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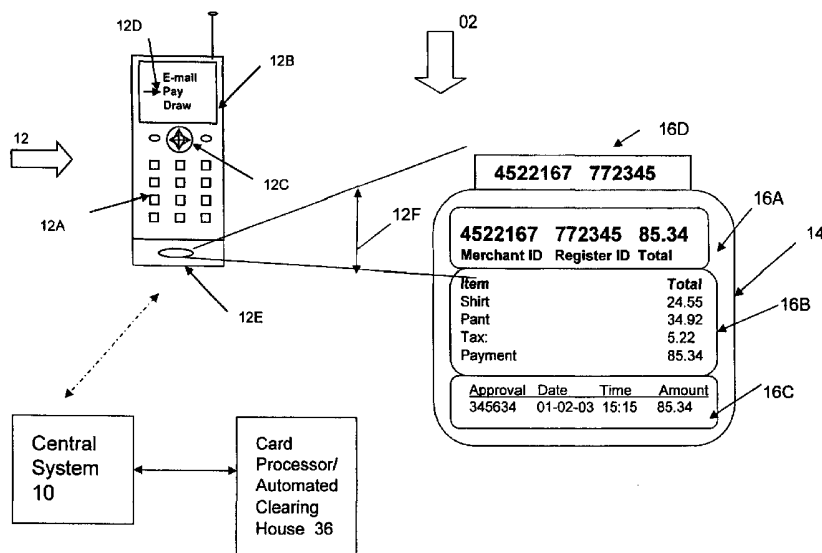
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(54) Title: METHOD AND APPARATUS FOR A PRIVATE AND SECURE PAYMENT SYSTEM USING A WIRELESS DEVICE



(57) Abstract: With the payment system (02) of the present invention, a customer (06) may conduct a private and secure payment transaction with a retail merchant, a web-based merchant, a resaurant merchant at a dining table, an online subscription merchant, a private party, withdraw cash from an ATM machine, using a wireless device(12), in lieu of bankcards and bank checks. In all of these transactions, the customer does not share his identity and personal sensitive data with the merchants and the private party. In these transactions, the customer need not carry his bankcards and or personal checks bearing personal and sensitive data with him/her avoiding the risks of theft or loss.

WO 03/060796 A1

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**METHOD AND APPARATUS FOR A PRIVATE AND SECURE PAYMENT
SYSTEM USING A WIRELESS DEVICE**

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CROSS REFERENCE TO RELATED APPLICATIONS

15 This application is related to and claims priority on US Application Serial Number 10/046,834, filed January 15, 2002, entitled "Private and Secure Payment System," by Tara Chand Singhal.

 This application is also related to and claims priority on US Application Serial Number 10/091,882, filed March 06 2002, entitled "Method and Apparatus
20 for Restaurant Payment System," by Tara Chand Singhal.

 This application is also related to and claims priority on US Application Serial Number 10/100,380, filed March 18, 2002, entitled "Method and Apparatus for an Online Subscription System," by Tara Chand Singhal.

 The contents of Application Serial Nos. 10/046,834, 10/091,882, and
25 10/100,380 are incorporated herein by reference.

FIELD OF THE INVENTION

 The present invention is directed to facilitating private and secure payment
30 and financial transactions by the use of a wireless device, in lieu of bankcards and bank checks, between a customer and a merchant and between private parties.

BACKGROUND

When a customer uses bankcard to make a payment to a merchant, it presents many security risks to the customer. To the customer there is a security risk as the printed receipt contains some or all of the personal sensitive data, which the customer has to safeguard and to properly dispose of when not needed.

The merchant retains the customer sensitive data of name, card number and signature. This presents an additional security risk in that; computer hackers and thieves may steal it. Multiplicity of data records is kept with many merchants as a record is created with each merchant each time a payment transaction is conducted. Thus the customer sensitive data is stored with many merchants in many paper and database records. This significantly raises the probability of theft and hacking from the merchant paper and computer records.

There is yet another security risk to the customer, as he/she has to carry his/her bank card with him/her all the time and this is subject to theft and loss.

There are other forms of payment transactions that present similar security risks to the customer such as, between two parties via a check, as the checks are imprinted with customer name, address, bank account number and other information.

Typically, at a restaurant on receiving a bill, a dining customer hands over a bankcard that has personal sensitive information to an employee of the restaurant in the course of the payment of the restaurant bill. The employee turnover in this industry is very high. The waiter employee of the restaurant may be a dishonest person that misuses the customer personal information.

Typically, at an online subscription merchant website, the customer selects the subscription, pays for it and selects or receives a password to access the service. While making payment for such a subscription service, the customer gives his/her name, credit card number to the merchant along with other data such as e-mail address, so that the merchant can process the payment for initial payment and for subsequent periodic payments and notify the customer via the e-mail address.

In light of the above, it is an objective of the present invention to provide an apparatus and method that facilitates: receiving an online subscription service without providing sensitive information to the merchant and merchant employees;

payment for a meal in a restaurant without providing sensitive information from the bankcards to employee-waiter; payment system for the customer between a merchant and between private parties that minimizes security risks, as outlined above.

- 5 Yet another objective is to remove from the merchant the responsibility and liability of safeguarding sensitive data of others.

SUMMARY

- 10 With the payment system of the present invention, a customer may conduct a private and secure payment transaction: (i) with a retail merchant at the merchant's site using a wireless device; (ii) with a web-merchant using a wireless device; (iii) with a restaurant merchant at the dining table using a wireless device; (iv) with an online subscription merchant, where password is given to the customer to access the services, without giving out his/her e-mail address, using a wireless device; (v) with a private party using a wireless device; and (vi) withdraw cash from an ATM machine using a wireless device.

- In all of these embodiments, a customer does not share his/her identity and personal sensitive data with the merchants. Further, in these embodiments, a customer need not carry his/her bankcards and/or personal checks bearing personal and sensitive data with him/her and thus, avoid the risks of theft or loss.

All of these embodiments are similar in their method of operation and apparatus, differing only in degree of detail in the operation and the data required to be maintained in a central system.

- 25 The payment system includes a central system, a wireless device belonging to a customer and an existing bankcard and or bank account. The wireless device is a cellular telephone or it may be a Personal Digital Assistant (PDA) equipped with a wireless communication means.

BRIEF DESCRIPTION OF THE DRAWINGS

The novel features of this invention, as well as the invention itself, both as to its structure and its operation, will be best understood from the accompanying

drawings, taken in conjunction with the accompanying description, in which similar reference characters refer to similar parts, and in which:

Figure 1A is a block diagram that illustrates a payment system use in a retail merchant site according to the present invention;

5 Figure 1B is a block diagram that illustrates payment system use in a restaurant according to the present invention;

Figure 1C is a block diagram that illustrates features of the present invention payment system between a customer and a online subscription merchant;

10 Figure 2A is a block diagram that illustrates operation features of the present invention payment system between a customer and a merchant;

Figure 2B is a block diagram that illustrates operation features of the present invention payment system between two private parties;

15 Figure 2C is a block diagram that illustrates the operation features of the use of a wireless device for withdrawing cash from an ATM having features of the present invention;

Figure 3A illustrates a central system having features of the present invention; and

20 Figure 3B-C illustrates a databases in the central system having features of the present invention; and

Figure 4A illustrates flow chart for an online subscription periodic billing system having features of the present invention;

Figure 4B illustrates flow chart for an online subscription system having features of the present invention;

25 Figure 4C illustrates flow chart for an restaurant payment system having features of the present invention;

Figures 5A illustrate flow charts of the payment system operation for a retail merchant, having feature of the present invention.

30 Figures 5B illustrate flow charts of the payment system operation between private parties, having feature of the present invention.

DESCRIPTION

A wireless device based private and secure payment system is described. With initial reference to Figure 1A, the payment system 02 includes a central system 10, a wireless device 12, in the form of a cell phone or a PDA equipped with a communication module, commonly available in the market. At the time of the payment transaction, a payment function 12D coupled with an interface means of keypad 12A and optical camera lens 12E in the wireless device 12 capture the data necessary to process a payment transaction from a merchant interface such as a display screen 14 and communicates that data to the central system 10. The central system 10 retrieves pre-stored detailed data required to process the payment transaction and communicates with a prior art card processor and/or an automated clearing house (ACH) 36 to process the payment transaction between the customer's bank and a merchant's bank, or more generally, between the banks of a payer and a payee. At the completion of the payment processing transaction the payment approval data record is communicated to the merchant display terminal 14 and the customer on his/her wireless device 12.

With the payment system of 02, a Party A can make a payment to another private party B without disclosing personal sensitive data as it happens when giving a personal check for payment. Most personal checks are imprinted with name, address and driver license data and reveal customer bank and bank account number.

Many people use ATM, which require having an ATM card. One of the embodiments facilitates use of a wireless device in lieu of an ATM card. In addition no ATM card need to be carried, and many people carry a wireless device in the form of a cellular telephone.

The payment system 02 of this invention does not require the customer to give any personal data including name, bankcard data, identification data such as driver license etc, to a merchant during payment transaction. The merchant does not have the burden of safeguarding customer sensitive data from theft and misuse

The different embodiments using the payment system that are specific to different ways to interface with the payee or merchant are described herein. The different payee/merchant can be a retail merchant, a web based merchant, a web-

based online subscription merchant, a restaurant merchant, a private business or individual. In one of the embodiments, the device 12 is used to with draw cash at a ATM without the use of the ATM card. The headings are provided for the convenience of the reader.

5 In a first embodiment, the portable wireless-device 12 is used by a customer to make a payment transaction at a retail-merchant site. With reference to Figure 1A, a portable wireless device 12 in the form of a cell phone, is equipped with an optical reader camera 12E, a screen 12B, a keypad 12A, a mouse 12C and a payment function 12D. The retail merchant has a display screen 14
10 attached to and being part of the merchant's sales terminal. The display screen 14 displays a window 16A, window 16B and a window 16C. The window 16A displays a merchant id, a registered ID and a total for this sale transaction. Alternatively, the merchant id and the register id may be written may be pasted on top of the screen 16D and the window 16A then only would display the payment amount.
15 Alternatively, the window 16A may not be required. Instead the payment amount may be entered via keypad 12A by the customer in the device 12. The window 16B may display the list of items being purchased along with a final total payment. Alternatively, it may display only the final total amount to be paid. The window 16C shows the payment transaction approval record that is received from a card
20 processor 36. The approval record may include an approval code, a date and time and the amount that was approved. The device 12 is in communication with a central system 10, which pre-stores customer and merchant data as described later.

At the time of the payment transaction, when the customer is ready to
25 make a payment, the customer activates the pay function 12D. Then faces the device 12 with camera 12E towards the display screen 14, where the camera view angle is 12F is pointed towards the window 16A or 16D.

The pay function 12D captures the window 16A or 16D image in the camera and then displays on the device 12 screen 12B entry for a sequence of
30 numeric digits that identify one of customer's accounts to be used for payment of this transaction. Customer enters a Customer Account Personal Identification Number (CAPIN) that has been pre-selected by the customer and is used to both verify the customer to the system 10 as well as identity the particular account to be used for this payment transaction if the customer has more than one account.

The pay function 12D converts the image into the numerical data corresponding to the Merchant Identification (MID), Register Identification (RID) and the amount, and sends these data including the CAPIN to the central system

5 10.

Alternatively, the pay function 12D may send the image and the conversion to numerical data may be performed in the system 10. The system 10 receive data from the cell phone 12, verifies the customer by cell phone caller id and CAPIN, and then retrieve Customer and Merchant data needed to process this payment transaction with the card processor (CP) 36.

The system 10 then sends the retrieved data to CP 36 to process and waits to receive approval/ authorization. When the payment authorization is received from the CP 36, the system 10 sends the approval data to the merchant terminal 14, to be displayed in window 16C and also to the customer cell phone 12 to be displayed on screen 12B. Alternatively, the CP 36 may directly send the approval data record to the merchant system which displays it on the sales terminal screen 14 in window 16C.

The operation of the apparatus 02 and central system 10 for a payment transaction between a customer and a merchant can be further understood with reference to the Figure 2A, 3A and 5A. Importantly, the order of some or all of the steps can be varied. Further, not all of the steps outlined below are necessary to perform a transaction pursuant to the present invention.

At step 900, the customer 06 is at a merchant 08 ready to make a payment. At step 902, the customer 06 activates the payment function and faces the reader element 12E of the wireless device 12 to the merchant terminal 14. The merchant terminal identification 862, register identification 863 and payment amount 852 are received optically via camera image into the wireless device 12. Alternatively, the customer may scan the identification tag 16D using camera 12E and manually enter the payment amount into the device 12. If the customer 06 is not at the location of the merchant 08, the customer may manually enter both the terminal identification 862, and payment amount 852 into the device using its keypad 12A

At step 904, the customer enters CAPIN 854 for a specific existing bankcard and selects payment function 12D. At step 906, the device 12 sends the payment record 28 to the central system. At step 908, the system receives

record, decodes device ID 850 to find customer ID 854, verifies CAPIN 856 and identifies the specific card 858 chosen by customer 06 for this payment transaction.

At step 910, the system 10 creates a transaction reference 870, assembles
5 specific card data of name, card number, expiration date, and merchant identification as the central system business bank 40 and sends the payment transaction to the ACH 36. At step 912, system 10 receives authorization record, saves the record in the transaction database 842, and forwards the approval data to merchant display terminal. At step 914, the terminal receives approval data,
10 letting the merchant 08 know that the transaction has been approved.

In a second embodiment, a portable wireless-device 12 is used by the customer to make a payment transaction to a web-merchant. With reference to Figure 1A, the display terminal screen 14 is displayed on the customer's personal computer, and is provided by the web-merchant. The process of payment to a
15 web-merchant is similar to as described in the first embodiment above.

In a third embodiment, a portable wireless-device 12 is used by the customer to make a payment transaction to a restaurant merchant. With reference to Figure 1B, the payment system 02 includes a central system 10 and a portable wireless device 12 and a card processor 36. A partition 420 may divide
20 the dining tables with a customer 06 from the merchant computer system 08 with a payment terminal 14. A waiter 422 makes a trip to bring a bill 426 to the customer 06.

The bill 426, in addition to the normal items, as illustrated in Figure 1B, carries a service code 436. The service code 436 may be made up of three parts,
25 the merchant number 442, the table number 452 and the server number 454.

On receiving the bill 426, the customer 06 using device 12 connects to a secure web connection with the system 10 and is presented a data card 414. The customer enters the data as identified and as described later. The central system 10 with the pre-stored data of the merchant and customer and using the card
30 processor 36 process the payment. After the approval of the payment transaction is received from the card processor 36, the central system 10 presents to the customer, on the wireless device 12, a data card 416, and showing that the payment has been processed. The central system 10 concurrently sends to the merchant system 08 a data record 424 showing the payment has been processed

successfully. Optionally, the merchant system 08 is attached to a display terminal 423 that displays the table number, server number, amount and the status of the payment by a color coded display icon 418, where the waiter 422 may verify the payment has been made.

5 The operation of the apparatus 02 for a payment transaction between a customer and a restaurant merchant can be further understood with reference to the Figure 3A, 4A and 4C. Importantly, the order of some or all of the steps can be varied. Further, not all of the steps outlined below may be necessary to perform a payment transaction pursuant to the present invention.

10 With reference to Figure 4C, at step 550, merchant 08 opens an account with central system 10 with a Merchant number 452 and providing merchant identifier 866, URL 864, e-mail 869.

 At step 552, customer 06 opens an account at central system 10 with customer ID in form of telephone number 850, CAPIN 856, e-mail 860 and
15 bankcard data 858.

 At step 554, waiter 422 brings a bill 426 to a customer 06 with a service code 436. At step 556, customer 06 takes out his/her wireless device 12 and connects to central system 10 website and is presented a data card 414. At step 558, customer 06 enters data of customer ID 450, service code 436, amount 430,
20 tip 432 and CAPIN 456 and OK to send to central system 10. At step 560 central system 10 receives record 414, uses customer id 850 to verify CAPIN 856 and retrieves customer account data 858. At step 562, central system 10 uses service code 436 to find merchant number 452, retrieve merchant ID 866, assemble payment record and sends to card processor 36. At step 564, central system 10
25 receives authorization record from card processor 36, forwards approval data to customer as data card 416. At step 566, central system 10 forwards approval data record 424 to merchant system 08 for display on display terminal 423 that includes table and server information and payment status 418.

 In a fourth embodiment, the portable wireless-device 12 is used by the
30 customer to make a payment transaction for an online subscription from a web merchant and receive a password to access the service. This embodiment is directed to an online subscription service system that facilitates receiving a subscription service without providing customer personal sensitive data to merchant employees and merchant computer systems.

With reference to Figure 1C, the payment system 02 includes a central system 10, a web-enabled portable wireless device 12, and a card processor 36. A subscription merchant website 626 is accessible to the customer 06, identifying and describing the different subscription choices in terms of content 616 and different pricing 618, 620, 622, and a service code 610. The service code 610 is composed of a merchant number 612 and service number 614. Alternatively, the service code may be only one number or code that uniquely identifies both the merchant and the service in a relational database.

After having reviewed the website 626, and made a decision to purchase subscription service, the customer 06 using device 12 connects to a secure web connection with the system 10 and is presented a data card 620. From this data card 620, the customer 06 selects from Account 632, Start 634, Cancel 636 and Retrieve 638 and is presented data cards 612, 614, 616 and 618 respectively. By using Start card 614, customer can start a subscriptions service by specifying desired password 630, by using Account card 612, can open an account, by using Cancel card 616 can cancel a service and by using Retrieve card 618, can check the status of the service including the activated password 631 for accessing the service.

The desired password 630 is what a customer desires the password to be, the activated password 631 is what the merchant has enabled the particular service for access. For example, the desired password 630 may be Jeff and the activated password may be Jeff999.

The central system 10 with the pre-stored data of the merchant and customer and using the card processor 36 processes the payment. After the approval of the payment transaction is received from the card processor 36, the central system 10 sends to the merchant system 08 a data record 624 showing the payment has been successfully processed and the customer desired password 630 to access the service number 614, and awaits a response record 622 for the service activation and confirmation of the activated password 631. After the central system 10 receives the response record 622, it updates the billing table 842D (Figure 3C) with the activated password 631 and status 636 as Active.

The customer 06 by using Retrieve card 618 retrieves the service status 636 and activated password 631, permitting him/her to access the service.

Thus a customer can receive an online subscription service and cancel the service without disclosing any time any personal data to the merchant such as name, e-mail address and bankcard data.

5 The operation of the apparatus 02 for a payment transaction between a customer and an online subscription merchant can be further understood with reference to the Figures 1C, 3A, 3B, 4A and 4B. Importantly, the order of some or all of the steps can be varied. Further, not all of the steps outlined below may be necessary to perform a payment transaction pursuant to the present invention.

10 With reference to Figure 4B, at Step 500 Merchant 08 opens an account with Central system 10 with a Merchant number 642 and providing merchant ID, merchant name, URL, and e-mail. At Step 502 Merchant 08 interfaces with central system 10 and enters Service data including Service Number, subscription fee in service table 840C. At Step 504 Customer 06 connects to system 10, presented data 620, selects Account 632, sees card 612, enters personal number
15 650, and data 652-658, 654, 658 to open an account. At Step 506 Customer 06 is at web page 626 with intention to purchase service and sees a service code 636. At Step 508 Customer 06 takes out its wireless device 12. Connects to central system 10 and is presented a data card 620. At Step 510 Customer selects Start 634 from data card 620 and is presented with start card 614. Enters personal
20 number 650, service code 610, desired password 630 and click OK to send to central system 10. At Step 512 Central System 10 receives card 614, uses personal number 650 to verify and retrieve customer account data 258. At Step 514, Central System 10 uses service code 610 to extract merchant number 600, and retrieve merchant ID 604. At Step 516 Central System 10 uses service code
25 610 to extract service number 614, retrieve payment amount 618 from service table 840C, assemble payment record and sends to Card Processor 36. At Step 518, Central System 10 receives authorization record from card processor 36. Assembles record 624 including desired password 630 and forwards to merchant system 08. At Step 520 Merchant 08 receives record 624 from the central
30 system 10 and activates the service and confirms/changes to activated password 631 and sends record 622 to the central system 10. At Step 522 Central System 10 receives record 622, updates the billing table 842D with activated password 631 and the service status 636 as Active. At Step 524 Customer 06 from data card 620 selects Retrieve 638 and is presented Retrieve card 618. Enters

personal number 650 and Clicks OK and receives service code 610, activated password 631 and Status 636. At Step 526 Customer 06 decides to cancel by using device 12 connecting to system 10 and being presented data record 620. At Step 528 Customer selects cancel 636, sees cancel card 616, enters personal
5 number 650, service code 610 and OK to send to system 10. At Step 530, the system 10 verifies the customer and the service and updates billing table 842D with cancel date 634 equal to system date.

The billing function specific to this embodiment is described with reference to Figure 4A. On initial activation of the service, the transaction table 842 and the
10 billing table 842D fields are populated.

Subsequent to that the periodic billing function performs billing and maintains service status. At step 400, the billing function is executed every 24 hours. At step 402 IF (Cancel date is True) Status = Cancel. The cancel date 634 is changed to system date by the customer interface program 810, when
15 customer cancels service via the Cancel card 636. At step 404 IF (Status = Expire Or Null Or Cancel Or Decline) Return. The status is initialized to null and changes state when service is cancelled, expires or the card payment is declined. At step 406, IF (Status = Active And system date= Next Bill date) Initiate Payment Function 808 for amount = Periodic fee 620. At step 408, Payment Function 808
20 assembles payment record and submits to the card processor 36. At step 410, card processor 36 authorizes approval. If approved, Status is not changed, if declined then, Status is changed to Decline. At step 412, Update the transaction table 842. At step 414, Update billing table 842D fields: next bill date = previous bill date plus days in period. Decrement number of periods remaining. If number
25 of periods remaining = 0, change Status = Expire. At step 416, send notification record 622 to merchant computer system 08 with activated password 631. At step 418, repeat for next billing reference

In summary, the online subscription system 02 allows an online subscription service merchant 08 to receive payments from a subscription
30 customer 06 and allows customer 06 to receive subscription service with activated password 631, without the customers using and disclosing their personal data to employees of the merchant and merchant computer system.

In a fifth embodiment, a person or business can make a private and secure payment to another private party of an individual or a business. With reference to Figure 2B and 3A, a payment system between two parties has a central system 10, a portable wireless device 12 belonging to party A 200, the central system 10 and the portable wireless device 12 are on a global computer network 18. The portable wireless device 12 is used to effect a private and secure payment transaction to private party B 202. At time of payment transaction from party A to party B, a party B identification 204 and a payment amount 205 are entered into device 12. The party B identification may be the party B's telephone number 855. Party identification in the form a telephone number is preferred as it is the most widely familiar structure of numbers. In actual use it may be a real telephone number of the party or a made up telephone number. Alternatively other forms of identification may be used.

On activating a payment function 226 in the wireless device 12, a data record 208 including at least the party B identification 855, the payment amount 205 and a portable wireless device identification code 850 is transferred over the global network 18 to the central system 10. The wireless device identification code is a combination of a pre-programmed identification code and a customer entered CAPIN 856 to identify which card or bank account 858 the payment is being made from.

The device 12 has a payment function 226. The payment function 226 is a firmware function within the device 12, which may be activated by a menu item called "payment", a key pad key combination such as an arrow key followed by a numeric key, or a special key for payment. The payment function 226 on being activated creates an encrypted payment data record 208 including at least the party B's identification 855, the payment amount, CPIN 856 and the device identification 850 and transfers it over the global network to the central system 10.

The central system 10 has two database 838A and 838B that identify party A's identification and a party B's bank account identification. The system 10 assembles a payment transaction record 210 including at least the party A pre-stored bank account data 858, payment amount and identifies a central system business bank 40, submits the payment transaction record 210 to an automated clearing house 36 and receives a payment authorization record 214.

The central system 10 using the database 838B identifies Party B's identification 855 and a party B's bank account identification 858. The system 10 assembles a payment transaction record 218 including at least party B 202 pre-stored bank account data, payment amount and identifies the central system bank 40 and submits the payment transaction record 218 to an automated clearing house 36 and receives a payment authorization record 220.

The central system 10, having party A and party B identifications and their e-mail addresses 860 in database 838B sends a e-mail notification 225 of the payment authorization to the party A and e-mail notification 224 to party B's e-mail address.

In this embodiment party A has made a private and secure payment to party B without either party A or party B knowing each other's personal and sensitive data. Conversely party B can make a similar payment to party A. Party A or B need to know each other's telephone number or a pseudo telephone number to make such a private payment

The operation of the apparatus 02 and central system 10 for a payment transaction between a party A and party B can be further understood with reference to the flow chart illustrated in Figure 5B. Importantly, the order of some or all of the steps can be varied. Further, not all of the steps outlined below are necessary to perform a transaction pursuant to the present invention.

At step 920, party A 200 wishes to make a private payment to party B 202 and inquires party B's telephone number. At step 922, party A takes out its wireless device 12 and enters party B identification (telephone number), a payment amount, a CPIN and activates payment function 226. At step 924, the device 12 creates a payment record 208 and sends to central system 10. At step 926, central system 10 receives the data, decodes device Identification to find the customer identification number and verifies CPIN and identifies the specific account chosen by party A 200 for payment. At step 928, the central system 10 creates transaction reference, assembles specific account data of party A, central system bank identifier 40, amount and sends to the ACH 36 and receives transfer of funds to the bank 40. At step 930, the central system 10 creates another transaction reference, assembles specific account data of party B, central system bank identifier 40, and amount and sends to the ACH to effect transfer of funds to party B's bank account. At step 932, the system 10 saves in transaction database

842 the data associated with the completion of transfer of funds and sends notification e-mail 225 to party A 200 and to party B 224.

In a sixth embodiment, of the payment system 02 enables the use of an ATM to withdraw cash without the need to carry an ATM card. Privacy and security is provided to a user because the ATM card which identifies the owner by name and card number, need not be carried on the person.

With reference to Figure 2C, and 3A, a cash withdrawal system between a party A 300 and an ATM machine has a central system 10, a portable wireless device 12 belonging to customer 300, an ATM machine 333 and a ATM identification tag 334. The central system 10, the portable wireless device 12, and the ATM 333 are on a global computer network 18 and the portable wireless device 12 is used to effect a cash withdrawal transaction from the ATM 333.

The portable wireless device 12, with a built-in reading element 12E, at the time of a withdrawal transaction, reads the terminal identification tag 334 and a withdrawal amount 305, and a CAPIN 856 is entered into it 305. A withdraw function 326 in the wireless device is activated, enabling a data record 308 including at least the ATM terminal identification, the withdrawal amount, a portable wireless device identification code and the CPIN to be transferred over the global network to the central system 10.

The device 12 has a withdrawal function 326. The withdrawal function 326 is a firmware function within the device 12, which may be activated by a menu item "withdraw", a key pad key combination such as an arrow key followed by a numeric key, or a special key for payment. The withdraw function 326 on being activated creates an encrypted withdraw data record 308 including at least the ATM terminal identification 334, the withdraw amount 304, CAPIN 856 and the device identification code 850 and transfers it over the global network to the central system 10.

The central system 10 assembles a withdraw transaction record 324 including the customer pre-stored bank account data 858, and submits the withdraw transaction record to the ATM system 333, enabling the ATM to process and disburse cash amount to the party 300. The ATM 333, knowing the means of arrival of ATM card data from the central system 10 as opposed to from an ATM card insertion, suppresses printing of a paper record for the ATM customer,

because an e-mail notification 325 is sent to the party 300 by the central system 10.

With initial reference to Figure 2A, the payment system 02 between a customer 06 and a merchant 08 has a central system 10, a portable wireless device 12, and a merchant display terminal 14 with an identification tag 16D. The central system, the portable wireless device and the merchant terminal are on a global computer network 18. The portable wireless device is used to effect a private and secure payment transaction from the customer to the merchant.

With reference to Figure 2A, the central system 10 provides a customer interface 03 allowing the interface to receive record 78 from customer 06 to create and enter account data, account identification code, and personal identification code. The interface additionally provides a record 80 to search and retrieve payment and refund transactions by type of transaction, transaction date, and merchant identification. It allows entry of customer identifying data and search query and receiving the data so requested. The interface is web-based and is prior art.

The central system 10 provides a merchant interface 04 allowing the interface to receive record 82 from merchant to enter merchant identification, merchant account identification, and terminal identification. The interface additionally provides a record 84 to search and retrieve payment and refund transactions by type of transaction, by date, and transaction reference number. The interface allows entry of merchant identifying data, and a search query and receiving the data so requested. The interface is web-based and is prior art.

With reference to Figure 2A, the central system 10 assembles a payment transaction record 32 that includes the customer pre-stored bank account data 858, and submits the payment transaction record to an automated clearing house 36 and receives a payment authorization record 38. Subsequently the central system 10 sends the payment authorization record 38 to the merchant display terminal 14 using the terminal uniform resource locator 864 over the global computer network.

The payment transaction record 32 submitted to the ACH 36 identifies a central system business bank 40 for receiving payment amount from the customer bank 22. The ACH, depending upon the form of the bankcard or bank account is prior art bankcard authorization network for authorizing amounts from customer

banks or a check automated clearinghouse used by banks to clear checks with each other.

After completion of the payment transaction from the customer to the merchant, the merchant funds from a plurality of payment transactions are in the bank 40. These merchant funds are transferred to the merchant bank account 48 on a periodic basis. To facilitate this fund transfer, the central system 10 has a merchant database 840 that maintains the terminal identification 862 and merchant identification 866 and a merchant bank account identification 868. The system 10 creates and submits a merchant payment record 46 to the ACH for transferring an aggregate amount from a plurality of payment transactions from the central system business bank 40 into the merchant bank account 48.

The central system 10 maintains a transaction database 842 cataloging each payment transaction by a transaction reference 870, date and time 872, an authorization reference 874, payment amount 876, customer identification 854, merchant identification 866, and payment sequence number 857.

The merchant 08 is paying the customer 06 for a refund from a previous payment transaction. A merchant refund terminal 66 is part of the merchant system 20, which is on the global computer network 18. The refund terminal 66 may a web-based interface. The merchant 08 enters into the refund terminal 66 a refund record 68 that includes the payment transaction reference 870 from a previous payment transaction, merchant identification 866, a refund-authorizing password, and a refund amount and then the refund record 68 is sent to the central system 10.

The central system 10 receives the refund record 68 from the merchant system 20 and verifies the elements of the record against the transaction catalog 842, in particular, verifying the refund amount is less than or equal to the payment amount. The central system then creates a refund ACH record 74 identifying the central system bank 40 as the bank for receiving funds from the merchant bank account 48. The refund record 74 is sent to the ACH 36 and an approval record 75 is received. The central system 10 then forwards the refund approval record 75 to the refund terminal 66. The merchant system 20 having the refund terminal 66 is equipped with a printer capability 76 and prints a refund record. The central system 10 then creates a fund transfer record and submits to ACH 36 for crediting the funds from the central system bank 40 to the customer bank account 22.

The portable wireless device 12 may be a cellular telephone with a screen and a keypad. Alternatively, it may be PDA with a wireless modem, which also has a display screen and a soft keypad.

5 The portable wireless device 12 has an interface that enables it to receive merchant identification and payment amount at the time of the payment transaction. The interface may consist of a numeric keypad with a screen, an optical-magnetic reading element or an infrared reading element. The operation of the interface is described below.

10 Figure 1A shows a wireless device 12, with a keypad 12A, a cursor control 12C, menu function 12D on a screen 12B. It also shows a reading element 12E, which may be an optical character-reading element such as a camera now being provided in some of the cellular phones on the market in US and other countries.

15 The interface may consist of the customer manually entering the merchant identification and the payment amount in the wireless device using the keypad 12A and the screen 12B. Typically, the customer may not be at the location where the merchant is located such as for a catalog merchant, and is given the information by the merchant.

20 Typically, the customer is at a merchant checkout counter and is holding the device 12 in his hand enabling it to capture the data optically.

25 Alternatively, the interface may also have a reading element 12E that scan-reads the identification tag 16D to read the terminal ID and a payment amount is manually entered into the device 12 by the customer. The reading element 12E is an optical type. The tag 16D is of the type as shown in Figure 1A showing numerical characters that can be read by an optical lens.

30 The identification tag 16D identifies the merchant, the store, and the terminal within the store for those merchants having more than one store and having more than one payment terminal in a store. Typically, when the customer is at merchant checkout counter, the customer is holding the device 12 in his/her hand and scans the tag 16D to read the terminal identification. And then subsequently enters a payment amount.

After the merchant terminal identification and payment amount are entered by any one of the interface means described above, they are held in temporary memory of the device 12. Then the customer 06 enters a Customer Account

Personal Identification Number (CAPIN). A CAPIN 856 is a personal identification code that identifies the customer and/or identifies the customer and one of the bankcards he/she wishes to use for the payment transaction.

5 The device 12 has an identification code 850, which uniquely identifies the device. The code 850 may be the telephone number assigned to the device 12 or the code 850 may be a identification identifying the chip inside the device 12 or the code 850 may be the frequency code used by the device 12.

10 The device 12 has a payment function 26. The payment function 26 is a firmware function within the device 12, which may be activated by a menu item "payment", a keypad key combination such as an arrow key followed by a numeric key, or a special key for payment. The payment function 26, on being activated, creates an encrypted payment data record 28 including at least the merchant terminal identification 862, the payment amount 24, CAPIN 856 and the device identification code 850 and transfers it over the global network to the central system 10.

15 The system 10 on receiving the data record 28, after decryption, identifies and verifies the customer and the particular bankcard he/she wishes to use for this payment, using the device identification 850 and the CAPIN 856. The customer may have a plurality of pre-stored accounts 858 in the central system 10. The customer enters an account identification in the form of CAPIN 856 into the wireless device 12, identifying a specific account 858 to be used for a payment transaction. The account identification may be a combination of personal identification code verifying the customer and an account identification code and is collectively called CAPIN 856 as described earlier.

25 Referring to Figure 3A, the central system 10 includes (i) a system storage device 826, (ii) a system operating system 802 stored in the system storage device 826, (iii) a system program 804 stored in the system storage device 826, (iv) and a system processor 230 connected to the system storage device 826.

30 The system processor 830 can include one or more conventional CPU's. The system processor 830 can be capable of high volume processing and database searches.

The system storage device 826 can, for example, include one or more magnetic disk drives, magnetic tape drives, optical storage units, CD-ROM drives and/or flash memory. The system storage device 826 also contains a plurality of

databases used in the processing of transactions pursuant to the present invention. For example, as illustrated in Figure 2, the system storage device 826 can include a merchant database 840, a customer database 838 and a transaction database 842.

5 The system 10 includes a system network interface (not shown) that allows the system 10 to communicate with the customer 06 and the merchant 08 and the card processor 36. Conventional internal or external modems may serve as the system network interface. In one embodiment, the system network interface is connected to the customer, merchant and the card processor on a global network.

10 A merchant network interface (not shown) allows the merchant 08 to communicate with the system 10. Conventional internal or external modems may serve as the merchant network interface. In one embodiment, the merchant network interface is connected to the system 10 on the global network.

 A customer network interface (not shown) allows the customer to
15 communicate with the system 10. Conventional internal or external modems may serve as the customer network interface. In one embodiment, the customer network interface is connected to the system 10 on the global network.

 The system 10 interfaces with a card processor 36 representing a bankcard authorization network. The bankcard authorization network is a computer system
20 that process payments from bankcards using an automated clearing house to process payments between banks. The system 10 interfaces with an ACH/ bank card authorization network 36. The ACH/bankcard authorization network 36 is a computer system that process data from an existing bankcard or an automated clearing house to process payments between banks.

25 The system processor 830 is operative with the system program 804 to perform a Security Function 806, a Payment Processing Function 808, a Customer Interface function 810, a Merchant Interface function 812, an ACH interface function 814, and a Billing function 816.

 With reference to Figure 3A, the customer database 838 within the central
30 system 10 contains private data specifically related to the customer 06 that is transferred to the system 10 from the customer. The customer 06, party A 200, party B 202, party 300 may enter data into this database data via a web interface (not shown).

The private data related to the customer 06 can be separated and stored in at least two separate sub-databases, namely, (i) an identifier sub-database 838A, and (ii) existing bank card data sub-database 838B. The sub-databases are explained below.

5 This database contains the wireless device identifier 850, payment card number 852 and a customer identification number 854. This database is used by security function 806 on first contact with the central system 10, by a wireless device 12 to identify a customer identification 850.

10 This database contains the customer identifier 850, CAPIN 856, Bank account data 858 and e-mail address 860. The telephone number of the wireless device may serve as the customer identifier. Multiple CAPIN and bank account data for each customer may be maintained allowing a customer to use any one of his/her accounts whether they are checking accounts, debit card accounts or credit card accounts. Card Account Personal Identification Number (CAPIN) may
15 be used to identify one of many cards that the customer wishes to use for a payment.

 This database maintains private data of the customer anchored by the customer identification number 854. The customer identifier for private party B is a telephone number 855. The other data is CPIN 856, Bank account data 858 and
20 e-mail address 860. Multiple CPIN and bank account data for each customer may be maintained allowing a customer to use any one of his/her accounts whether they are checking accounts, debit card accounts or credit card accounts. The payment sequence number 857 is used to identify one or more payment cards or bank accounts of the customer. The bank account data may contain customer
25 name, bank number/routing number, card or account number and any specific PIN codes for that account.

 With reference to Figure 3A, 3B and 3C, this database maintains data on the merchants who use the payment system 02. The database 840 maintains data on each of the merchant.

30 There are two databases, one is a merchant identifying sub-database 840A and second is merchant bank account data sub-database 840B. There is additional data that is specific to the type of the merchant such as a restaurant, an online subscription merchant and is shown in Figure 3B.

The sub-database 840A maintains data on each of the merchant display terminals 862, a terminal URL 864, and a merchant identification number 866 and e-mail address 869. The terminal identification identifies a terminal of the merchant and is the one present on the terminal identification tag and is the one transferred to the wireless device 12. The terminal URL 864 is used to send a payment record to the terminal over the global computer network. The merchant 08 may enter data into this database data via a web interface (not shown).

The sub-database 840B maintains data on the merchant identifier 866, merchant name 867 and merchant bank account 868 allowing funds from payment transactions to be directed to the merchant bank 48. The merchant data 867 may include merchant name and address.

With reference to Figure 3B, the type of merchant specific data is a service table 840C maintains data on the services provided by the merchant as Service Code 610, Merchant Number 612, Service Number 614, Subscription Description 616, One Time subscription Price 618, Periodic billing price 620, Period as either one, two, three, six or 12 months 622, and number of periods 623.

With reference to Figure 3A, 3B and 3C, this database 842 logs all payment transactions by a transaction reference 870, date/time of transaction 872, merchant terminal identification 862 from which the transaction originated, merchant ID 866, amount 876, authorization code 874 received from the ACH/card network and customer identification 854 and the sequence number of the payment account used for this transaction 857.

This database may be searched by the customer 06, via a search query record 80, to display payment transactions by a search criterion such as merchant identification and date/time ranges via a web interface (not shown).

This database may be searched by the merchant 08, via a search query record 82, to display payment transactions by a search criterion such as terminal identification and date/time ranges via a web interface (not shown).

The transaction table 842 logs all payment transactions with the card processor 36 by a transaction reference 870, date/time of transaction 872, merchant number 862, amount 876, authorization code 874 received from the card processor 36, customer ID 854 and additionally payment sequence number 857.

With reference to Figure 3C, this database logs all payment transactions that are specific to a merchant type such as for a restaurant merchant, table 842C such as, tip amount 430, table number 452, and server number 454.

With reference to Figure 3C, for an online subscription merchant this
5 database has a billing table 842D. Table 842D is data that is needed to process periodic subscription billing. The billing table 842D maintains service status including pending periodic payment transactions by a combination of direct and computed fields. These fields are: merchant number 612, billing reference 624, personal number 650, service number 614, order/initial bill date 626, next bill date
10 (computed field) 628, number of periods remaining (computed field) 630, authorize number 632, cancel date 634, and status 636. The status field 636 has one of the states of Null or Active or Cancel or Expire or Declined. The logic for the change in these fields is illustrated with reference to figures 4A.

The merchant system 08 is a prior art computer system. It may be used by
15 the merchant in conjunction with a card processing terminal 04 that is connected to the card processor 36 to process card payments.

With reference to Figures 3A, the central system program 804 is operative with the central system processor 830 to provide the functions of (i) Security Function 806, (ii) Payment Processing Function 808, (iii) Customer Interface
20 Function 810, (iv) Merchant Interface Function 812, and (v) Billing function 814. Further, the system program 804 is operated with the payment system processor 830 to perform the tasks of the central system 10 provided herein.

The Security Function 806 performs the tasks of determining and verifying from the personal number 850 and optional CAPIN 856, the customer 06 and the
25 specific bank account 858 when the customer initiates a payment transaction using the wireless device 12. The system 10 is a secure server and uses encryption when communicating with the device 12 and the card processor 36.

The payment processing function 808 performs the tasks of creating payment records and notification records that are transmitted to and from the
30 central system 10. For each payment transaction initiated by the customer via device 12, a payment record to the card processor 36 is assembled. Details of such a payment record are prior art and are used in processing payment transactions with a prior art card-processing network. The card-processing network approves the payment and responds with an approval record containing

the same data as in payment record and additionally containing an authorization or approval code and date and time of the approval. The central system 10 on receiving the payment approval record from the card processor 36 creates and sends notification records to the customer and the merchant.

5 The customer Interface function 810 performs the tasks of permitting the customer to open an account and enter customer data. The interface is web based. Alternatively, it could be voice based. The knowledge to create an interface is prior art.

10 The merchant Interface function 812 performs the tasks of permitting the merchant to open an account and enter merchant data. The interface is web based. Alternatively, it could be voice based. The knowledge to create an interface is prior art.

15 The Billing function 814 performs, for an online subscription merchant, the tasks of initial billing, periodic billing and maintaining service status. It uses a service table 840C that identifies all subscriptions from all merchants and billing table 842D that identifies and maintains the status of the service transactions.

20 In summary, the payment system 02 allows the customer 06 to use a device 12 in lieu of many bankcards and checks to facilitate private and secure payments to a merchant 08 and private individuals and businesses. Additionally the payment system 02 allows a private party to make a cash withdrawal at an ATM without the use of an ATM card. The payment system 02 provides private and secure payment transactions.

25 While the particular apparatus 02 as illustrated herein and disclosed in detail is fully capable of obtaining the objective and providing the advantages herein before stated, it is to be understood that it is merely illustrative of the presently preferred embodiments of the invention and that no limitations are intended to the details of construction or design herein shown other than as described in the appended claims.

What is claimed is:

1. A payment system between a customer and a merchant comprising:
2 a central system; a portable wireless device; a merchant display
terminal displaying terminal identification data; the central system, the
4 portable wireless device and the merchant terminal are on a global
computer network; wherein the portable wireless device is used to effect a
6 private and secure payment transaction.

2. The claim as in 1, wherein the portable wireless device, with an
2 interface means, at time of payment transaction interfaces with a merchant
system to receive the merchant display terminal identification and a payment
4 amount.

3. The claim as in 2, wherein the interface is via the portable wireless
2 device having an optical reading element receiving an optical transmission of the
terminal identification and a payment amount from a merchant system.

4. The claim as in 2, wherein the interface is via the portable wireless
2 device having a reading element reading the terminal identification from the
terminal identification tag and a payment amount is entered into it.

5. The claim as in 2, wherein on activating a payment function in the
2 wireless device, a data record including at-least the terminal identification, the
payment amount and a portable wireless device identification is transferred over
4 the global network to the central system.

6. The claim as in 5, wherein the central system assembles a payment
2 transaction record, including customer pre-stored bank account data, and submits
the payment transaction record to an Automated Clearing House (ACH), and
4 receives a payment authorization record and subsequently the central system
sends the payment authorization record to the merchant display terminal using the

6 terminal identification as a uniform resource locator over the global computer
network.

7. The claim as in 6, the payment transaction record submitted to the
2 ACH identifying a central system business entity bank for receiving payment
amount from the ACH.

8. The claim as in 7, wherein, the central system having a database
2 relating the merchant terminal identification and a merchant bank account
identification submitting a merchant payment record to the ACH for transferring an
4 aggregate amount from a plurality of the payment transactions into a merchant
bank account.

9. The claim as in 5, wherein the wireless device identification is a
2 combination of a pre-programmed identification code and a customer entered
Card Account Personal Identification Number (CAPIN).

10. The claim as in 9, wherein the customer having a plurality of pre-
2 stored account data in the central system, the customer entering the CAPIN into
the wireless device, identifying a specific account data to be used for a payment
4 transaction.

11. The claim as in 10, wherein the CAPIN is a combination of personal
2 identification code verifying the customer and an account identification code
identifying an account.

12. The claim as in 1, wherein the wireless device is a personal digital
2 assistant adapted with a wireless modem, a reading element, and a payment
function.

13. The claim as in 1, wherein the wireless device is a cellular telephone
2 adapted with a reading element and a payment function.

14. The claim as in 1, wherein the wireless device is a cellular telephone
2 with a keypad enabling manual entry of the terminal identification and adapted
with a payment function.

15. The claim as in 10, wherein, the central system maintaining a
2 transaction database cataloging each payment transaction by a transaction
reference, date, time, an authorization reference, payment amount, customer
4 identification and merchant identification.

16. The claim as in 15, further comprising a merchant refund terminal on
2 the global computer network, wherein the merchant entering into the refund
terminal a refund record, including at-least the payment transaction reference
4 from a previous payment transaction, the merchant identification, a refund
authorizing password, a refund amount, and sending the refund record to the
6 central system.

17. The claim as in 16, wherein, the central system receiving and
2 verifying the elements of the refund record data with the transaction database, in
particular verifying the refund amount is less than or equal to the payment
4 amount, creating a refund record including the merchant account identification,
refund amount and submitting to the ACH and receiving an approval, and
6 forwarding that to the refund terminal.

18. The claim as in 17, the refund terminal comprising:
2 a printer capable of printing a refund record.

19. The claim as in 18, further comprising:
2 a customer interface with the central system enabling it to enter
account data, account identification code, personal identification code and
4 enabling it to create a search query to retrieve payment and refund
transactions by type of transaction, transaction date, and merchant
6 identification.

20. The claim as in 18, further comprising:

2 a merchant interface with the central system enabling it to enter
merchant identification, merchant account identification, terminal
4 identification and enabling it create a search query to retrieve payment and
refund transactions by type of transaction, by date, terminal identification,
6 and transaction reference number.

21. A cell phone adapted with a payment function comprising:

2 a first interface means to receive merchant identification, cash
register identification and a payment amount;

4 a second interface means to receive customer account identification;

a third interface means to communicate with a central system,
6 wherein the third means sends merchant id, register id, and customer
account id to the central system, central system processing payment with a
8 card processor and sending an approval data record to the payment
function.

22. The claim as in 21, where the first interface means comprising a
2 charge-coupled device camera enabling capturing an image of a display of
merchant id, register id and the payment amount, with a logic to extract the
4 numerical values of merchant id, register id and amount from the pixel based
image.

23. The claim as in 21, where the second interface means comprising a

2 keypad enabling entry of the customer bank account identification.

24. The claim as in 21, where the third interface means comprising a

2 cellular wireless interface to the telephone network enabling access to a global
computer network.

25. An apparatus for a bill payment by a customer to a restaurant

2 merchant comprising:

a central system; a web-enabled wireless device; and a bill carrying

4 a service code being presented to the customer, wherein the customer

6 using the wireless device connects to the central system, inputs the service
code, bill amount, and a personal number to effect payment of the bill to the
merchant.

26. The claim as in 25, where the service code identifies a merchant
2 number, a table number and a server number.

27. The claim as in 26, the personal number is a combination of
2 telephone number and a personal identification number.

28. The claim as in 27, wherein the merchant and the customer have
2 pre-stored data in the central system; a central system program using the
personal number retrieves customer card data, using merchant number retrieves
4 merchant data; and prepares a payment record for submission to a card
processor.

29. The claim as in 28, wherein the central system program submits the
2 payment record to the card processor and receives approval data.

30. The claim as in 29, wherein the central system program forwards a
2 notification to a merchant computer system and a notification to the customer on
the wireless device.

31. The claim as in 30, the notification to the merchant computer system
2 of the approval data includes the tip amount, the table number and the server
number.

32. The claim as in 31, the notification to merchant computer system is
2 by pushing data to the merchant computer system on a global network.

33. The claim as in 32, the merchant computer system displays on a
2 display terminal the table number, the server number, the payment amount and
the payment status.

2 34. A method of paying a bill to a restaurant merchant comprising the
step of:

4 a customer receiving a bill, including a service code, the code
identifying the merchant number, a table number and a server number.

2 35. The method as in claim 34, further comprising the step of:
the customer using a web-enabled telephone connects to a secure
server; enters the service code, bill amount and a personal number for
4 sending to the secure server.

2 36. The method as in claim 35, further comprising the step of:
the secure server having pre-stored customer and merchant data
processes the payment with the merchant's existing card processor, and
4 forwards the approval record to the wireless device and to a merchant
computer system.

2 37. The method as in claim 36, further comprising the step of:
the approval record to the merchant computer system, additionally
including the table number and the server number.

2 38. A cash withdraw system between a customer and an ATM machine
comprising:
4 a central system; a portable wireless device; an ATM, an ATM
identification on an ATM identification tag; the central system, the portable
wireless device, and the ATM are on a global computer network; wherein,
6 the portable wireless device is used to effect a cash withdraw transaction
from the ATM.

2 39. The claim as in 38, the portable wireless device having an interface,
wherein at time of withdraw transaction, the interface reads the ATM identification,
a withdraw amount, a CPIN is entered into it; and a withdraw function in the
4 wireless device is activated, enabling a data record including at-least the ATM
terminal identification, the withdraw amount, a portable wireless device

6 identification code and the CPIN to be transferred over the global network to the
central system.

40. The claim as in 39, wherein the central system assembles a
2 withdraw transaction record including the customer pre-stored bank account data
and submits the withdraw transaction record to the ATM enabling the ATM to
4 process and disburse withdraw amount to the customer while suppress printing of
a record as the central system sends an e-mail notification to the wireless device.

41. A payment system between two parties comprising:
2 a central system; a portable wireless device belonging to party A;
the central system and the portable wireless device are on a global
4 computer network; wherein the portable wireless device is used to effect a
private and secure payment transaction to a party B.

42. The claim as in 41, wherein at time of payment transaction from
2 party A to party B, a party B identification and a payment amount is entered into
the wireless device.

43. The claim as in 42, wherein the party B's identification is a party B's
2 telephone number.

44. The claim as in 43, wherein on activating a payment function in the
2 wireless device, a data record including at-least the party B's identification, the
payment amount and a portable wireless device identification is transferred over
4 the global network to the central system.

45. The claim as in 44, wherein the central system assembles a
2 payment transaction record including at least the party A pre-stored bank account
data, payment amount and identifies a central system business bank, submits the
4 payment transaction record to an automated clearing house and receives a
payment authorization record.

46. The claim as in 45, wherein the central system having a database
2 with party B's identification and a party B's bank account identification, assembles
a payment transaction record, including at-least party B's pre-stored bank account
4 data, payment amount and identifies the central system bank and submits the
payment transaction record to an automated clearing house and receives a
6 payment authorization record.

47. The claim as in 46, the central system, having a database with party
2 A's e-mail address and party B's e-mail addresses, sends a notification of the
payment authorization to the party A and party B's e-mail addresses.

48. The claim as in 43, wherein the wireless device identification is a
2 combination of a pre-programmed identification code and a customer entered
personal identification code.

49. The claim as in 43, wherein the wireless device is a personal digital
2 assistant adapted with a wireless modem.

50. The claim as in 43, wherein the device is a cellular telephone.

51. An apparatus for an online subscription service comprising:
2 a central system; a web-enabled wireless device; and a web page of
a merchant displaying a service code, wherein a customer using the
4 wireless device connects to the central system, inputs the service code, a
desired password to access the service, and a personal number to effect
6 payment of a subscription fee to the merchant and receive the service by
use of the password.

52. The claim as in 51, the service code comprised of:
2 a number identifying a merchant number and a subscription service
number.

53. The claim as in 52, the personal number is comprised of:
2 a telephone number and a personal identification number.

54. The claim as in 53, wherein the merchant and the customer have
2 pre-stored data in the central system; a central system program using the
personal number retrieves customer card data, using merchant number retrieves
4 merchant data; using service number retrieves payment amount; and prepares a
payment record for submission to a card processor.

55. The claim as in 54, wherein the central system program submits the
2 payment record to the card processor and receives approval data.

56. The claim as in 55, wherein the central system program forwards a
2 notification to a merchant computer system including the service code and the
desired password and awaits notification that the service has been activated.

57. The claim as in 56, further comprising:
2 the central system receiving service activation notification with an
activated password and saving service status and the activated password
4 in a database.

58. The claim as in 57, further comprising:
2 the customer using the wireless device connects to the central
system, inputs the service code and the personal number to retrieve the
4 activated password.

59. The claim as in 58, the central system further maintains relational
2 data on personal number, merchant number, service number, next periodic billing
date, billing amount, activated password, and service status, and on the next
4 periodic billing date, if the service status is active, the central system program
assembles and submits a payment record for the billing amount to the card
6 processor, and subsequently forwards a notification to the merchant including the
activated password.

60. The claim as in 59, further comprising:
2 the customer using the wireless device connects to the central
system; inputs the service code and the personal number to cancel

4 subscription, thereby the central system program changes the subscription
status to cancel.

2 61. A method of delivering online subscription service comprising the
step of:

4 a customer presented a web page with service description and a
service code, the code identifying a merchant number and a service
number.

2 62. The method as in claim 61, further comprising the step of:
the customer using a web-enabled wireless device connects to a
secure server; enters the service code, a desired password to access the
4 service, and a personal number for sending to the secure server.

2 63. The method as in claim 62, further comprising the step of:
the secure server having pre-stored customer and merchant data
processes a service payment with the merchant's existing card processor,
4 and forwards approval to a merchant computer system.

2 64. The method as in claim 63, further comprising the step of:
the central system awaits notification of activation of service from the
merchant computer system with activated password and saves in a
4 transaction database.

2 65. The claim as in 64, further comprising the step of:
the customer using the wireless device connects to the central
system; inputs the service code and the personal number to retrieve the
4 activated password.

2 66. The claim as in 65, further comprising the step of:
the customer using the wireless device connects to the central
system; inputs the service code and the personal number to cancel
4 subscription service.

67. The method as in claim 66, further comprising the step of:
2 the personal number is entered as a combination of a telephone
number and a personal identification number.

68. An apparatus for an online subscription service comprising:
2 a central system; a web-enabled device; and a web page of a
merchant displaying a service code, wherein a customer using the device
4 connects to the central system, inputs the service code, a desired
password to access the service, and a personal number to effect payment
6 of a subscription fee to the merchant and receive the service by use of the
password.

69. The claim as in 68, wherein the merchant and the customer have
2 pre-stored data in the central system; a central system program using the
personal number retrieves customer bankcard data, using the service code
4 retrieves merchant data and payment amount; and prepares and submits a
payment record to a card processor and receives approval data.

70. The claim as in 69, wherein the central system program forwards a
2 notification to a merchant computer system including the service code and the
desired password and awaits notification that the service has been activated,
4 receiving service activation notification with an activated password and saving
service status and the activated password in a database, the customer using the
6 wireless device connects to the central system, inputs the service code and the
personal number to retrieve the activated password.

1 of 12

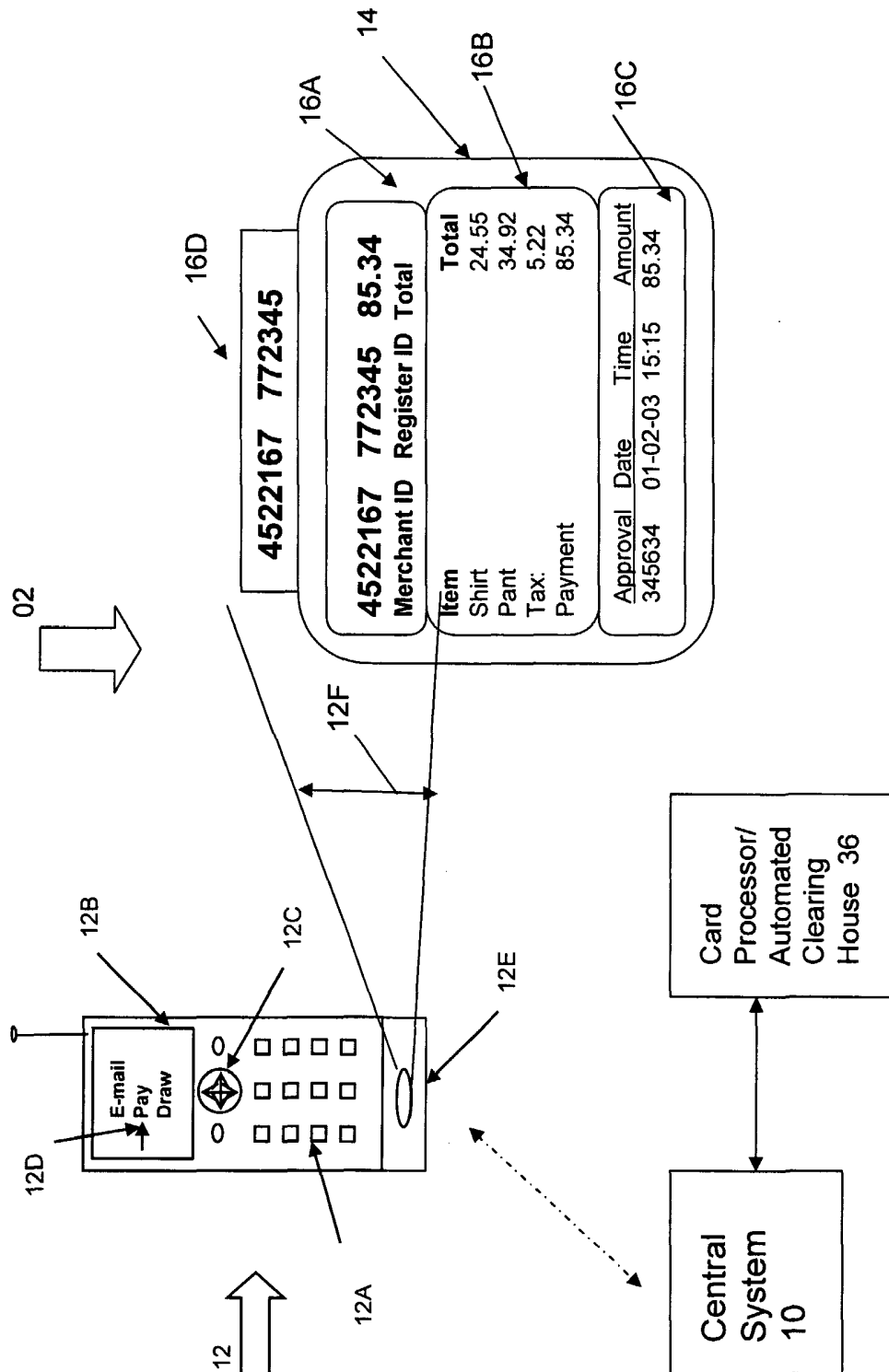


FIGURE 1A

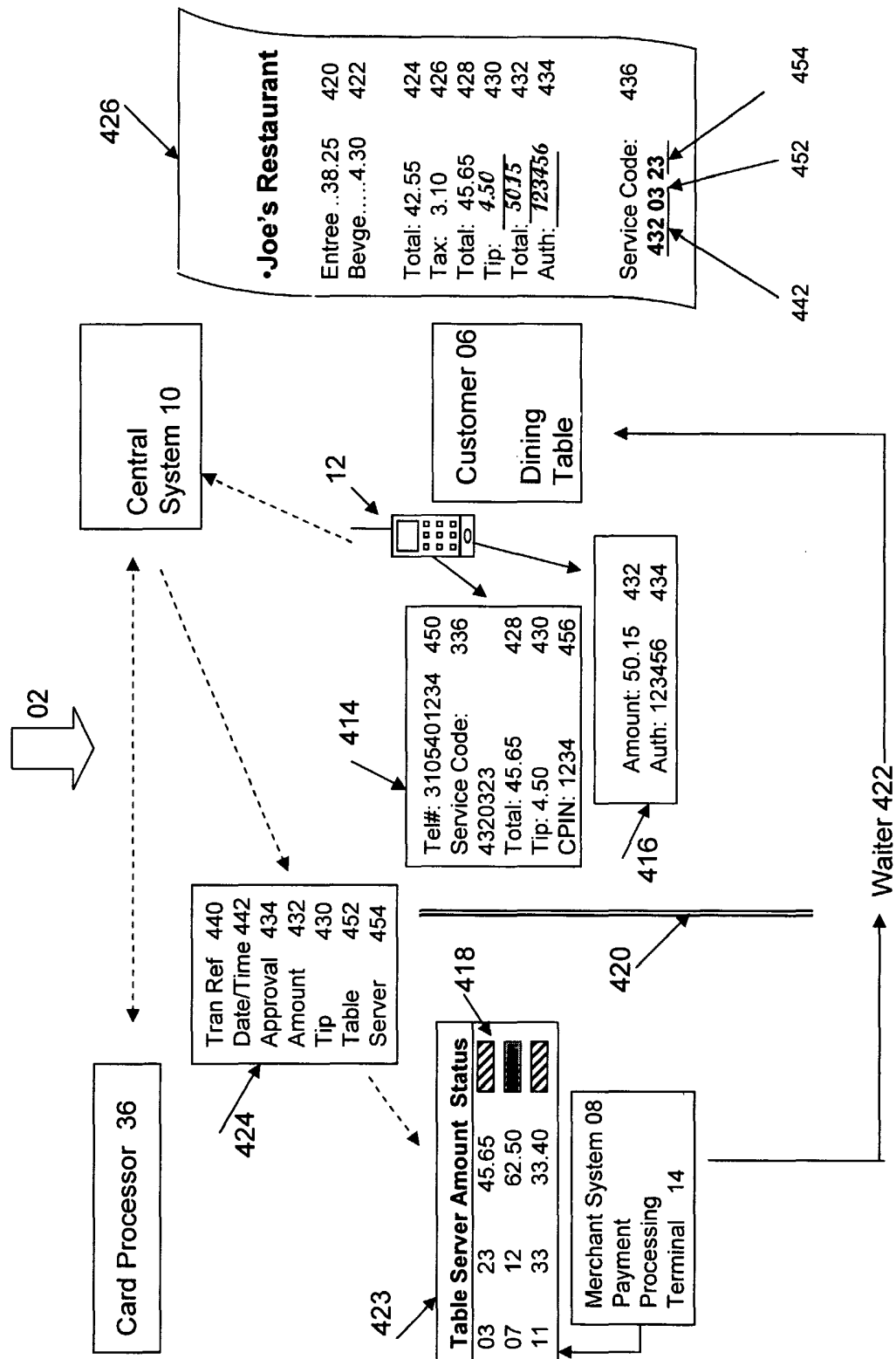


Figure 1B

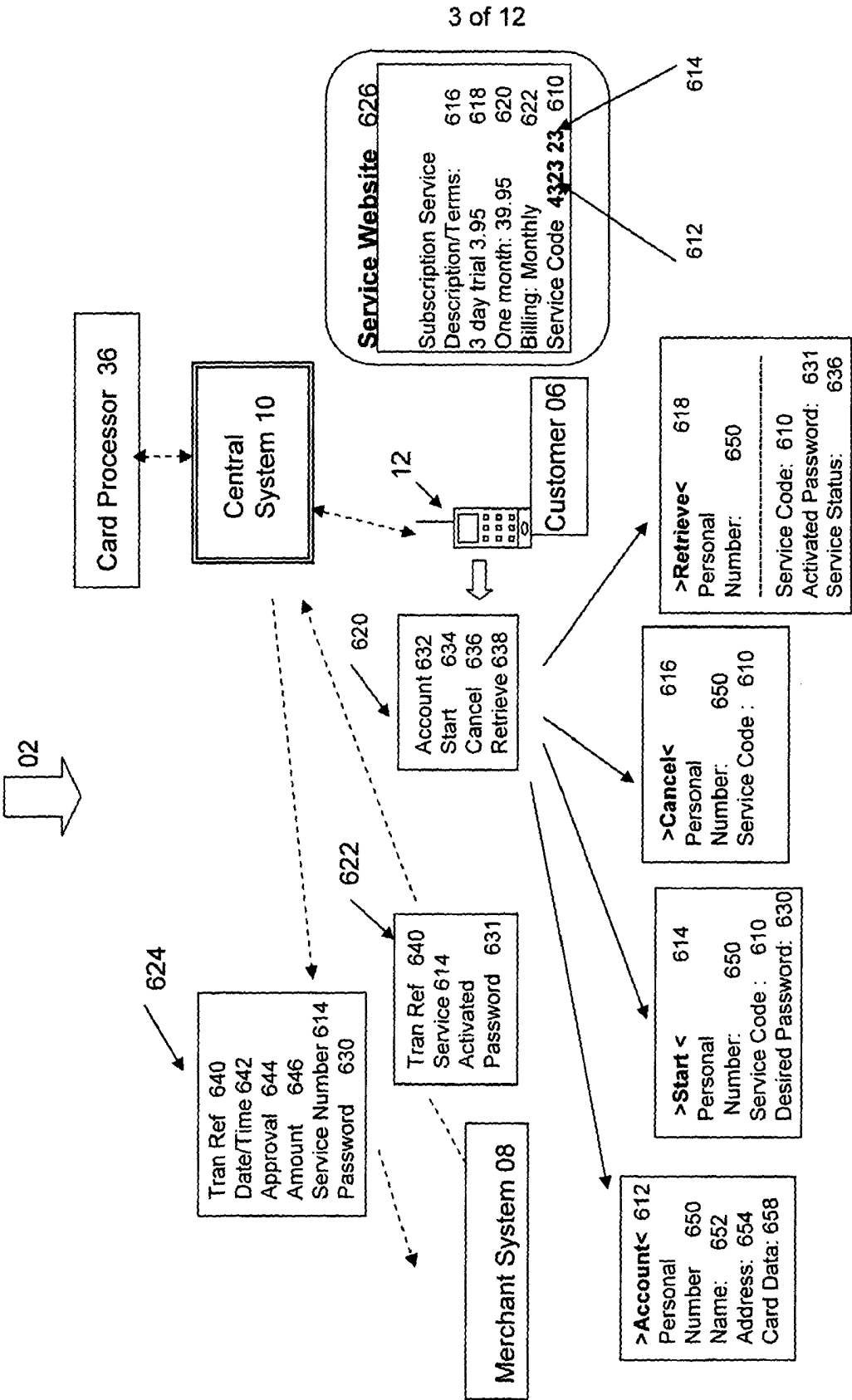


Figure 1C

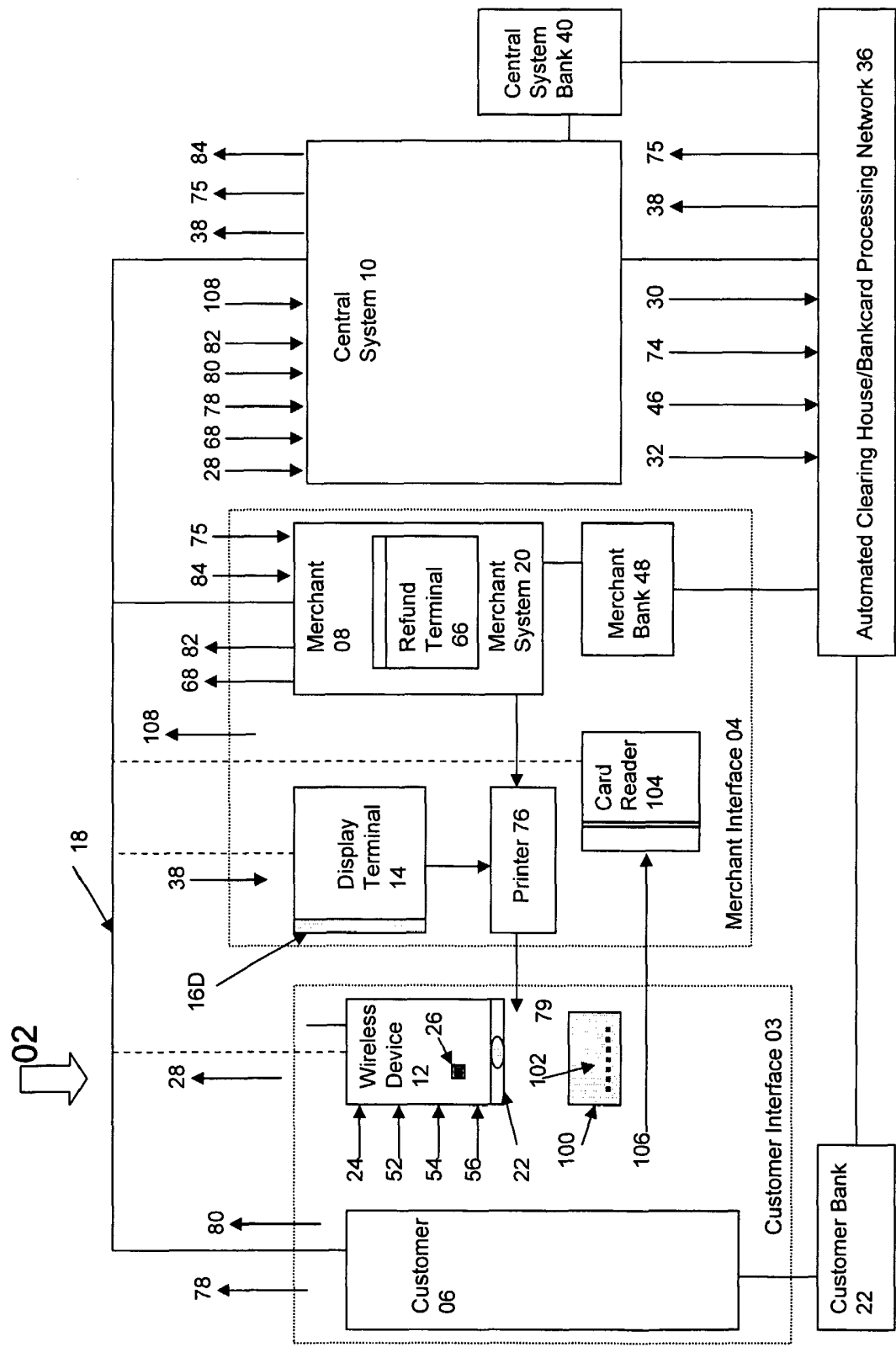


FIGURE 2A

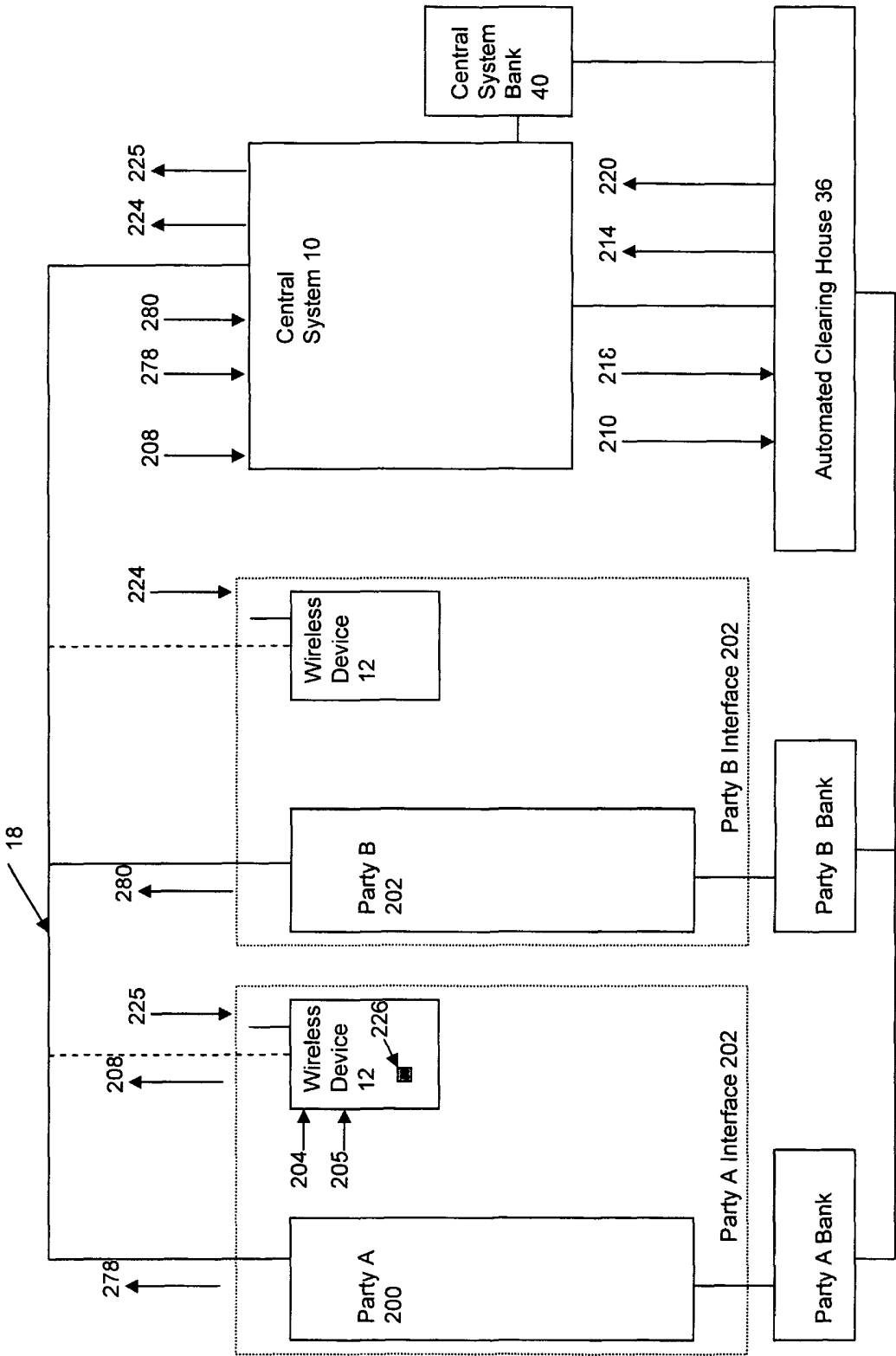


FIGURE 2B

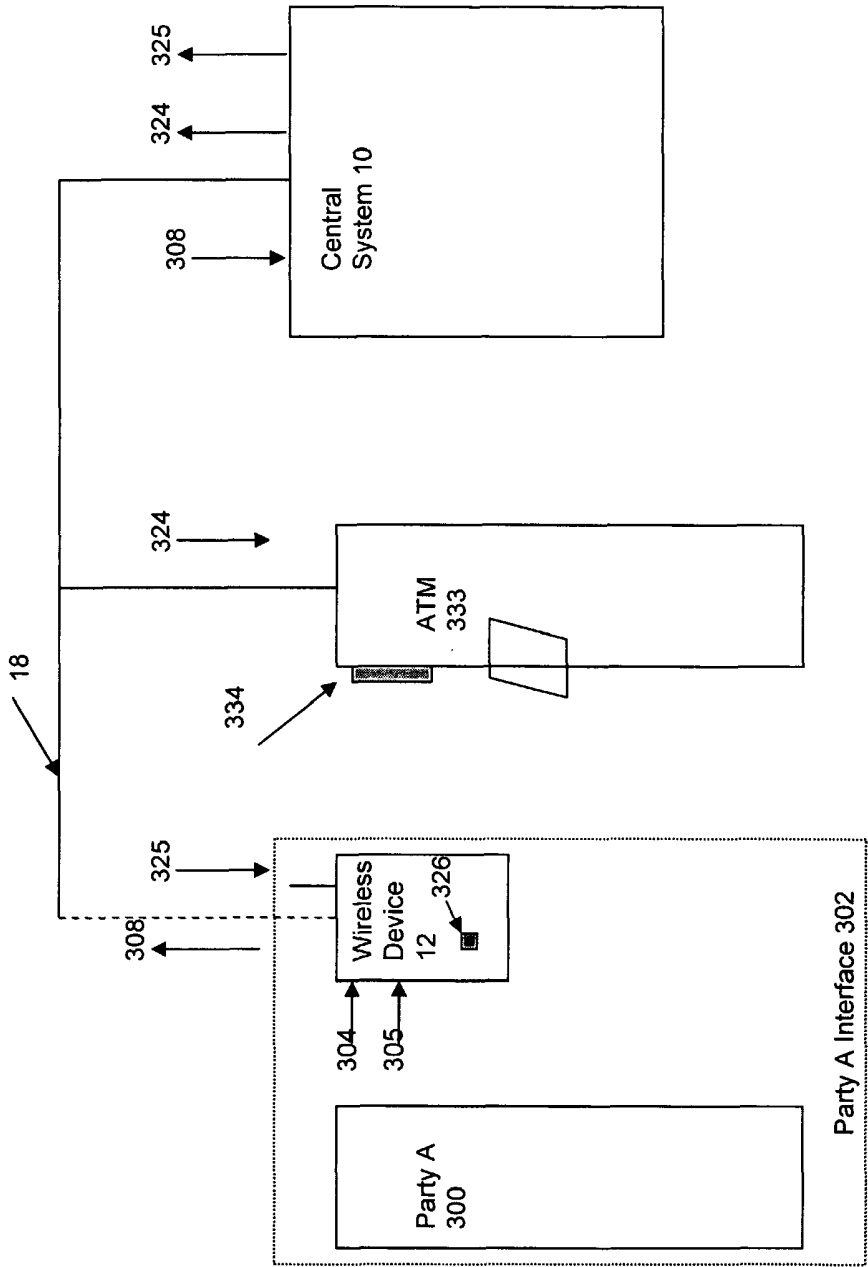


FIGURE 2C

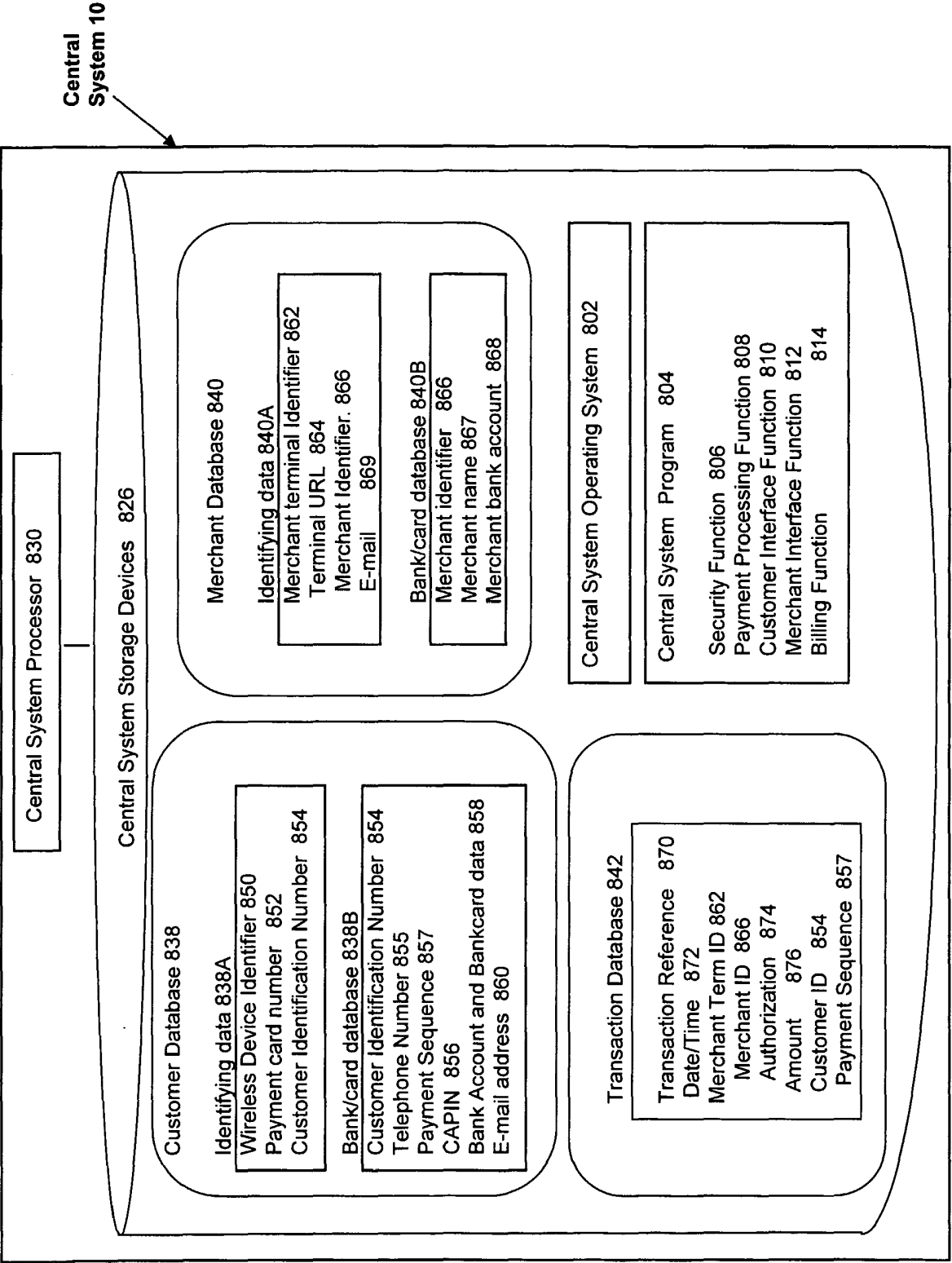


FIGURE 3A

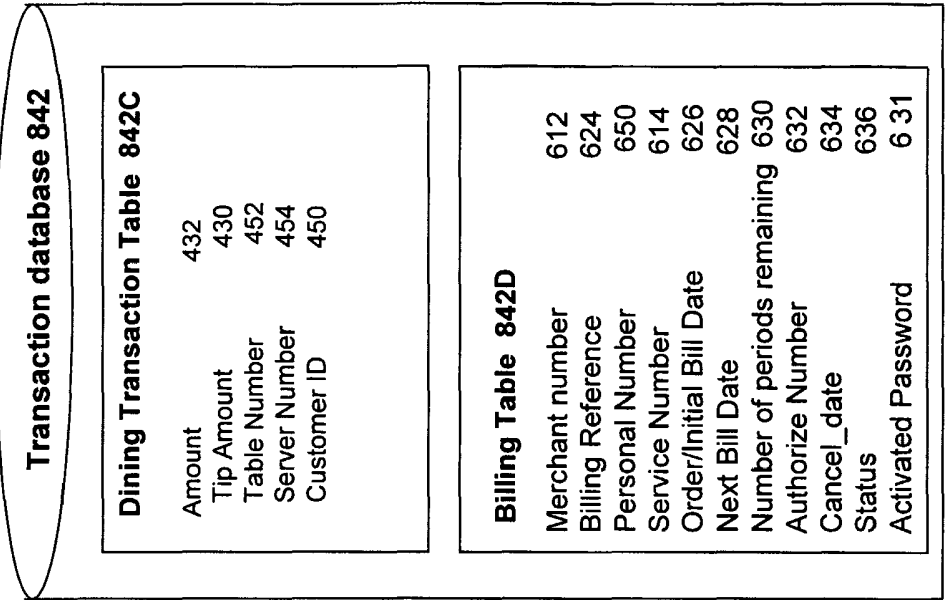


Figure 3C

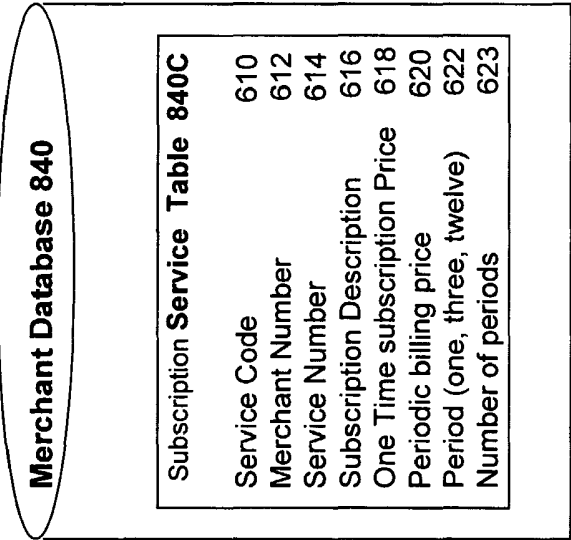


Figure 3B

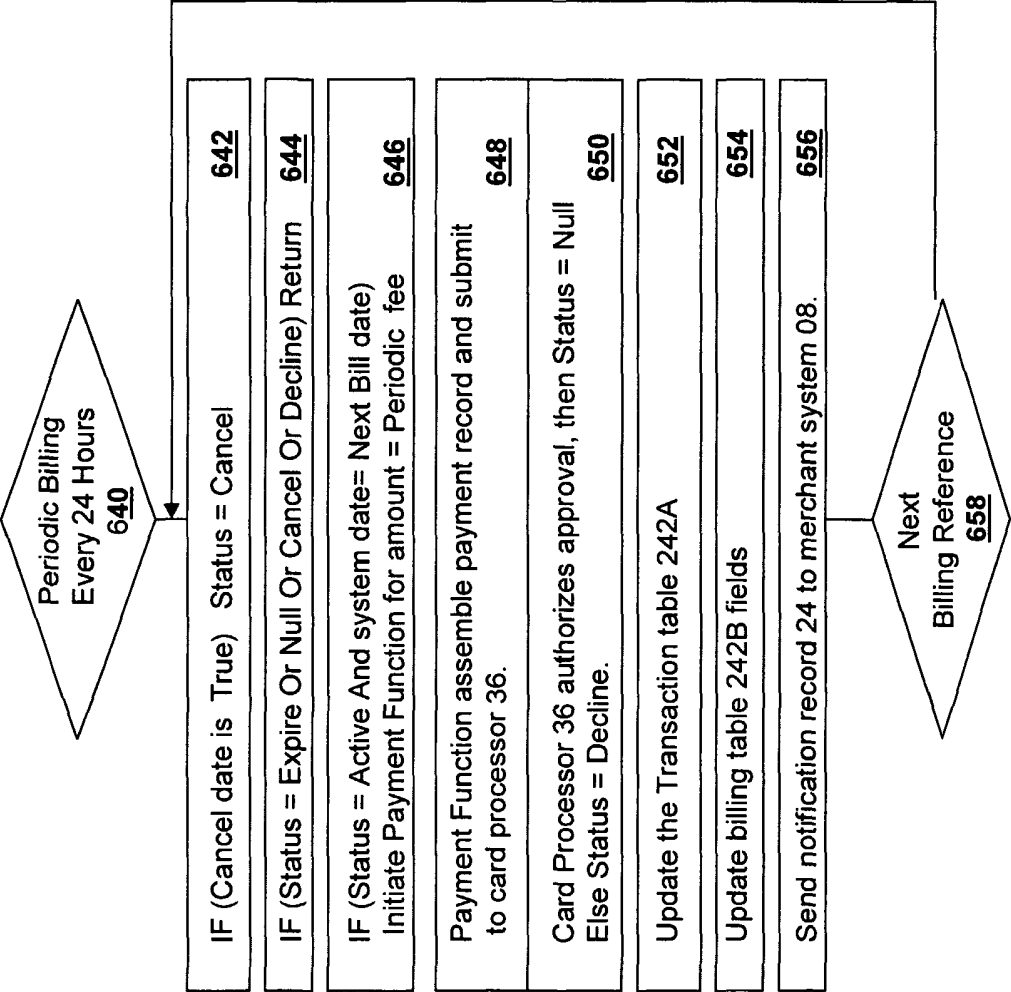


Figure 4A

10 of 12

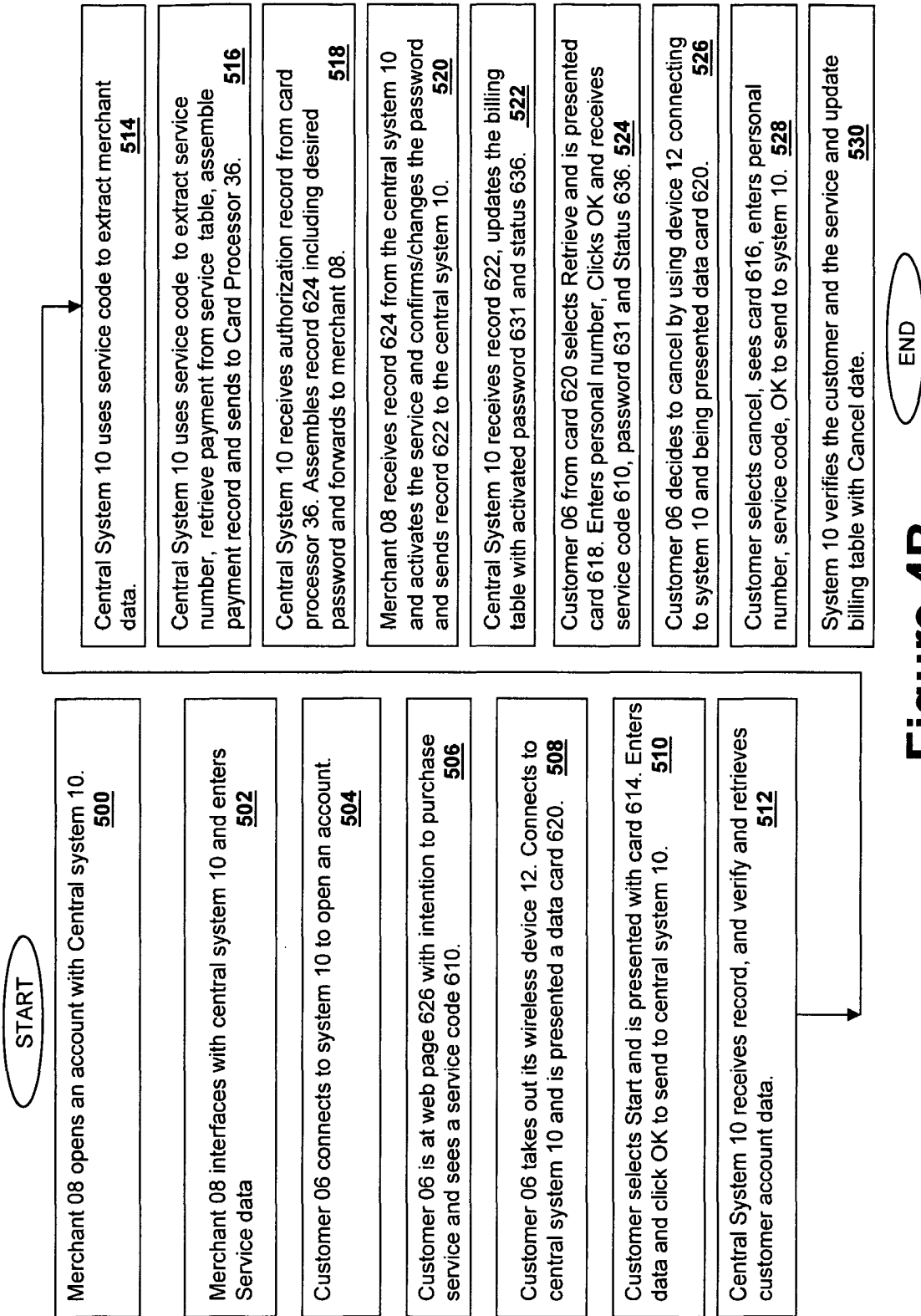


Figure 4B

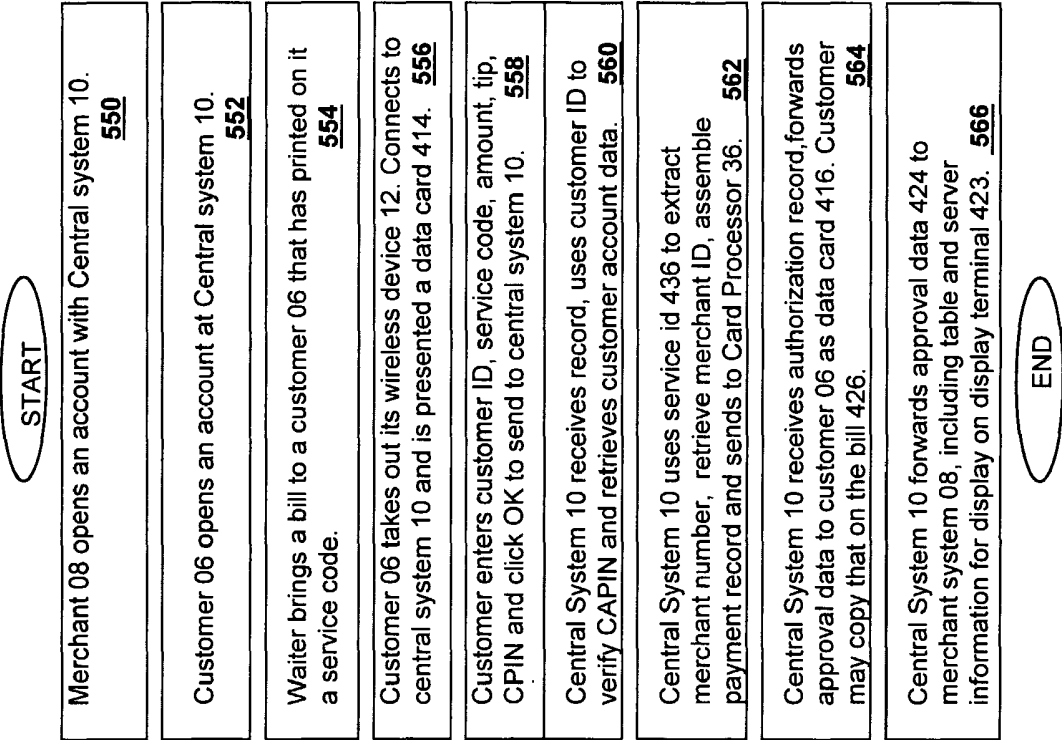


Figure 4C

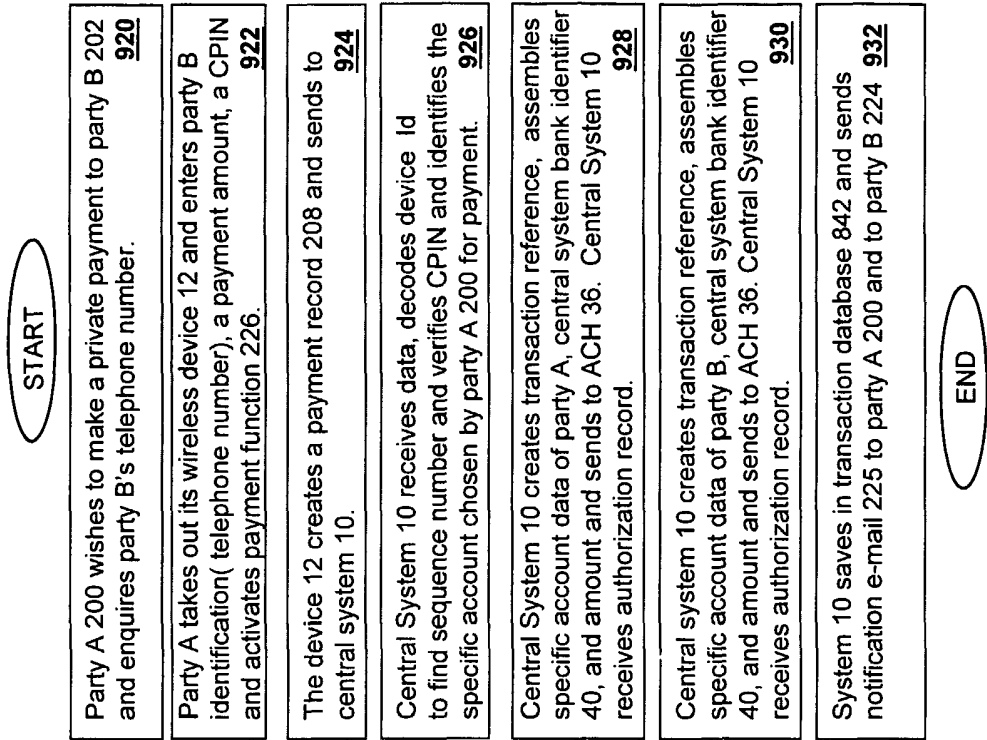


FIGURE 5B

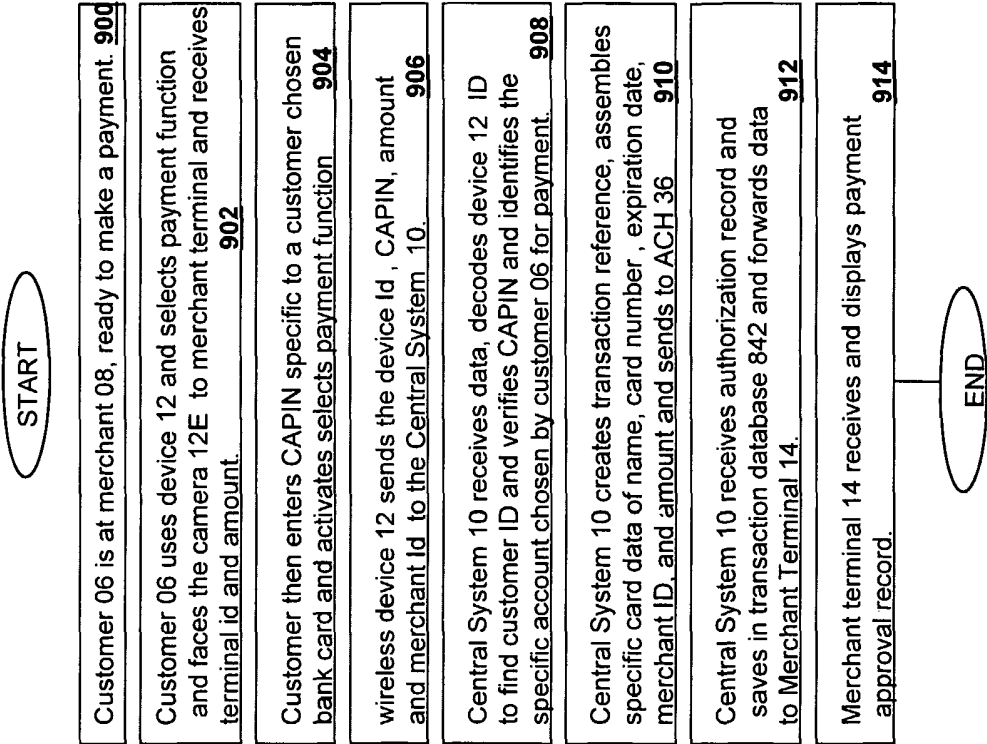


FIGURE 5A

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/02054

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 17/60

US CL : 705/38

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/38

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WEST, DIALOG**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,295,428 B1 (TOGNAZZINI) 25 September 2001 (25.09.2001), entire document.	1-70
X	US 6,038,548 A (KAMIL) 14 March 2000 (14.03.2000), entire document.	1-70

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.*** Special categories of cited documents:****"A"** document defining the general state of the art which is not considered to be of particular relevance**"E"** earlier application or patent published on or after the international filing date**"L"** document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)**"O"** document referring to an oral disclosure, use, exhibition or other means**"P"** document published prior to the international filing date but later than the priority date claimed**"T"** later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention**"X"** document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone**"Y"** document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art**"&"** document member of the same patent family

Date of the actual completion of the international search

14 June 2003 (14.06.2003)

Date of mailing of the international search report

20 JUN 2003

Name and mailing address of the ISA/US

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