the payee's mobile device.

[0417] As shown in screen **2702**, an SMS text message is received from the SMS generator **151**, or similar information generated by the Mobile Wallet application running on the payee's mobile device. In accordance with this message, the payee is notified that someone with a phone number 404-404-4040 has sent a payment in the amount of $123.45, via a paper check mailed to an indicated address. According to one exemplary aspect of the invention, the message to the payee includes a default payment address for mailing of the check. If generated by the Mobile Wallet application, the screen **2702** preferably includes a "Confirm" control, a "Change Address" control, and a "Cancel" control. By activating the "Confirm" control the payee/recipient can confirm that the displayed name and address for as stored in the MFTS database is correct for mailing the check. On the other hand, the payee has the ability to change the mailing address by activating the "Change Address" control. As in other examples, if the payee activates the "Change Address" control in screen view **2702**, a separate screen (not shown) is displayed at which the payee is allowed to enter an alternative address.

[0418] If the payee confirms the payment delivery method by activating the "Confirm" control in screen **2702**, a screen view **2704** is shown that prompts the payee to confirm the mailing address. The screen **2704** also preferably includes a "Done" control, a "Change Address" control, and a "Cancel" control. The "Change Address" control works in the manner described elsewhere. Activating the "Done" control causes display of a screen **2706** that prompts the user to set the currently displayed address as a default mailing address for the payee. If the payee activates the "Yes" control in screen **2706**, then the default address information is sent back to the MFTS **18** for storage in association with other information relating to this particular payee. Otherwise, the default address is not changed.

[0419] Upon confirmation of the mailing address by activation of the "Yes" control in screen **2706** or by activation of the "No" control to leave the identified address intact, a screen **2708** is displayed that prompts the payee/recipient to confirm the mailing of a check to the currently displayed address. A "Yes" and a "No" control are provided to confirm or reject the mailing to the indicated address. If the answer is "Yes", the payee's answer is sent to the MFTS **18** for further processing of the transaction. In response to processing of the transaction in preparation for mailing the check, according to one exemplary aspect of the invention the payee receives a confirmation message or display **2710** indicating that the paper check payment will be mailed to the address the payee specified previously. At this point, the payee may activate a "Done" control to finish with this function or a "Next" control process another transaction, if applicable.

[0420] FIG. **28** is a sequence diagram of a "PayAnyone" by paper check payment method or process **2800** according to an exemplary aspect of the invention, showing the interactions among a payee's mobile device **2801**, the MFTS **18**, a third party address provider **2840**, a third party payment provider **2860**, and a payee **2880**. According to an exemplary aspect of the invention, the mailing address of the payee is located by: (1) retrieving a default address information associated with the payee stored in the MFTS database, (2) entered by the user (the payer), or (3) entered by the payee, or (4) through a third party address provider. If the address information is not available at the time the user requested paper check payment, the MFTS sends a request to the third party address provider to perform address lookup.

[0421] As in previous methods described elsewhere, this method **2800** involves steps (not shown) for authentication of the user/payee to the MFTS **18**, authentication by the MFTS **18**, and sending an authentication confirmation message and user's payee list to the user's mobile device **15**. In response to authentication, the user opens the Mobile Wallet application and enters the password or PIN, the MFTS authenticates the login and sends user's current payee list to the user's Mobile Wallet of his/her mobile device. This action allows the user to proceed with use of the Mobile Wallet application. The user then selects "PayAnyone" and selects a payee name from the payee list received during the login or enters a payee name. The user then enters a payment amount with the mobile device in and selects the paper check payment method. Similar steps have been described in detail elsewhere and need not be repeated here.

[0422] In response to the foregoing steps, a mobile payment instruction (MPI) message (not shown) is generated by the user's Mobile Wallet application and communicated to the MFTS **18**. The MPI will typically include the payment amount, payment method (in this case a paper check payment), and payee information. The MPI is received at the MFTS **18** and processed to initiate the paper check payment method according to this aspect of the invention.

[0423] Starting at step **2804**, the MFTS **18** examines the payment instruction and generates a message **2806** to a third party address provider to obtain the address of the payee. According to one exemplary aspect of the invention, payee address information is stored in a table in the user database **158** (FIG. **2**) indexed by mobile phone number, by name, or by other information. Alternatively, the message **2806** is communicated to an independent address provider **2840** that provides address information in response to provision of a phone number.

[0424] At step **2810**, the requested address information is provided from the third party address provider **2840** via a message **2810**. The message **2810** is received by the MFTS **18** at step **2812** and formulated into a message **2814** including the payee's address information that is communicated to the payee's mobile device **2802**. A display such as that shown at screen **2702** in FIG. **27** is generated to the payee, as indicated by **2802**. It will be understood that the payee may receive an SMS message with this information or the Mobile Wallet application running on the payee's mobile device may provide this information to the payee.

[0425] At step **2818**, the payee confirms the address presented, via screens as shown in FIG. **27**. A confirmation message **2820** is generated and returned to the MFTS **18**. At step **2822**, the MFTS formulates an MFTS payment instruction (MFTSPI) message **2824** and communicates this message to a third party payment provider **2860**. The third party payment provider receives the message at step **2826**, and processes the MFTSPI message **2828** to generate a paper check that is mailed to the payee at the address indicated in

the messages. At step **2830**, the payee **2880** receives the paper check payment via mail.

Pay Anyone—Stored Value Card

[0426] FIG. **29** shows a sequence of payer's mobile device screen views **2900** for a "PayAnyone by phone number" payment method according to an exemplary aspect of the invention. In this particular method, the payer/user selects/enters a mobile device phone number to identify a payee, although it will be understood that other ways to identify a payee are contemplated. Specifically illustrated is a payment method involving use of a stored value (SV) card according to an exemplary aspect of the invention. It will be understood that the payer can alternatively select an ACH or paper check payment method, and that the particular payment method described is merely exemplary of payment using a stored value card.

[0427] Those skilled in the art will understand and appreciate that payment by a stored value (SV) card involves payment transaction infrastructure that does not form a part of the present invention, but is conventional and in widespread use. Specifically, a payment instruction is provided by a system constructed as described herein to a payment instruction recipient that has facilities for issuing a new stored value card or adding value to a pre-existing stored value card. It will be appreciated that various entities may serve the function of the payment instruction recipient regarding issue of a stored value card, including a financial service provider or a billing aggregator (either separately or in conjunction with another entity that handles SV card), a stored value card issuer, or a retail establishment that handles stored value cards.

[0428] Generally, making a payment to a stored value card typically involves acquisition by a payee of a "blank" or "unloaded" magnetic stripe or electronic smart card from a vendor of SV cards, followed by "loading" of the card with value (i.e. payment credits that can be drawn upon) by presenting the card to a vendor of the SV card having a terminal that can read information from the magnetic stripe or other electronic data storage medium on the card. The vendor then loads the card by providing information to a back office system indicating the amount of credit or payments available for use on the card, and returning the card to the cardholders The cardholder can then use the card in a manner similar to other payment cards (debit cards, credit cards), except that the card must be presented to an entity that can read the card and determine the available funds "loaded" to the card by accessing the card vendor's electronic payment system. According to one exemplary aspect of the invention, funds can be loaded onto a conventional stored value card from a mobile device (a new stored value card that is issued to a payee, or loading or reloading a pre-existing stored value card), in the manner shown and described herein.

[0429] As in previously described embodiments and aspects, the user first selects the Mobile Wallet application in screen **2902**, provides authentication information (e.g. a login) via screen **2904**, and is authenticated by the MFTS before being presented with options for making a payment at screen **2906**. Assume that in screen **2906** the user selects the "PayAnyone" option. In response to this selection the user is provided with a short menu of options as shown in screen view **2908** to select a payee, either by name or by mobile phone number. According to this exemplary aspect of the invention, in response to selection of the option "Paying by Mobile Phone" by either entry of the numeral "2" or activating the Select control, the user is presented with a screen **2910** for entry of the payee/recipient's mobile phone number.

[0430] According to this exemplary aspect of the invention, an exemplary payee's phone number 404-555-2121 is entered as shown in the screen view **2910**. The screen **2910** further includes controls for Next, Back, and Cancel, which operate in the manner as previously described to continue the process, return to a previous screen, or cancel the transaction. In response to the user's activation of the Next control after entry of the payee's phone number, the user is presented with a payment amount data entry screen **2912** for entry of the amount to pay. The user then enters the amount to pay. In this example, the user has entered $123.45. As in other exemplary screens, the amount entry screen **2912** includes a Next, Back, and Cancel control. In response to the user's activation of the Next control, the user is presented with a screen **2914** that displays the default payment source (e.g. Bank of USA), available balances in the default accounts of the default payment source, and prompts the user to confirm the selected default. As in previous examples, the user can activate the "Select" control to select the default account and payment source, or navigate to an alternative payment source.

[0431] After selection and/or confirmation of the payment source via screen **2914**, the user is presented with a screen **2916** that allows selection of a payment method. The user uses the "Back" and "Next" keys to navigate the menu and uses "Select" to make a selection. In this example, the Stored Value Card payment method is shown highlighted and therefore chosen. In response to activation of the Select control in screen **2916**, the user is presented with a screen **2918** that displays a confirmation of the payment and the selected payment method. According to an aspect of the invention, the exemplary screen **2918** displays a stored value card number for a pre-existing card of the payee (pre-stored), and provides buttons for Pay, New Card, and Cancel. Selection of the Pay button results in making payment via the pre-existing stored value card, while selection of the New Card button results in issuance of a new stored value card. It will of course be understood that a stored value card number of a pre-existing card of a payee is pre-stored in the user/payer's mobile device or elsewhere, so as to enable payment in this manner. Selection of the Pay button would then cause display of the screen **2922**, which indicates that the payment of $123.45 was made to the stored value card, using the pre-existing card number.

[0432] According to one exemplary aspect of the invention, in the event of selection by the user of the New Card button, a display screen **2920** is provided, indicating a location at which a new and "loaded" stored value card may be obtained. For example, the screen **2920** shows "Please pick up your new stored value card at CVS store as 123 Main St." plus a transaction ID. After this screen, the screen **2922**, as in other embodiments, is displayed and provides a confirmation screen that advises the payer that a payment in the indicated amount ($123.45 in this example) is paid to the mobile number identified, to the indicated stored value card account. In addition, preferably the account balance of the utilized payment source is updated and displayed to reflect the reduction of the available funds.

[0433] FIG. **30** shows a sequence of mobile device screen views **3000** from a payee's perspective, via a payee's mobile device, for a "PayAnyone" option where a user selects/enters a mobile device phone number and uses a stored value card payment method according to an exemplary aspect of the invention. As in other embodiments and aspects, the information shown may be presented to the payee either by a sequence of text messages (SMS) or by displays generated by the Mobile Wallet application if loaded and activated on the payee's mobile device.

[0434] As shown in screen **3002**, an SMS text message is received from the SMS generator **151**, or similar information generated by the Mobile Wallet application running on the payee's mobile device. In accordance with this message, the payee is notified that someone with a phone number 404-404-4040 has sent a payment in the amount of $123.45 for delivery via a stored value card. According to one exemplary aspect of the invention, the message to the payee includes a default payment receipt method, for example, deposit to a predetermined stored value card account. If generated by the Mobile Wallet application, the screen **3002** preferably includes a "Confirm" control, a "Change Card" control, and a "Cancel" control. By activating the "Confirm" control the payee/recipient can confirm that the displayed stored value card account number stored in the MFTS database is correct for the payment. On the other hand, the payee has the ability to change to another stored value card account by entering a new account number after activating the "Change Card" control.

[0435] If the payee activates the "Change Card" control in screen view **3002**, a separate screen **3004** is shown that ask the user/payee if they want to receive a new card. The available controls on this screen are "Yes", "No" and "Done"

[0436] If the user selects "Yes", they will be prompted on screen view **3006** to enter and Confirm the zip code for picking up the card. Available controls on this screen view are "Confirm", "Back" and "Done".

[0437] Upon entering a valid zip code and selecting the "Confirm" control, the user will be presented on screen view **3008** store locations for picking up a new card. Available controls on this screen are "Confirm", Back", and "Cancel".

[0438] In response to processing of the transaction by making the payment, according to one exemplary aspect of the invention the payee receives a confirmation message or display **3010** indicating that the received payment will be deposited into the newly issued stored value card account upon retrieval by the user/payee. At this point, the payee may activate a "Done" control to finish receiving payment or a "Next" control process another transaction, if applicable.

[0439] FIG. **31** shows a sequence diagram for a "PayAnyone" payment method **3100** involving use of a stored value card according to an exemplary aspect of the invention. This sequence diagram shows the interactions among the following parties: payee's mobile device **3102**, the MFTS **18**, a third party Stored Value Card provider **3140**, and a payee **3160**. Generally speaking, in this example a user/payer selects a stored value payment method as shown in step **3104** and communicates this decision to the MFTS **18** through a MFTS PI **3106**. The MFTS sends a request to the third party Stored Value Card provider to create a transaction and a transaction ID as shown in step **3108**. The payment amount is drawn from the payment source of the user (the payer) and the third party Stored Value Card provider configures a stored value card account on behalf of the payee in step **3112** with a message **3110**. The payee receives the transaction ID in an SMS message and is informed stored value card pick up locations as shown in step **3116**. The payee can then acquire a stored value card from a retail location associated with the stored value card vendor and have the card "loaded" as shown in step **3118**. A message **3120** is sent to third party stored value card provider to provide the transaction ID, card number and phone number etc at step **3122**.

[0440] Starting at step **3104**, it is first assumed that the user/payer has already selected the stored value card payment method, in a manner as described elsewhere, and have provided the MFTS **18** with a mobile payment instruction (MPI) indicating the payment amount and selected payment method. The MFTS **18** receives this MPI and generates a corresponding MFTS payment instruction (MFTSPI) message **3106** containing information required by a third party pre-paid (stored value) card provider or vendor **3140**, and if required, effects a funds transfer to the card provider by drawing on the selected payment source of the user/payer. The MFTSPI **3106** is communicated to the third party stored value card provider **3140**, and received at step **3108**. According to one exemplary aspect of the invention, the MFTSPI will include a zip code provided by the payee or payer, to facilitate location of one or more retail locations at which the payee can obtain an unloaded SV card (or can reload an existing SV card). At step **3108**, the third party stored value card provider **3140** generates a transaction identifier (ID) and conducts a zip code lookup to locate one or more nearby retail locations for the payee to pick up and/or load a Stored Value Card. According to one exemplary aspect of the invention, the transaction ID is maintained by the card provider to be used for authentication purposes when the payee requests that the card be loaded with the payment.

[0441] Further at step **3108**, the third party card provider **3140** generates a message **3110** back to the MFTS **18** to inform the system that the stored value card account is configured and ready for use. According to one exemplary aspect of the invention, this message **3110** includes information that allows the payee to identify locations at which an unloaded stored value card may be obtained and then loaded, and the transaction ID number. At step **3112**, the MFTS **18** receives the message **3110** and generates a message **3114** to the payee's mobile device **3102** advising that a payment has been made, locations that a card may be obtained and/or loaded at certain retail locations associated with the card vendor, and the transaction ID, which is required for authentication of the card to the payee. Exemplary screens in this regard as shown in FIG. **30**.

[0442] At step **3116**, the payee's mobile device **3102** receives the message **3114** and displays (either via SMS text message or via the Mobile Wallet application, if installed) information informing the payee that a payment is waiting by stored value card payment method, and information as to potential pick up locations for obtaining and/or loading a stored value card. At step **3118**, and according to one exemplary aspect of the invention, the payee physically goes to a location identified in the message and obtains a stored value card, typically not yet loaded. Further at step **3118**, the payee with the stored value card presents the card to a retail location or terminal associated with the third party card provider **3140**, so as to load the card for use.

[0443] At step **3122**, the third party card provider **3140** is presented with a stored value card by the payee, with a

request to activate and/or load the card with the payment. The third party card provider typically at this time requires authentication information to activate and/or load the stored value card. In this case the authentication information comprises one or more of the following items of information: the transaction ID number, the card number, the mobile phone number, and optionally other information such as name, address, etc.

[0444] After the payee presents the required information to the third party card provider **3140**, at step **3124** the card provider loads the card with the funds provided earlier, obtained from the user/payer. At step **3128**, the stored value card, now loaded with the payment, is returned to the payee **3160** through transaction **3126**, who can then use the card at locations that accept the particular type of stored value card, as a payment form.

[0445] According to an exemplary aspect of the invention, if the payee already has a Stored Value Card, he/she can contact the third party Stored Value Card provider **3140** to claim the payment with an existing Stored Value Card, and follow the steps from **3122**.

[0446] It will be appreciated that the foregoing payment method involving use of a stored value card payment method is useful for making payments to subscribers/users of the MFTS **18**, as well as non-subscribers, as the payee need only be provided with the transaction ID number and type of stored value card in order to receive a payment. According to an exemplary aspect of the invention, not described in detail, information corresponding to the stored value card can be displayed in the first instance to the payer, for provision (e.g. via a note or writing) to a payee that does not have a mobile device that can receive SMS messages or run the Mobile Wallet application, or does not have a mobile device at all. Once the initial stored value card account is created on behalf of a particular payee, the user/payer can load additional funds into a stored value card account associated with the payee, as the name of the payee will be stored in the MFTS **18** as described above, and can therefore be quickly and readily reused to provide additional funds to the selected payee.

Balance Transfer

[0447] FIG. **32** shows a sequence **3200** of mobile device screen displays corresponding to a "Balance Transfer" financial transaction option according to an exemplary aspect of the invention. A balance transfer is a financial transaction involving the transfer of funds between different accounts of the same user. A balance transfer allows a user of the MFTS to use his or her mobile device to obtain and monitor information relating the user's financial accounts, and move funds from one account to another.

[0448] As in previously described embodiments and aspects, the user first selects the Mobile Wallet application in screen **3202**, provides authentication information (e.g. a login) via screen **3204**, and is authenticated by the MFTS before being presented with options for making a payment (or balance transfer) at screen **3206**. Assume that in screen **3206** the user selects the "Balance Transfer" option. In response to this selection the user is provided with a Balance Transfer screen **3208** that allows selection of a funds transfer from one of a plurality of selectable accounts. As shown in screen **3208** as examples, the user can select to transfer funds from a MasterCard™ account, a VISA™ account, a Discover™ account, a GaSL account, or a Bank of USA account as payment sources usable for a balance transfer. Corresponding balances associated with such accounts are also preferably displayed in accordance with this aspect of the invention. The screen **3208** further preferably includes a "Select," "Back," and "Next" controls for navigation and selection, similar to that in other functions. The screen **3208** shows the Bank of USA account highlighted and therefore selected.

[0449] In response to user activation of the "Select" control in screen **3208** with a selection in the list of available accounts, an exemplary screen for the selected account, e.g. Bank of USA, is displayed as screen **3210**. Screen **3210** displays several different accounts associated with the particular payment source, Bank of USA, namely, a savings balance, a checking balance, and other (e.g. a money market account). The screen **3210** further preferably includes a "Select," "Back," and "Next" controls for navigation and selection, similar to that in other functions. The screen **3210** shows the checking balance highlighted and therefore selected.

[0450] In response to activation of the "Select" control in screen **3210** with a selection in the list of available accounts (i.e. the checking balance in the example shown), screen **3212** is displayed. Screen **3212** presents the list of available account/payment sources similar to that of screen **3208**, except indicated for a transfer to as opposed to a transfer from. The screen **3212** further preferably includes a "Select," "Back," and "Next" controls for navigation and selection, similar to that in other functions. The screen **3212** shows the GaSL account highlighted and therefore selected.

[0451] In response to user activation of the "Select" control in screen **3212** with a selection in the list of available accounts, an exemplary screen for the selected account, e.g. GaSL, is displayed as screen **3214**. Screen **3214** displays several different accounts associated with the particular account a balance transfer destination, GaSL, namely, a savings balance, a checking balance, and other (e.g. a money market account). The screen **3214** further preferably includes a "Select," "Back," and "Next" controls for navigation and selection, similar to that in other functions. The screen **3214** shows the checking balance highlighted and therefore selected.

[0452] In response to user activation of the "Select" control in screen **3214** with a selection in the list of available accounts, e.g. the checking account at GaSL, a balance transfer confirmation screen **3216** is displayed. According to one exemplary aspect of the invention, the balance transfer confirmation screen **3216** provides a data entry region for user entry of an amount of funds transfer, e.g. $2000 is shown. The screen **3216** further preferably includes a "Transfer," "Back," and "Next" controls for navigation and selection, similar to that in other functions. In response to user activation of the Transfer control, a balance transfer confirmation screen **3218** is displayed, containing information indicating that the balance transfer has been effected. In the example shown, the balance transfer of $2000 is transferred from a Bank of USA checking account to a GaSL checking account. Preferably, also, screen **3218** includes a display of the current balances of each of the accounts involved in the balance transfer, updated to reflect the balance transfer.

[0453] FIG. **33** is a sequence diagram of a balance transfer payment method or process **3300** according to an exemplary aspect of the invention, showing the interactions among a

payer/user's mobile device **15**, the MFTS **18**, a first financial institution **30**A associated with the user, and a second financial institution **30**B associated with the user. The balance transfer is effected between these two financial institutions **30**A and **30**B.

[0454] As in previous methods described elsewhere, initial steps **3302**, **3304**, **3307**, and **3309** in the balance transfer method involve receiving authentication message **3306** from the user/payee, authentication by the MFTS **18**, and sending an authentication confirmation message **3308** to the user's mobile device **15**. In response to authentication, the user opens the Mobile Wallet application at step **3302** and enters the password or PIN in **3304**, the MFTS authenticates the login and sends activates the user's Mobile Wallet of his/her mobile device in step **3307**. This action allows the user to proceed with use of the Mobile Wallet application at step **3309**. The user then selects Balance Transfer option in step **3310**. At step **3312** the mobile device formulates a mobile payment instruction (MPI) message **3314** and transmits this message to the MFTS **18**. According to one exemplary aspect of the invention, the MPI message **3320** includes information identifying a payment source account, a destination account, and a balance transfer amount, so that the MFTS can construct appropriate MFTS payment instructions to the selected and identified financial institutions.

[0455] At step **3316**, the MFTS **18** receives the MPI message **3314** and constructs an appropriate MFTS payment instruction (MFTSPI) message **3318** for communication to the first or payment source financial institution **30**A. At step **3320**, the first or payment source financial institution **30**A receives the MFTSPI message **3318** and debits the selected account for the indicated amount of funds. The first or payment source financial institution **30**A then takes action in accordance with its own procedures to transfer these funds to the selected second financial institution **30**B through a message **3322**, as indicated at step **3320**. At step **3324**, the second or destination financial institution **30**B updates its records to indicate receipt of funds. According to one exemplary aspect of the invention, the first and second financial institution **30**A, and **30**B provide balance transfer confirmation messages, indicated by messages **3330**A, **3330**B, back to the MFTS **18**, so that the MFTS **18** can update its local record of the funds available at each of the accounts at each of the financial institutions.

[0456] At step **3328**, the MFTS **18** receives the balance transfer confirmation messages **3330**A, **3330**B and updates the records of the user to reflect the balance transfer. Further at step **3328**, the MFTS **18** communicates a balance transfer confirmation message **3332** to the mobile device **15**. At step **3334**, the mobile device **15** receives the balance transfer confirmation message **3332** and updates its local storage of the balances associated with the user's accounts and financial institutions, to reflect the completion of the balance transfer.

Receiving Payment at Payee Mobile Device by Mobile Wallet Installation

[0457] The reader may have noticed from the discussion above that aspects of the present invention involve a payee either (1) receiving and sending a series of SMS messages (text messages) in order to interact with the MFTS to select a payment receipt method, or (2) installing and utilizing the Mobile Wallet application on the payee's mobile device in order to interact with the MFTS to select a payment receipt method and/or be enabled to conduct transactions (make payments) as an MFTS user. A payee thus need not have the Mobile Wallet application installed on his or her mobile device in order to realize the benefits of certain aspects of the invention. However, a payee with most currently available types of mobile device is presented with an opportunity to download, install, and use the Mobile Wallet, in accordance with certain features and aspects of the invention. Thus, and according to an exemplary aspect of the invention, persons to whom a user wishes to make a payment can be provided with an opportunity to download the Mobile Wallet application and receive the benefits of both receiving payments and selecting payment receipt options in accordance with described aspects of the invention, as well as utilizing the mobile payment services provided by an operator of the MFTS **18**.

[0458] In order to "spread" the benefits of the Mobile Wallet to payees (who are prospective users of the MFTS, upon installation and activation of the Mobile Wallet application), the present invention includes aspects for informing a payee of the opportunity to download and utilize the Mobile Wallet application and register as a user of the MFTS, provide the code for the Mobile Wallet via a wireless download, activate the payee to become a user of the MFTS services and utilize the Mobile Wallet application as a user.

[0459] Turn in this regard to FIG. **34** for a discussion of a method for a payee to receive a payment from a user of the MFTS **18** and also download and install the Mobile Wallet application. FIG. **34** shows a sequence of mobile device screen views **3400** from a payee's perspective, via a payee's mobile device, for a payment receipt method that includes steps for providing a payee with an opportunity to download and install the Mobile Wallet application, register for service with the MFTS, and thereby becoming users themselves of the MFTS services. Advantageously, the method allows the so-called "viral spreading" of the benefits of the Mobile Wallet application and use of the MFTS, by providing payees who receive payments from users who are already participants in the MFTS system with the ability to download and use the Mobile Wallet application quickly and easily, thereby becoming new MFTS users, and in turn spread the benefits in turn to payees of the new MFTS user. Such new user's payees in turn are likewise afforded the opportunity to join and participate.

[0460] As in other embodiments and aspects, for a payee that does not have the Mobile Wallet application installed on their mobile device, the information shown will be presented to the payee by a sequence of text messages (SMS).

[0461] As shown at screen or message **3402**, a payee typically receives a text (SMS) message that indicates that a user has sent the payee a payment, and advising the payee as to how to receive the payment. For example, the screen or message **3402** states that "404-404-4040 has sent you a payment of $123.45." Further in accordance with this exemplary aspect of the invention, the screen or message **3402** includes the text, "Your mobile device does not have the necessary application to receive the payment, do you want to download the application?" A "Yes" control and a "Cancel" control are also preferably provided so that the user can elect to receive the application download or to receive the payment without installing the mobile device application. If the user decides not to install the mobile device application or the mobile device is not capable of installation of the mobile device application, the user is given other options to

receive the payment. A screen is displayed if the user selects the "Cancel" button as shown in screen view **3402**. The screen view (not shown in FIG. **34**) provides the user other options such as receiving the payment with paper check, by way of ACH transaction, or a stored value card. The user may respond the payment with a text (SMS) message back to the payer and inform the payer how he/she would like to receive the payment without installation of the mobile device application. The responses the user send to the payer may include the method of the reception of the payment, as well as the user's address information, or account information and any other related information.

[0462] In the event that the payee selects the "Yes" control, a message bearing the maker name, model number of the mobile device is sent back to the MFTS through the MCSP. The MFTS identifies the type of mobile device possessed by the payee and an appropriate Mobile Wallet application code, that is executable on the payee's mobile device, is sent to the mobile device, and a self installation process starts on the mobile device after the Mobile Wallet application code is downloaded to the mobile device. A text message indicating that a installation operation has begun may be displayed, as illustrated at screen view **3404**. A conventional progress bar may be displayed as part of the installation process, as shown in screen or message **3404** to advise the payee of the installation progress. A "Cancel" control is optionally provided so that the payee may terminate the installation operation if desired.

[0463] Upon completion of the Mobile Wallet application download, a completion screen or message **3406** is displayed, according to one embodiment of the invention. This completion screen view **3406** preferably indicates that the installation of the Mobile Wallet application is completed. According to one exemplary aspect of the invention, the Mobile Wallet application then executes and displays screens (or messages) that it generates. At this stage, preferably, the Mobile Wallet application may optionally prompt the payee to enter a PIN for use of the application and/or an account of the payee maintained by the MFTS operator. Preferably, "Next," "Back," and "Cancel" controls are also provided for their indicated functions. In response to the payee's selection of the Next control in screen or message **3406**, a PIN confirmation screen **3408** is preferably next displayed to prompt the payee to re-enter the PIN for confirmation. Similarly, "Next" and "Cancel" controls are preferably provided.

[0464] In response to the payee's selection of the Next control, a Payment Received screen **3410** is displayed. This screen preferably repeats the text that "404-404-4040 has sent you a payment of $123.45," and further includes text prompting the payee to select one of a plurality of possible payment reception methods. In the exemplary screen **3410**, the payee is presented with the options of receiving payment by ACH, paper check, or stored value (SV) card. Methods, screen displays, and operations for such payment methods have been described elsewhere in this document and need not be repeated here. By way of example and not limitation, the paper check payment method is shown highlighted in screen **3410** and therefore selected. The MFTS is able to obtain the mail address of the user based on the phone number through a third party address provider. If the user decides to receive the paper check with a different address, the user selects the "Change Address" button on a screen view **3412**. A plurality of screen views may follow to allow the user to change, edit and confirm a new mailing address. These screen views will be understood by those skilled in the art and not described here in detail.

[0465] The screen **3412** requesting confirmation of the mailing address, etc. is preferably displayed, as described elsewhere in greater detail. A payment confirmation screen **3414** confirming the mailing address of the payment (or other selected payment method, if selected) is preferably displayed next, as described elsewhere in greater detail.

[0466] At this point, the payee has now downloaded and installed the Mobile Wallet application and is enabled for further use, upon provision of further registration information such as provision of account information to set up payment sources that can be used for the payee (now a user) to make payments to billing entities and other persons in accordance with previously described aspects of the invention. Although the user's mobile device is currently enrolled, and enabled in the MFTS, the user still needs to visit the MFTS user web site to add, enter information relating to payment source, billing entities etc. This information entry will be discussed later in this document.

[0467] FIG. **35** is a sequence diagram of a Mobile Wallet installation by payee method or process **3500** according to an exemplary aspect of the invention, showing the interactions among a mobile device **3501** of a payee/prospective user, the MFTS **18**, and a third party payment provider **30**P, so as to enable a payee to receive a payment, download and install the Mobile Wallet application to the payee's mobile device **3501** and thereby be enabled as a user of the MFTS. It will be understood that the steps of the method **3500** are typically carried out after a user has instructed the MFTS **18** to make a payment to a particular payee by mobile telephone number or name, and the MFTS contacts the payee by one or more messages to advise the payee that a payment is pending. The steps in method **3500** therefore typically occur at the point of determining a payment delivery method to the payee.

[0468] Starting at step **3502**, the first step taken is the receipt by a payee, a non-subscriber to the services of the MFTS **18** operator, of a message **3503** indicating that a user has made a payment to the payee. According to one exemplary aspect of the invention, this message is text message (SMS) delivered to the mobile number of the payee. At step **3502**, the non-subscriber/payee sees the message as shown in screen view **3402** of FIG. **34** and determines whether he/she wants to download and install the Mobile Wallet application for his or her mobile device, e.g. by selecting the "Yes" control in screen **3402** in FIG. **34**. A message **3506** is returned to the MFTS **18**, with the confirmation of the downloading and installation of the mobile wallet application, as well as the make and model number, or serial number of the mobile device. At step **3508**, the MFTS downloads an appropriate Mobile Wallet application to the designated mobile device and installs the downloaded Mobile Wallet application as indicated by message **3510**. At step **3512**, the user is notified that the download and installation operations are complete, and the payee/prospective user is prompted to create a login (or PIN, or password, as appropriated) and become a user of the MFTS. After the login/password/PIN authentication process (see FIG. **34**), at step **3516** the payee/user is provided with a Payment Received screen including details of the payment and requesting selection of a payment method. At step **3518**, the user selects a desired payment method (e.g. ACH, paper

check, or stored value card), and at step **3520** provides applicable account details needed for the payee/user to receive payment. This account setup information is communicated to the MFTS **18** via one or more electronic messages **3520**.

[0469] At step **3522**, the MFTS **18** receives the account setup information and stores the account information in association with identification information corresponding to the payee/user, in the user database of the MFTS. Also at step **3522**, the MFTS **18** communicates an MFTS payment instruction (MFTSPI) message **3523** to a selected third party payment provider **30**P or financial institution **30** (e.g. an ACH payment generator, or a paper check issuer, or a stored value card vendor) to cause the issue of the selected form of payment to the payee as shown in step **3524**. After providing this MFTSPI to the selected payment provider, also at step **3522** the MFTS **18** provides a payment confirmation message **3526** to the payee/user through his/her mobile device **3501**. At step **3528** the payee/user receives the payment confirmation information that the payment has been sent for processing.

[0470] Subsequent to the foregoing steps, and as indicated at step **3530**, the payee (now a registered user of the MFTS services) is empowered and enabled not only to receive further payments via the installed Mobile Wallet application, but also to register billing entities to whom payments should be made, as well as the payee/user's payment sources. The payee/now user can also facilitate the spread of the Mobile Wallet application and convenient use of the MFTS and associated services by making payments to others that may not have the Mobile Wallet, and thereby facilitate the spread of use of the systems and methods of the present invention. According to an exemplary aspect of the invention, the new user is preferably provided with information identifying the MFTS website and prompting the new user to access the web application (FIGS. **37-42**) to enter and provide detailed information relating to billing entities, persons to pay, payment sources, accounts, viewing of transaction details, default payment and receipt methods, etc.

[0471] Referring now to FIG. **36**, a serial screen view **3600** are shown for a registered user to change the login PIN when such an action is needed, according one embodiment of the present invention. The screen views **3602** and **3604** were explained elsewhere in this document and are not described here. In screen view **3606**, the user highlights and selects the "Change PIN" option from a menu provided on the screen view. For security purposes, this action requires the user to enter the current PIN number for verification in screen view **3608**. The user is requested to enter a new PIN in screen view **3610** and to re-enter the PIN again for verification purpose in screen view **3612**. According to one embodiment of the present invention, the PIN comprises six numerical digits for easy remembrance and can be extended to any reasonable length. In another embodiment, the PIN comprises alpha-numerical digits, if the mobile device has a full keyboard. In one embodiment, the PIN comprises case-sensitive alpha-numerical digits. In another embodiment, the PIN comprises not case-sensitive alpha-numerical digits. In one embodiment, the PIN is fixed length. In another embodiment, the PIN is variable length with pre-determined minimum length and maximum length.

[0472] A message is sent to the MFTS to notify the MFTS to change the PIN and store the changed PIN in the user database of the MFTS. The MFTS sends a confirmation message back to the user's mobile device to inform the user that the PIN is successfully changed, and this message is displayed on the screen view **3614**. Here an option button "Main Menu" brings the user to the main menu screen view **3616** of the mobile wallet application.

[0473] Turning next to FIG. **37**, consisting of FIGS. **37**A-**37**D, for a discussion of a user interface comprising screen displays of a web application input/output interface illustrating aspects of user enrollment for use of a mobile financial transaction system (MFTS), through a web application user site, according to an aspect of the present invention. FIG. **37** is an illustrative screen display of the web application **154**, in particular, the user site web application **153** (FIG. **2**). In particular, FIG. **37**A illustrates aspects of enrollment of a user for use of the services provided by the MFTS **18**. FIGS. **37**B, **37**C, & **37**D illustrate aspects of adding or editing mobile devices, and editing aspects of a mobile device.

[0474] In accordance with an aspect of the present invention, the web application provides a User Site screen display **3701** which includes a first region **3705** including a plurality of selectable links or buttons for pre-determine functions, a second region **3710** for data entry, and a plurality of user control **3715** to provide specific functionality. In the first region **3705**, selectable links labeled "Mobile Devices", "Accounts", "Payees", and "Logout" are provided. A user's selection of the Mobile Devices link presents the display as shown in **3701**, which enables a user manage Mobile Devices for use in connection with the MFTS according to an aspect of the invention. A user's activation of Accounts links provides a display as will be discussed in connection with FIG. **38**. A user's activation of the Payee's link provides a user's display as shown in FIG. **39** as will be discussed below.

[0475] The data entry second region **3710** displays the mobile numbers of any Mobile Devices that have previously been enrolled by the current user for use with the MFTS **18**. The second region **3710** shows a single Mobile Device number (404) 505-6060, which is an exemplary mobile telephone number.

[0476] The selectable user control **3715** provides commands to implement functions in conjunction with enrolled mobile number(s). According to an aspect of the invention, presently considered a preferred embodiment, the user control **3715** comprises an "Add Device" button **3717**, an "Initialize Device" button **3720**, an "Edit Device" button **3725**, a "Lost Device" button **3730**, an "Unlock Device" button **3735**, and a "Delete Device" button **3740**.

[0477] These functions are self-explanatory, and will be understood by those skilled in the art. In one embodiment, the "Lost Device" function is to disable a reported lost mobile device for user's protection. The "Unlock Device" function is to re-enable a disabled mobile device or re-activate a mobile device after several consecutive failed logins. The "Delete Device" function is to remove an enrolled mobile device from mobile financial transaction system service.

[0478] User activation of either the "Add Device" button **3717** or the "Edit Device" button **3725** causes the MFTS web application to provide a screen display **3701**B, as shown in FIG. **37**B. The display screen **3701**B includes a data entry region **3745** for entry of a mobile device phone number, into which a user can enter a number. A "Submit Query" button **3750** is provided to cause the web application to utilize the

number entered into the data entry region **3745** and enter/retrieve user information corresponding to the mobile device number such that information may be entered for use in connection with the MFTS **18**, or that properties or information relating to a pre-entered number may be edited. The "Add Device" button **3717** and the "Edit Device" button **3725** allow the user to enter detailed account information related to the mobile device. The information related to the mobile device comprises: user name, mailing address, billing address, web access username and password.

[0479] FIG. **37**C illustrates a User Site display screen **3701**C which is displayed to a user upon entry of a new mobile device number, in order to configure the Mobile Device for use with the MFTS **18** in accordance with aspects of the invention. According to one embodiment of the present invention, upon receipt of a newly-entered mobile device number for use in the system, a text (SMS) message is transmitted to the mobile device with the mobile device number entered. This SMS message, in accordance with an aspect of the invention, provides information to the user at the mobile device for downloading and installation of a mobile device application so as to configure the mobile device for use in connection with the system. Instructional information such as shown at **3760** is preferably displayed to the user, informing the transmission of the text message and the instruction. Additionally, and in accordance with an aspect of the invention, an initialization code is provide for the mobile device for security purposes, with a prompt to the user to enter the initialization on code upon running of the mobile device application on the mobile device.

[0480] FIG. **37**D provides a display screen **3701**D comprising a message **3765** displayed in response to user activation of the "Delete Device" button **3740** in FIG. **37**A.

[0481] FIG. **38** illustrates various exemplary User Site display screens **3801** that are displayed by the web application **154** in response to user activation of the Accounts link or button in the controller region **3705**. In FIG. **38**A, a display screen of **3801**A is initially provided in response to activation of the "Accounts" button. The display screen **3801**A includes an information display region **3805** comprising a listing of one or more accounts associated with the user presently interacting with the MFTS **18**, an informational display region **3810** displaying specific and detailed information regarding a selected account, shown highlighted in region **3805**, and a plurality of control buttons **3815** to implement functions with respect to a selected account. For example, the account "Kyle's Checking" is shown highlighted in region **3805**, and specific information regarding the selected account such as routing number, account number, account nickname, etc., is shown in informational display region **3810**.

[0482] In accordance with an aspect of the invention, the user controls **3815** include an "Add Account" dropdown menu **3817**, an "Edit Selected" button **3820**, and a "Delete Selected" button **3825**. User selection of the "Add Account" menu **3817** or activation of the "Edit Selected" button **3820** leads to a display screen such as shown in FIG. **38**B as screen **3801**B.

[0483] FIG. **38**B illustrates aspects of the web application for editing information relating to a selected account. The display screen **3801**A includes exemplary data entry regions **3830** for displaying and editing specific information relating to a selected account. For example, in accordance with an aspect of the invention, there is provided a region for entry and editing of routing and transit number **3832**, entry and editing of an account number **3835**, entry and edit of account type **3840**, and entry and editing of a nickname for an account **3845**. A "Submit" button **3850** is provided to update and save the information, and a "Cancel" button **3855** is provided as operative in a manner known to those skilled in the art.

[0484] FIG. **38**C is an exemplary User Site display screen **3801**C that is displayed by the web application **154** in response to user selection of an account in region **3805** (FIG. **38**A) that is a card type account, for example, a credit card or a stored value card, as opposed to a bank account, such as shown in FIG. **38**B. The display **3801**C includes an information display region **3860** for information relating to a card type account. As shown in FIG. **38**C, the display areas include a card number display region **3862** and a nickname region **3865**, for entry of a short name for the account to promote remembrance. A "Next" button **3870** moves to another account of a plurality of accounts stored and maintained by the MFTS **18**, and the "Cancel" button **3875** operates in a known manner.

[0485] FIG. **38**D illustrates an exemplary display screen **3801**D, that is displayed in response to a user change of information relating to a card account, e.g. if a user changes any information relating to a card account such as in FIG. **38**C. The display screen **3801**D includes an informational display region **3880** for displaying a card number of an account that has been selected for entry or editing, and a personal identification number (PIN) data entry region **3885** for entry of a PIN associated with a card account for security purposes. A "Submit" button **3890** and a "Cancel" button **3895** are provided and are operative in the known manner.

Identifying Information

[0486] FIG. **39** illustrates User Site display screen **3901** that is displayed in response to user activation of the "Payees" link or button in region **3705**, for managing payees for receiving payments in accordance with an aspect of the invention. In FIG. **39**A, the "Manage Payee" display screen **3901**A includes a region **3905** for displaying information relating to payees that have been previously input by a user into the MFTS **18**, either by the web application **154** or, as appropriate, via mobile device application entry. As shown in FIG. **3901**A, at least information relating to a name of a payee and a mobile device number of the payee is displayed. In accordance with another aspect of the invention, a payee in the system has other information stored in association therewith, including an address of the payee (if available), a default payment method, a preferred account number for one or more payment methods available to the particular payee, and other identifying information. As shown in FIG. **39**A, a particular payee may be highlighted or displayed specific information and for operations such as editing or deletion. Also shown in FIG. **39**A, are control buttons for an "Add Payee" button **3910**, an "Edit Selected" button **3915**, and a "Delete Selected" button **3920**. User selected of the "Add Payee" button **3910** or the "Edit Selected" button **3915** produces a display such as is shown in FIG. **39**B.

[0487] FIG. **39**B is an exemplary User Site display screen **3901**B that is displayed in response to a user of the web application electing to add a payee or edit a selected payee. The exemplary display screen **3901***b* includes a data entry and display region **3925**, which displays information relating to a particular payee that was selected in FIG. **39**A, and

allows entry or updating of the information. In this embodiment of the invention, there is provided a "First Name" field **3927**, and a "Last Name" field **3930**, and a "Phone Number" field **3935**. In accordance with another aspect of the invention, address information, account number information, a default selection for payment method field, and other information is also provided. A "Submit" button **3940** and a "Cancel" button **3945** are provided and are operative in the known manner.

[0488] Those skilled in the art will understand and appreciate from a review of FIGS. **37-39** that there is provided an internet-accessible web application input/output interface **154** that allows users to input and edit information relating to "Mobile Devices", "Accounts", and "Payees" so as to provide functionality as described elsewhere in this document.

[0489] FIG. **40** is an alternative embodiment of user display screens generated by a web application input/output interface **154**, construction in accordance with an alterative aspect of the invention. FIGS. **40-42** provide an alternative method for user interaction with the web application, with a somewhat different manner of displaying information and receiving user interaction with respect to selected accounts, mobile devices, billing entities, and payment sources.

[0490] FIG. **40** illustrates an exemplary display screen **4001** provided by the web application for managing accounts. The display screen **4001** is provided by the web application for managing accounts. The display screen **4001** includes three selectable tabs, an "Account Summary" tab **4005**, a "Billing Entities" tab **4010**, and a "Payment Sources" tab **4015**. Shown selected in FIG. **40** is the "Account Summary" tab **4005**. The information associated with the "Account Summary" tab **4005** includes information relating to the particular user including an account number, mobile number associated with the user's mobile device, and other identifying information as is shown. Other relevant information relating to the user such as address information, registration date information and other information relating to billing entities and payment sources is preferably provided in a display area **4035**. An "Edit" button **4020** is provided for editing the information displayed, while a "New" button **4025** is provided for generating a data entry display screen that would allow entry of the information as is shown in FIG. **40**.

[0491] FIG. **41** is an exemplary alternative display screen **4101** is displayed in response to user activation of the "Billing Entities" tab **4010**. The information displayed in the display screen **4101** includes information identifying the specific account or mobile device number for the current user, as well as a display region **4120** that displays information regarding a plurality for "billers" or billing entities, or people to whom a payment can be made, e.g., a payee and "pay anyone" payment scenarios as described elsewhere in this document. An "Edit" button **4020** and a "New" button **4025** are provided and are operative in a manner described above and will be known to those skilled in the art.

[0492] The billers data region **4120** as shown in FIG. **41** includes selectable tabs for a plurality of billers, **4105**, **4110**, and **4115**. The activation of the "New" button **4025** adds a new tab and a new page for a new "biller". The exemplary tab **4110** is shown as selected, and displays information relating to a particular biller for which information has been previously entered. In the example shown in FIG. **41**, an exemplary billing entity George Electricity Company is shown together with a relevant account number, address, and other identifying information required so as to enable the MFTS **18** to receive a bill from the billing entity and generate a payment to this billing entity in accordance to the aspects of the invention.

[0493] Also, provided in the screen **4101** is a current balanced data display region **4125**, which displays information relating to a current account balance with respect to the identified and selected biller, e.g., "Biller **2**" shown in tab **4110**.

[0494] FIG. **42** is an exemplary alternative web application display in the form of a display screen **4201** displayed in response to selection of the payment sources tab **4015**. The exemplary display screen **4201** includes the information identifying the account being viewed such as account number, mobile number, etc., as in the previous screen, and also provides an "Edit" button **4020** and a "New" button **4025** operative as described elsewhere and in the known manner.

[0495] The "Payment Sources" tab **4015** also includes an information display region **4220** for displaying information relating to a selected account. A plurality of selectable tabs with respect to specific accounts available to the user are provided in exemplary selectable tabs **4205**, **4210**, **4215**, which are identified as "Bank **1**", "Bank **2**", and "Bank **3**". Shown selected in FIG. **42** is "Bank **2**" **4210**. The display region **4220** thus display information associated with the selected payment source, which in this case identifies a specific financial institution and a specific account associated with the selected financial institution. For example, the information preferably include the name of the payment source, e.g., "Georgia Best Bank", and the corresponding account number, account type, address, and other identifying information. Also, preferably provided is information display region **4225** for displaying a current balance associated with the selected account.

[0496] From the foregoing, those skilled in the art will understand and appreciate that the web application input/output interface **154** can alternatively provide display screens and controls such as shown in FIGS. **40-42**, to allow user data entry and editing payment sources, billing entities or other payees, in accordance with aspects of the invention.

[0497] The foregoing description of the exemplary embodiments of the inventions has been presented only for the purposes of illustration and description and is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many modifications and variations are possible in light of the above teachings.

[0498] The embodiments were chosen and described in order to explain the principles of the invention and their practical application so as to enable others skilled in the art to utilize the invention and various embodiments and with various modifications as are suited to the particular use contemplated. Alternative embodiments will become apparent to those skilled in the art to which the present invention pertains without departing in spirit and scope. Accordingly, the scope of the present invention is defined by the appended claims rather than the foregoing description and the exemplary embodiments described therein.

What is claimed is:

1. A method for making a mobile financial payment using a mobile device connected for communications with a wireless network, comprising the steps of:

providing a mobile financial transaction system (MFTS) coupled for wireless communications with a mobile

device of a user using a mobile communication service provider (MCSP), the MFTS coupled for electronic communications with one or more payment instruction recipients that can make a payment to a payee in behalf of the user, the MFTS including a mobile financial transaction system (MFTS) database for storing user information, payment to make information associated with the one or more payment instruction recipients and/or payees, and payment source information associated with at least one account associated with at least one financial service provider;

providing one or more selectable payees for selection by the user using the mobile device;

receiving user input at the user's mobile device corresponding to selection of a payee for a payment to make and a payment source for making a payment;

in response to the user input at the user's mobile device, generating a mobile payment instruction comprising information corresponding to the payment to make and a payment source for making the payment;

wirelessly communicating the mobile payment instruction from the user's mobile device to the MFTS;

at the MFTS and in response to receipt of the mobile payment instruction, retrieving information from the MFTS database corresponding to an identified payee for receiving the payment indicated by the mobile payment instruction and information corresponding to the selected account at the selected financial service provider identified in the mobile payment instruction;

at the MFTS, generating a MFTS payment instruction to a payment instruction recipient, the MFTS payment instruction including at least information identifying the selected account at the selected financial service provider, an amount, and information corresponding to the identified payee; and

communicating the MFTS payment instruction from the MFTS to the selected payment instruction recipient;

whereby the payment instruction recipient, in response to receipt of the MFTS payment instruction, effects a payment to the identified payee.

2. The method of claim **1**, wherein the one or more selectable payees comprises payees for which payment information has been pre-stored at the MFTS.

3. The method of claim **1**, wherein the one or more selectable payees comprises payees to which a payment was previously made and for which payment information is already extant on the mobile device.

4. The method of claim **1**, wherein the payment to make information comprises a bill, and the payee is a billing entity.

5. The method of claim **1**, wherein the payment instruction recipient is one of a financial service provider, a billing aggregator, or a separate billing entity.

6. The method of claim **1**, wherein the payment to make information is provided to the MFTS by an external source, is input by the user via an Internet-accessible web site accessible by the user for input of payment to make information and payee information, or is input by the user at the mobile device.

7. The method of claim **6**, wherein the external source for the payment to make information is one or more of a bill presentment system that provides bill information from a plurality of billing entities or an individual billing entity.

8. The method of claim **1**, wherein the payment to make information comprises information corresponding to one or more of the following: a recurring bill, a bill from a billing aggregator, a bill from an individual billing company, a "pay anyone" payment.

9. The method of claim **1**, further comprising the step of providing a Mobile Wallet application on the user's mobile device.

10. The method of claim **9**, wherein the Mobile Wallet application provides a display on the mobile device of selectable commands including one or more of a View Bills command, a View Payment Sources command, and a Pay Bill(s) command.

11. The method of claim **1**, wherein the selection of a payment source for making a payment includes selection of a financial service provider and selection of a particular account associated with the selected financial service provider for making the payment.

12. The method of claim **10**, wherein the user input corresponding to selection of a payment source for making a payment is provided in response to display of a View Payment Sources command.

13. The method of claim **10**, wherein user activation of the View Payment Sources command causes the MFTS to retrieve current account information from one or more financial service providers and communicate the current account information to the mobile device upon receipt of such information from the one or more financial service providers.

14. The method of claim **1**, wherein the identified payee corresponds to a billing entity that communicated bill information to the MFTS.

15. The method of claim **1**, wherein the MFTS database stores transaction information corresponding to a user's financial transactions, the transaction information including the payment to make information in addition to other information utilized to track status of the payment to make.

16. The method of claim **15**, wherein the transaction information includes one or more of the following items of information: a user ID number, a transaction identifier, a bill received date, a bill due date, an amount, a financial service provider identifier, an account identifier, a payee identifier, a pending/complete flag.

17. The method of claim **1**, further comprising the step of:

communicating a payment confirmation message from the payment instruction recipient to the MFTS in response to completion of a predetermined stage in making the payment.

18. The method of claim **17**, further comprising the step of communicating a payment confirmation message to the mobile device in response to receipt of the payment confirmation message from the payment instruction recipient.

19. The method of claim **1**, further comprising the steps of:

at the user's mobile device, receiving user input corresponding to selection of a payment method for making a payment; and

at the user's mobile device in response to the user input, including information in the mobile payment instruction corresponding to the selected method for making the payment.

20. The method of claim **19**, wherein the selectable payment methods include: a recipient-defined method, an ACH funds transfer, a paper check, and a stored value (SV) card.

21. The method of claim **1**, wherein the MFTS is further coupled for electronic communications with a user's computer via a data communications network such as the Internet, and further comprising the steps of:

providing a web application in association with the MFTS;

receiving user information via the web application corresponding to financial service providers, accounts at financial service providers, and payees; and

storing the user information input via the web application in the MFTS database for use in connection with payments initiated via the user's mobile device.

22. The method of claim **21**, further comprising the step of retrieving and displaying transaction information corresponding to transactions conducted via the user's mobile device, via the web application, to a user via user's computer.

23. The method of claim **1**, further comprising the steps of:

storing a cached account balance in the mobile device representative of the balance in the at least one account as of a particular date;

receiving updated account balance information from the MFTS at the user mobile device; and

in response to receipt of updated account balance information from the MFTS, displaying updated account balance information corresponding to the account to the user via the mobile device.

24. A system for making a mobile financial payment using a mobile device connected for communications with a wireless network, comprising:

a user mobile device coupled for wireless communications with a mobile financial transaction system (MFTS), the mobile device providing one or more selectable payees for selection by the user using the mobile device, the mobile device operative for receiving user input corresponding to selection of a payee for a payment to make and a payment source for making a payment, the mobile device further operative for generating a mobile payment instruction comprising information corresponding to the payment to make and a payment source for making the payment and wirelessly communicating the mobile payment instruction to the MFTS;

a mobile financial transaction system (MFTS) database associated with the MFTS for storing user information, payment to make information associated with the one or more payees, and payment source information associated with at least one account associated with at least one financial service provider of a user;

a mobile financial transaction system (MFTS) computer system for maintaining the MFTS database and conducting electronic communications between entities involved in mobile financial payments; and

MFTS software operative on the MFTS computer system comprising program code for carrying out the computer-implemented steps of:

in response to receipt of a mobile payment instruction from a mobile device, retrieving information from the MFTS database corresponding to an identified payee for receiving the payment indicated in the mobile payment instruction and information corresponding to the selected account at the selected financial service provider identified in the payment instruction;

generating an MFTS payment instruction to a payment instruction recipient, the MFTS payment instruction including at least information identifying the selected account at the selected financial service provider, an amount, and information corresponding to the identified payee; and

communicating the MFTS payment instruction from the MFTS to the payment instruction recipient;

whereby the payment instruction recipient, in response to receipt of the MFTS payment instruction, makes a payment to the identified payee utilizing the selected account at the select financial service provider.

25. The system of claim **24**, wherein the one or more selectable payees comprises payees for which payment information has been pre-stored at the MFTS.

26. The system of claim **24**, wherein the one or more selectable payees comprises payees to which a payment was previously made and for which payment information is already extant on the mobile device.

27. The system of claim **24**, wherein the payment to make information comprises a bill, and the payee is a billing entity.

28. The system of claim **24**, wherein the payment instruction recipient comprises a financial service provider, a billing aggregator, or a separate billing entity.

29. The system of claim **24**, wherein the payment to make information is provided to the MFTS by an external source, is input by the user via an Internet-accessible web site accessible by the user for input of payment to make information and payee information, or is input by the user at the mobile device.

30. The system of claim **29**, wherein the external source for the payment to make information is selected from the group comprising: a bill presentment system that provides bill information from a plurality of billing entities or an individual billing entity.

31. The system of claim **24**, wherein the payment to make information comprises information corresponding to one or more of the following: a recurring bill, a bill from a billing aggregator, a bill from an individual billing company, a "pay anyone" payment.

32. The system of claim **24**, wherein the MFTS provides a Mobile Wallet application for execution on the user's mobile device.

33. The system of claim **32**, wherein the Mobile Wallet application provides a display on the mobile device of selectable commands including one or more of a View Bills command, a View Payment Sources command, and a Pay Bill(s) command.

34. The system of claim **33**, wherein the user input corresponding to selection of a payment source for making a payment is provided in response to display of a View Payment Sources command.

35. The system of claim **34**, wherein the selection of a payment source for making a payment includes selection of a financial service provider and selection of a particular account associated with the selected financial service provider for making the payment.

36. The system of claim **33**, wherein user activation of the View Payment Sources command causes the MFTS to retrieve current account information from one or more financial service providers and communicate the current

account information to the mobile device upon receipt of such information from the one or more financial service providers.

37. The system of claim **24**, wherein the identified payee corresponds to a billing entity that communicated bill information to the MFTS.

38. The system of claim **24**, wherein the payment to make information communicated to the mobile device by the MFTS consists of a payee identifier, an amount, and a due date.

39. The system of claim **38**, wherein the mobile device utilizes the payee identifier in the payment to make information and retrieves payee name information from a mobile device local memory corresponding to an identified payee and displays the payee name information to the user.

40. The system of claim **24**, wherein the MFTS database stores transaction information corresponding to a user's financial transactions, the transaction information stored including the payment to make information in addition to other information utilized to track status of the payment to make.

41. The system of claim **40**, wherein the transaction information includes one or more of a user ID number, a transaction identifier, a bill received date, a bill due date, an amount, a financial service provider identifier, an account identifier, a payee identifier, a pending/complete flag.

42. The system of claim **24**, further comprising receiving at the MFTS a payment confirmation message from the payment instruction recipient at a predetermined stage of completion of making the payment.

43. The system of claim **42**, wherein the MFTS communicates a payment confirmation message to the mobile device in response to receipt of the payment confirmation message from the payment instruction recipient.

44. The system of claim **24**, wherein the user's mobile device receives user input corresponding to selection of a payment method for making a payment; and

in response to the user input, the user's mobile device includes information in the mobile payment instruction corresponding to the selected method for making the payment.

45. The system of claim **44**, wherein the selectable payment methods include: a recipient-defined method, an ACH funds transfer, a paper check, and a stored value (SV) card.

46. The system of claim **24**, wherein the MFTS is further coupled for electronic communications with a user's computer via a data communications network such as the Internet, and further comprising program code in the MFTS software comprising a web application operative for receiving user information corresponding to financial service providers, accounts at financial service providers, and payees; and

wherein the MFTS is operative for storing the user information input via the web application in the MFTS database for use in connection with payments initiated via the user's mobile device.

47. The system of claim **46**, further comprising program code in the MFTS software for retrieving and displaying transaction information corresponding to transactions conducted via the user's mobile device, via the web application, to a user via a user's computer.

48. The system of claim **24**, wherein the user mobile device stores a cached account balance in the mobile device representative of the balance in the at least one account as of a particular date;

wherein the mobile device receives updated account balance information for the account; and

wherein in response to receipt of updated account balance information, the mobile device displays updated account balance information corresponding to the account to the user.

49. A method for making a mobile financial payment using a mobile device connected for communications with a wireless network, comprising the steps of:

providing one or more selectable payees for selection by the user using the mobile device;

receiving user input at the user's mobile device corresponding to selection of a payee for a payment to make and selection of a payment source for making a payment;

in response to the user input at the user's mobile device, generating a mobile payment instruction comprising information corresponding to the payment to make and a payment source for making the payment; and

wirelessly communicating the mobile payment instruction from the user's mobile device to a mobile financial transaction system (MFTS) that can effect a payment to the identified payee,

whereby in response to the mobile payment instruction the MFTS effects a payment to the identified payee.

50. The method of claim **49**, further comprising the steps of:

displaying information corresponding to one or more selectable payment sources at the user's mobile device, the one or more selectable payment sources comprising financial service providers at which the user maintains at least one account selectable for making a payment; and

receiving user selection of one of the selectable payment sources as the payment source for the payment.

51. The method of claim **50**, wherein the information corresponding to one or more selectable payment sources displayed at the user's mobile device comprises summarized payment source information.

52. The method of claim **49**, wherein the payment to make information is provided to the MFTS by an external source, is input by the user via an Internet-accessible web site accessible by the user for input of payment to make information and payee information, or is input by the user at the mobile device.

53. The method of claim **52**, wherein the external source for the payment to make information is selected from the group comprising: a bill presentment system that provides bill information from a plurality of billing entities or an individual billing entity.

54. The method of claim **49**, wherein the payment to make information comprises information corresponding to one or more of the following: a recurring bill, a bill from a billing aggregator, a bill from an individual billing company, a "pay anyone" payment.

55. The method of claim **49**, further comprising the step of providing a Mobile Wallet application on the user's mobile device.

56. The method of claim **55**, wherein the Mobile Wallet application provides a display on the mobile device of

selectable commands including one or more of a View Bills command, a View Payment Sources command, and a Pay Bill(s) command.

57. The method of claim **56**, wherein the user input corresponding to a payment source for making a payment is provided in response to display of a View Payment Sources command.

58. The method of claim **57**, wherein the selection of a payment source for making a payment includes selection of a financial service provider and selection of a particular account associated with the selected financial service provider for making the payment.

59. The method of claim **56**, wherein user activation of the View Payment Sources command causes the MFTS to retrieve current account information from one or more financial service providers and communicate the current account information to the mobile device upon receipt of such information from the one or more financial service providers.

60. The method of claim **49**, wherein the identified payee corresponds to a billing entity that communicated bill information to the MFTS.

61. The method of claim **49**, wherein the payment to make information communicated to the mobile device from the MFTS consists of a payee identifier, an amount, and a due date.

62. The method of claim **61**, wherein the mobile device utilizes the payee identifier in the payment to make information and retrieves payee name information from a mobile device local memory corresponding to an identified payee and displays the payee name information to the user.

63. The method of claim **49**, further comprising the step of receiving a payment confirmation message at the mobile device provided by the MFTS in response to receipt of a payment confirmation message from the payment instruction recipient at a predetermined stage of completion of making the payment.

64. The method of claim **49**, further comprising the step of

receiving user input corresponding to selection of a payment method for making a payment; and

in response to the user input, including information in the payment instruction corresponding to the selected method for making the payment.

65. The method of claim **64**, wherein the selectable payment methods include: a recipient-defined method, an ACH funds transfer, a paper check, and a stored value (SV) card.

66. The method of claim **49**, further comprising the steps of:

storing a cached account balance in the mobile device representative of the balance in the at least one account as of a particular date;

receiving updated account balance information from the MFTS at the user mobile device; and

in response to receipt of updated account balance information from the MFTS, displaying updated account balance information corresponding to the account to the user via the mobile device.

67. A mobile device for making a mobile financial payment via a wireless network, comprising:

a mobile device connected for wireless communications via a mobile communication service provider to a mobile financial transaction system (MFTS), the mobile device including a display, user input means, a processor, and a memory;

mobile device software operative on the mobile device processor comprising program code for carrying out the computer-implemented steps of:

providing one or more selectable payees for selection by the user using the mobile device;

receiving user input at the user's mobile device corresponding to a payee for a payment to make and a payment source for making a payment;

in response to the user input at the user's mobile device, generating a mobile payment instruction comprising information corresponding to the payment to make and a payment source for making the payment; and

wirelessly communicating the mobile payment instruction from the user's mobile device to the MFTS for effecting a payment to the identified payee.

68. The device of claim **67**, wherein the mobile device software is further operative for:

displaying information corresponding to one or more selectable payment sources on the mobile device display, the one or more selectable payment sources comprising financial service providers at which the user maintains at least one account selectable for making a payment.

69. The device of claim **68**, wherein the information corresponding to one or more selectable payment sources displayed at the user's mobile device comprises summarized payment source information.

70. The device of claim **67**, wherein the payment to make information is provided to the MFTS by an external source, is input by the user via an Internet-accessible web site accessible by the user for input of payment to make information and payee information, or is input by the user at the mobile device.

71. The device of claim **70**, wherein the external source for the payment to make information is selected from the group comprising: a bill presentment system that provides bill information from a plurality of billing entities or an individual billing entity.

72. The device of claim **67**, wherein the payment to make information comprises information corresponding to one or more of the following: a recurring bill, a bill from a billing aggregator, a bill from an individual billing company, a "pay anyone" payment.

73. The device of claim **67**, wherein the mobile device software comprises a Mobile Wallet application.

74. The device of claim **73**, wherein the Mobile Wallet application provides a display on the mobile device of selectable commands including one or more of a View Bills command, a View Payment Sources command, and a Pay Bill(s) command.

75. The device of claim **74**, wherein the user input corresponding to a payment source for making a payment is provided in response to display of a View Payment Sources command.

76. The device of claim **75**, wherein the indication of a payment source for making a payment includes selection of a financial service provider and selection of a particular account associated with the selected financial service provider for making the payment.

77. The device of claim **74**, wherein user activation of the View Payment Sources command causes the MFTS to

retrieve current account information from one or more financial service providers and communicate the current account information to the mobile device upon receipt of such information from the one or more financial service providers.

78. The device of claim **67**, wherein the identified payee corresponds to a billing entity that communicated bill information to the MFTS.

79. The device of claim **67**, wherein the payment to make information communicated to the mobile device from the MFTS consists of a payee identifier, an amount, and a due date.

80. The device of claim **79**, wherein the mobile device utilizes the payee identifier in the payment to make information and retrieves payee name information from a mobile device local memory corresponding to an identified payee and displays the payee name information to the user.

81. The device of claim **67**, wherein the mobile device software is further operative for receiving a payment confirmation message provided by the MFTS in response to receipt of a payment confirmation message from a payment instruction recipient at a predetermined stage of completion of making the payment.

82. The device of claim **67**, wherein the mobile device software is further operative for:

receiving user input corresponding to selection of a payment method for making a payment; and

in response to the user input, including information in the payment instruction corresponding to the selected method for making the payment.

83. The device of claim **82**, wherein the selectable payment methods include: a recipient-defined method, an ACH funds transfer, a paper check, and a stored value (SV) card.

84. The device of claim **67**, wherein the user mobile device stores a cached account balance in the mobile device representative of the balance in the at least one account as of a particular date;

wherein the mobile device receives updated account balance information for the account; and

wherein in response to receipt of updated account balance information, the mobile device displays updated account balance information corresponding to the account to the user.

85. A computer-implemented method for a mobile financial transaction system (MFTS) to facilitate a mobile financial payment initiated by a mobile device connected for communications with a wireless network, comprising the steps of:

providing a mobile financial transaction system (MFTS) database for storing user information, payment to make information, and payment source information associated with at least one account associated with at least one financial service provider;

receiving a mobile payment instruction communicated from a user's mobile device, the mobile payment instruction comprising information corresponding to a user's payment to make and a payment source for making a payment corresponding to the selected payment to make;

in response to receipt of the mobile payment instruction, retrieving information from the MFTS database corresponding to an identified payee for receiving the payment indicated by the payment instruction and information corresponding to a payment instruction recipient for making the payment;

generating a MFTS payment instruction to the payment instruction recipient, the MFTS payment instruction including at least information identifying the payment source, an amount, and information corresponding to the identified payee; and

communicating the MFTS payment instruction to the payment instruction recipient for effecting the payment.

86. The method of claim **85**, wherein the payment to make information comprises a bill, and the payee is a billing entity.

87. The method of claim **85**, wherein the payment instruction recipient is one of a financial service provider, a billing aggregator, or a separate billing entity.

88. The method of claim **85**, wherein the payment to make information is provided to the MFTS by an external source, is input by the user via an Internet-accessible web site accessible by the user for input of payment to make information and payee information, or is input by the user at the mobile device.

89. The method of claim **88**, wherein the external source for the payment to make information is one of a bill presentment system that provides bill information from a plurality of billing entities or a single billing entity.

90. The method of claim **85**, wherein the payment to make information comprises information corresponding to one or more of the following: a recurring bill, a bill from a billing aggregator, a bill from an individual billing company, a "pay anyone" payment.

91. The method of claim **85**, further comprising the step of communicating a message to a user's mobile device in response to receipt of bill information from a billing entity.

92. The method of claim **85**, further comprising the step of providing a downloadable Mobile Wallet application for a user's mobile device to facilitate communications between mobile devices and the MFTS.

93. The method of claim **92**, wherein the Mobile Wallet application provides a display on a mobile device of selectable commands including one or more of a View Bills command, a View Payment Sources command, and a Pay Bill(s) command.

94. The method of claim **93**, further comprising the steps of retrieving current account information from one or more financial service providers and communicating the current account information to the mobile device upon receipt of such information from the one or more financial service providers in response to user activation of the View Payment Sources command at the mobile device.

95. The method of claim **85**, wherein the identified payee corresponds to a billing entity that communicated bill information to the MFTS.

96. The method of claim **85**, further comprising the step of communicating payment to make information to the mobile device consisting of a payee identifier, an amount, and a due date.

97. The method of claim **85**, wherein the MFTS database stores transaction information corresponding to a user's mobile financial transactions, the transaction information including the payment to make information in addition to other information utilized to track status of the payment to make.

98. The method of claim **97**, wherein the transaction information includes one or more of the following items of information: a user ID number, a transaction identifier, a bill

received date, a bill due date, an amount, a financial service provider identifier, an account identifier, a payee identifier, a pending/complete flag.

99. The method of claim **85**, further comprising the step of receiving a payment confirmation message from the payment instruction recipient at a predetermined stage in making the payment.

100. The method of claim **99**, further comprising the step of communicating a payment confirmation message to the mobile device in response to receipt of the payment confirmation message from the payment instruction recipient.

101. The method of claim **85**, further comprising the steps of receiving information from the user's mobile device corresponding to selection of a payment method for making a payment, and providing information corresponding to the selected payment method to the payment instruction recipient.

102. The method of claim **101**, wherein the selectable payment methods include: a recipient-defined method, an ACH funds transfer, a paper check, and a stored value (SV) card.

103. The method of claim **85**, wherein the MFTS is coupled for electronic communications with a user's computer via a data communications network such as the Internet, and further comprising the steps of:

providing a web application in association with the MFTS;

receiving user information via the web application corresponding to financial service providers, accounts at financial service providers, and payees; and

storing the user information input via the web application in the MFTS database for use in connection with payments initiated via the user's mobile device.

104. The method of claim **103**, further comprising the step of retrieving and displaying transaction information corresponding to transactions conducted via the user's mobile device, via the web application, to a user via a user's computer.

105. The method of claim **85**, further comprising the steps of:

communicating with the financial service provider to obtain updated account balance information for the account; and

wirelessly communicating updated account balance information from the MFTS to the user mobile device;

whereby in response to receipt of updated account balance information from the MFTS, the user mobile device displays updated account balance information corresponding to the account to the user.

106. A mobile financial transaction system (MFTS) for facilitating a mobile financial payment initiated by a user mobile device connected for communications with a wireless network, comprising the steps of:

a mobile financial transaction system (MFTS) database for storing user information, payment to make information associated with one or more payees, and payment source information associated with a mobile device user;

a mobile financial transaction system (MFTS) computer system for maintaining the MFTS database and conducting electronic communications between entities involved in mobile financial payments; and

MFTS software operative on the MFTS computer system comprising program code for carrying out the computer-implemented steps of:

receiving a mobile payment instruction communicated from the user mobile device, the mobile payment instruction comprising information corresponding to a payment to make and a payment source for making a payment;

in response to receipt of the mobile payment instruction, retrieving information from the MFTS database corresponding to an identified payee for receiving the payment and information corresponding to a payment source;

generating an MFTS payment instruction to a payment instruction recipient, the MFTS payment instruction including at least information identifying the payment source, an amount, and information corresponding to the identified payee; and

communicating the MFTS payment instruction to the payment instruction recipient,

whereby in response to the MFTS payment instruction the payment instruction recipient effects a payment to the identified payee.

107. The system of claim **106**, wherein the payment to make information comprises a bill, and the payee is a billing entity.

108. The system of claim **106**, wherein the payment instruction recipient comprises a financial service provider, a billing aggregator, or a separate billing entity.

109. The system of claim **106**, wherein the payment to make information is provided to the MFTS by an external source, is input by the user via an Internet-accessible web site accessible by the user for input of payment to make information and payee information, or is input by the user at the mobile device.

110. The system of claim **109**, wherein the external source for the payment to make information is one or more of a bill presentment system that provides bill information from a plurality of billing entities or an individual billing entity.

111. The system of claim **106**, wherein the payment to make information comprises information corresponding to one or more of the following:

a recurring bill, a bill from a billing aggregator, a bill from an individual billing company, a "pay anyone" payment.

112. The system of claim **106**, wherein the MFTS software is further operative for communicating a message to a user's mobile device in response to receipt of bill information from a billing entity.

113. The system of claim **106**, wherein the MFTS software is further operative for providing a downloadable Mobile Wallet application to a user mobile device to facilitate communications between mobile devices and the MFTS.

114. The system of claim **113**, wherein the Mobile Wallet application provides a display on a mobile device of selectable commands including one or more of a View Bills command, a View Payment Sources command, and a Pay Bill(s) command.

115. The system of claim **113**, wherein the MFTS software is further operative for retrieving current account information from one or more financial service providers and communicating the current account information to the mobile device upon receipt of such information from the one

or more financial service providers in response to user activation of the View Payment Sources command at the mobile device.

116. The system of claim **106**, wherein the identified payee corresponds to a billing entity that communicated bill information to the MFTS.

117. The system of claim **106**, wherein the MFTS software is further operative for communicating payment to make information to the mobile device, wherein the payment to make information communicated to the mobile device consists of a payee identifier, an amount, and a due date.

118. The system of claim **106**, wherein the MFTS database stores transaction information corresponding to a user's mobile financial transactions, the transaction information including the payment to make information in addition to other information utilized to track status of the payment to make.

119. The system of claim **118**, wherein the transaction information includes one or more of the following items of information: a user ID number, a transaction identifier, a bill received date, a bill due date, an amount, a financial service provider identifier, an account identifier, a payee identifier, a pending/complete flag.

120. The system of claim **106**, wherein the MFTS software is further operative for receiving a payment confirmation message from the payment instruction recipient at a predetermined stage in making the payment.

121. The system of claim **120**, wherein the MFTS software is further operative for communicating a payment confirmation message to the mobile device in response to receipt of the payment confirmation message from the payment instruction recipient.

122. The system of claim **106**, wherein the MFTS software is further operative for receiving information from the user's mobile device corresponding to selection of a payment method for making a payment, and providing information corresponding to the selected payment method to the payment instruction recipient.

123. The system of claim **122**, wherein the selectable payment methods include: a recipient-defined method, an ACH funds transfer, a paper check, and a stored value (SV) card.

124. The system of claim **106**, wherein the MFTS is coupled for electronic communications with a user's computer via a data communications network such as the Internet, and further comprising the computer-implemented steps of:

providing a web application in association with the MFTS;

receiving user information via the web application corresponding to financial service providers, accounts at financial service providers, and payees; and

storing the user information input via the web application in the MFTS database for use in connection with payments initiated via the user's mobile device.

125. The system of claim **124**, wherein the MFTS software is further operative for retrieving and displaying transaction information corresponding to transactions conducted via the user's mobile device, via the web application, to a user via a user's computer.

126. The system of claim **106**, wherein the MFTS communicates with the financial service provider to obtain updated account balance information for the account;

wherein the MFTS wirelessly communicates updated account balance information from the MFTS to the user's mobile device; and

whereby in response to receipt of updated account balance information from the MFTS, the mobile device displays updated account balance information corresponding to the account to the user.

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