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(54) Title: PREPAID CARD SETTLEMENT SYSTEM AND METHOD ON INTERNET AND APPARATUS AND METHOD FOR USING THEM

(57) Abstract: A prepaid card settlement system on the internet for executing the settlement of a price or charge occurring on the internet by an electronic terminal unit set in a state available for the internet, the system comprising: an ATM terminal unit issuing a prepaid card retaining set amount information relating to an available amount and discrimination number for the prepaid card other than identification information for a debit or credit card; an electronic terminal unit set in a state available for the internet for instructing to pay a price or charge occurring on the internet by the prepaid card; and a price or charge settlement processing system for processing on-line the settlement of the price or charge within the set amount information on the basis of the discrimination number information.

DESCRIPTION

PREPAID CARD SETTLEMENT SYSTEM AND METHOD ON INTERNET AND APPARATUS AND METHOD FOR USING THEM

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a system for settling with a prepaid card an amount of money occurring by utilizing the internet through use of a computer terminal unit or a cordless electronic device such as a cordless telephone connected with the internet. The prepaid card is purchased by using a debit card (this is also called a cash card and hereinafter called the debit card.) or a credit card. In more particular, the present invention is concerned with a prepaid card settlement system on the internet in which a high security is realized in an electronic commerce in the manner that a personal information and an identification number registered for a debit card or a credit card never leak.

In recent years, the electronic commerce utilizing the internet has spread widely and various services are offered on the internet.

For example, there are a system opening homepages or a FTP site on the internet for selling programs or image data by means of down-load, a pay

site for offering security information and economical information and others for pay, and a cyber mall on the internet through which a person can purchase goods.

In various kinds of electronic commerce as mentioned above, there are some problems as to how to pay the price or charge. That is to say, the internet is so-called a network for networks and constructed to connect numberless LANs and numberless servers, as well-known. In the internet, data is divided into a plurality of packets and transmitted to an addressed host computer through many and unspecified servers. Therefore, the security of data to be transmitted cannot be fully kept on communication paths. In general, prices or charges occurring by commercial transactions on the internet are settled by using a credit card and there is a possibility of leaking purchase information of a person who purchases goods or a service, or a security information for the credit card (the name, a number of the credit card, an identification number or the like). In indeed, personal information leakages frequently occur. As a result, a person using a credit card is damaged in circumstances that a third person makes a bad use of the leaked personal information and purchases expensive goods. Such damages are increased at present. An effective system against the above unfair practices is not established at present.

SUMMARY OF THE INVENTION

In the light of the above-mentioned state, an object of the present invention is to provide a prepaid card settlement system on the internet for achieving the following matters.

First, a debit card or a credit card is not used for executing a settlement of a transaction on the internet but used for purchasing a prepaid card which can be used as a settlement card for transaction on the internet. The prepaid card can be readily issued for a person possessing the debit card or the credit card and can scatter or throw away after use thereof and further it is not possible to forge or falsify the prepaid card. When the prepaid card is purchased, it is verified and confirmed by a settlement bank or a credit card issuance company designated by a possessor of the debit or credit card by using and collating the identification number of the possessor as to whether or not the debit or credit card is a stolen or false card. By doing so, an unfair usage of the debit or credit card is prevented.

Second, an issuance of the prepaid card is permitted only by an ATM or the like capable of withdrawing money from a bank or a post office by using the debit or credit card. The prepaid card can be used on the internet. Accordingly, it is possible to certainly prevent an identification number of the debit or credit card from leaking out through the internet. A person who purchases the prepaid card is not required to input the identification number and personal information of the person and therefore the identification number and the personal information are prevented from leaking out when the person purchases any goods.

Third, the prepaid card does not function as cash and records an amount of money capable of paying by itself as set amount information. Actual settlement of accounts is executed between a settlement bank or a card issuance company designated by a possessor of the debit or credit card and traders on the internet by using only information data of the prepaid

card. In the case, the debit or credit card information are not transmitted through the internet and high security can be readily realized in the electronic commerce.

In a prepaid card settlement system concerning to the present invention, first of all, the debit or credit card is set to or insert into the ATM terminal of a settlement bank capable of using the debit or credit card and then an identification number is inputted into the ATM terminal. After the ATM terminal approves the issuance of the prepaid card on the basis of the identification number, the prepaid card is issued or sold in a state available for payment within a required amount of money. The issued prepaid card records discrimination information other than the identification number of the debit or credit card. The recorded discrimination information includes at least a card number of the prepaid card, the set amount information representative of the available amount for the prepaid card and an authentication number of a person's own possessing the prepaid card. It is desirable that a discrimination number for the prepaid card is formed to include the authentication number and whole or a part of the set amount information. When an electronic commerce is executed through a cordless electronic device or a computer terminal unit set to a state capable of utilizing the internet, the settlement of accounts which occurred by doing a commercial transaction on the internet is executed by on-line processing within the amount of money of the set amount information of the prepaid card on the basis of the card number and the discrimination number of the prepaid card.

In the case, the cordless electronic device may be a cordless telephone,

a PHS or a cordless computer called a board or so. It is desirable that a computer terminal unit in a company or a personal house incorporates a reader/writer unit for prepaid card or can connect with it.

On the other hand, in a prepaid card settlement system concerning to the present invention, the prepaid card does not have information of the debit or credit card such as the identification number thereof, the number of the account to be settled or the like. Accordingly, it is not required in general that information of the prepaid card is read out by the reader/writer unit. For example, a card number of the prepaid card and a discrimination number of the prepaid card can be inputted by dial buttons of cordless telephone or ten keys of computer terminal unit to execute the settlement.

The most important constituent element in the present invention is that the prepaid card does not record the amount of money functioning as cash but record the set amount information which is an available amount information in order to achieve high security of the electronic commerce.

That is to say, in the settlement of amount which occurred by doing the electronic commerce on the internet, a settlement amount data to be settled by the prepaid card is transmitted from an internet service provider and/or a trader who receives money on the internet to a settlement bank which issued the prepaid card or a company which issued the credit card. The settlement bank and/or the credit card issuance company transfers the amount of money to an account designated by the internet service provider and/or the trader on the basis of the settlement amount data.

In a processing on the prepaid card for settling a charge or a price which occurred on the internet by using the prepaid card in which the set

amount information is registered, the reader/writer unit for the prepaid card subtracts an amount corresponding to the price or the charge from the set amount information concerning to the amount of money of the prepaid and then the reader/writer unit records a balance after subtracted in the prepaid card. If the balance of the prepaid card is in short, the computer terminal unit or the internet service provider executes a processing for disabling the connection with the internet.

Further, the available amount of money or the set amount information registered in the prepaid card is kept within a limit of amount given consent of the debit card settlement bank or the credit card settlement bank designated by a person who possess a credit card and within the scope of the amount of money inputted by the debit or credit card possessor with the ATM terminal unit.

Furthermore, when a person who is going to possess a credit card requests to issue a credit card capable of issuing a prepaid card, the credit card issuance company confirms whether or not an amount of money corresponding to a required limit available for the prepaid card is in a balance of an account of the credit card settlement bank designated by the person who is going to possess the credit card, in accordance with requests of the person. If the required limit of amount is in the balance of the account, the prepaid card issuance company executes a processing for fixing the account to a state in which the credit card possessor cannot withdraw an amount of money corresponding to the required limit from the account of the possessor. Thereafter, the credit card issuance company issues a credit card capable of issuing the prepaid card.

It is desirable that the prepaid card relating to the present invention is so-called a fuse card. The fuse card comprises a first memory area for storing a fractional amount corresponding to the set amount information previously in form of fuses and some of fuses are broken in accordance with the paid amount to reduce the balance of the prepaid card, and a second magnetic memory area for storing a balance obtained by subtracting the paid amount from the last balance stored in the prepaid card. When a person purchases a prepaid card of fuse form with the ATM terminal unit, the first memory area is in a state that some of fuses are broken in accordance with card discrimination information for prepaid card. The discrimination information for the prepaid card includes or be representative of the set amount information.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a diagram for explaining a concept of the prepaid card settlement system on the internet relating to the present invention.

Fig. 2 is a schematic diagram showing an example of a prepaid card desirable for the system.

Fig. 3 is a flow chart showing operations for issuance and cancellation of the prepaid card.

Fig. 4 is a flow chart showing a procedure of settlement by the prepaid card relating to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention will be described in detail in conjunction with

one embodiment thereof by reference to the drawings.

Fig. 1 is a schematic diagram showing a concept of the prepaid card settlement system relating to the present invention. Referring to Fig.1, a reference 1 denotes a server device. 2 a database for user profile, 3 a database for a browser file storing homepages of cyber malls and others, 4 a database for link, 5 a user terminal unit, 6 a reader/writer unit for prepaid card is incorporated in or connected with the user terminal unit 5, 7 a pay site of a trader who receives money for the settlement of a charge or price occurred by a commercial transaction on the internet, A reference B denotes a settlement post office, a settlement bank or a credit card issuance company (hereinafter called a settlement bank B) in which cash can be withdrawn by a debit card or a credit card. The settlement bank B is equipped with an ATM terminal unit D having not only a cash withdrawal function as the ATM but also a prepaid card issuance function. Of course, such an ATM terminal unit may be installed at a place other than places in the settlement bank. The prepaid card P can be issued by the ATM terminal unit through which the settlement bank may be used, by using the debit card or the credit card C whose an approval procedure as mentioned later is completed.

The debit card is possessed by a person having an account in the settlement bank B and a certain deposit in the account. On the other hand, the credit card C is issued by the settlement bank B on the basis of a request of a person who wishes to possess it. The credit card can record not only usual information necessary for identification number, a credit card number and others but also set amount information representative of the limit

amount available for the prepaid card.

A person who is going to possess a credit card previously reports a required limit of amount available for the prepaid card to a card settlement bank B designated by the person own. The settlement bank B issues a credit card C by which a prepaid card P can be issued on the basis of the application. In the debit card, the debit card possessor can determine the limits of amount available for the prepaid card within a balance of the account of the credit card possessor in the settlement bank B.

Furthermore, with regard to the credit card C, the credit card issuance company confirms, before a credit card is issued, whether or not an amount corresponding to a required limit of amount available for the prepaid card is within a balance of an account of the credit card settlement bank B designated by a person who is going to possess a credit card, on the basis of an application of the person. If the required limit of account is within the balance, the prepaid card issuance company executes, under agreement between the person who is going to possess a credit card and the settlement bank B, a processing for fixing the account to a state in which the credit card possessor cannot withdraw an amount of money so that the balance of the account is not less than the required limit of amount. Thereafter, the credit card issuance company issues a credit card C for the person.

Putting the above system in practice, the system can prevent it from being impossible to execute payment of the amount to be paid from the account in the settlement bank B by reason of short balance of the account. As a result, it can surely prevent trouble on procedures for executing payment of the amount to be paid by the above credit card C from the

account. On the other hand, in the debit card, the predetermined limits of amount available for the prepaid card is within the balance deposited in the account of the debit card possessor. After the limits of amount is registered, it is impossible to withdraw from the account so money that the balance is less than the limits of amount, so far as the register of the limits of amount is not cancelled. Therefore, the system can surely prevent it from being impossible to pay the account to be paid due to the short balance.

The most important feature of the present invention is not only to function as conventional security programs for preventing forgery or debasement of the debit or credit card, but also to additionally function as a new security program concerning to the set amount information whose the limits of amount is determined by the debit or credit card possessor own.

That is to say, when the prepaid card is purchased by using the debit card or the credit card C by means of the ATM terminal unit D, the possessor of the debit or credit card inputs the set amount representative of a limit amount available for the prepaid card. The available amount is an optional amount determined by the possessor own within the limits of amount. The set amount information indicates the limit amount available for the prepaid card and therefore the set amount information can function as security information which is not known by any persons other than the settlement bank B and the possessor of the debit or credit card. Accordingly, if the prepaid card whose discrimination number includes a part or whole of the set amount information is used for electronic commerce, it is very difficult to do forgery or debasement of the debit card, the credit card or the prepaid card. Therefore, the system can achieve an electronic settlement whose the

security is a very high. If the prepaid card is formed by a fuse card, a plurality of fuses in the fuse card are broken according to the card number, the set amount information or a discrimination number for the prepaid card. Thereafter, the prepaid card is issued. By doing so, a very high security can be achieved. Further, the prepaid card P may be issued by the ATM terminal unit itself, but the prepaid card may be issued by a prepaid card issuance machine installed in adjacent to the ATM terminal unit and linked with the ATM terminal unit

Next, referring to Fig. 3, the explanation is made about the issuance and cancellation of the prepaid card in the ATM terminal unit

Referring to Fig. 3, the program of the ATM terminal unit starts and at a step 31 a menu for transactions is displayed on a screen of the ATM terminal unit. The menu of transactions includes not only "deposit", "withdrawal", "transfer" and others which are usual transaction terms at the ATM terminal unit but also "issuance or cancellation of prepaid card" relating to the present invention. At a step 32, if a user selects the term "issuance or cancellation of prepaid card", the display is changed into a guide display necessary for transactions concerning the issuance or cancellation of the prepaid card. At a step 33, a debit or credit card is inserted into a slot of the ATM terminal unit in accordance with the guide display and the user inputs a user's identification number. At a step 34, a guide for selecting the issuance or the cancellation of the prepaid card is displayed on the screen. At the time, if the user selects the term "issuance", at a step 35, a balance of the user's bank account is displayed on the screen. The user, at a step 36, inputs a set amount the user determines as a limit of amount available for

the prepaid card within the balance and further inputs an authentication number of the prepaid card for the user's own. As a result, in a step 37, the ATM terminal unit displays the user's bank account, the name, the set amount, the discrimination number, the prepaid card number and others on the screen.

It is desirable that the discrimination number for the prepaid card is formed to include the authentication number and whole or a part of the set amount. Further, the prepaid card number includes information representative of the user's bank, the user's bank account, the user's name and others.

At a step 38, the user determines whether or not the prepaid card should be issued, after the user confirms the information displayed on the screen. If the user selects "no issue" here, the program is returned to the step 31 and then the user may repeat the above operation. If the user selects "issue" at the step 38, in a step 39 the set amount is fixed to a state that the user cannot withdraw cash corresponding to the set amount from the user's bank account, that is to say, in the state that the balance of the user's bank account cannot become smaller than the set amount.

Thereafter, at a step 40, the prepaid card is issued and at the same time the information displayed at the step 37 is printed out in response to the user's demand and then the program is ended.

The above explanation is made as to the case in which the prepaid card is issued utilizing the debit card. On the other hand, in case the prepaid card is issued utilizing the credit card, the user's bank account has been already fixed to the state that the user cannot withdraw the amount

corresponding to the limits of amount available for the prepaid card from the account, when the credit card was issued. Accordingly, the step 39 in Fig. 3 is skipped as shown by a broken line. Further, a plurality of prepaid cards can be issued if the sum of the set amounts of the issued prepaid cards is within the limits of amount available for the prepaid card to which the account is fixed.

When the issued prepaid card is cancelled, at a step 34 in Fig. 3, the user selects the term "cancellation" and then at a step 41 the prepaid card to be cancelled is inserted into the slot of the ATM terminal unit, as a result, the ATM terminal unit displays the card number, the set amount, the balance and others of the prepaid card on the screen at a step 42. The user, at a step 43, determines as to whether or not the prepaid card should be cancelled after the user confirms the information displayed on the screen. If the user selects the term "cancellation" here, at a step 44 the prepaid card is taken in the ATM terminal unit and the fixed state for set amount of the user's bank account is released to be able to freely withdraw the balance of the user's bank account and thereafter the program is ended. On the other hand, if the user selects the term "not cancellation" at the step 43, the program proceeds to a step 45 and there the prepaid card is returned at the slot and then the program is ended.

As mentioned above, the prepaid card P issued in the above manner has a bank number, a branch number of the bank, a number of the ATM terminal unit, a sequential number of the prepaid card and others, but the prepaid card never have the identification number relating to the debit or credit card of the card possessor and the personal information of the user's

bank account of the settlement bank or the like.

At the step 33 in Fig. 3, the ATM terminal unit D of the settlement bank B or the other ATM terminal unit available for the prepaid card transmits information (called approval information hereinafter) necessary for formal usage approval such as the identification number and others of the debit or credit card to the settlement bank. Accordingly, the settlement bank B confirms the approval information and then confirms as to whether or not the set amount inputted in the ATM terminal unit for purchasing the prepaid card is within the scope of the amount capable of withdrawing from the user's bank account. If the inputted set amount is within the scope, the ATM terminal unit issues a prepaid card P in accordance with a procedure described the above.

The prepaid card P issued in the above manner can be used for the electronic settlement by using the reader/writer unit 6 for prepaid card in the user terminal unit 5. Since the prepaid card is designed not to store the information such as the identification number and the settlement account information and others of the debit or credit card, in general it is not necessarily require to read out information of the prepaid card by using the reader/writer unit. For example, the information such as a card number and an discrimination number for the prepaid card may be inputted by a hand with ten key of the computer terminal unit to perform the settlement of account. Such information may be inputted by dial keys of the cordless telephone or the like to perform the settlement of account.

In one embodiment of a computer network relating to the present invention as shown in Fig. 1, a server computer device (hereinafter called a

server) is always connected with the internet.

The server 1 comprises a database 2 for user profile, a database 3 for browser file and a database 4 for link.

The database 2 for user profile stores not only plural user's names and passwords but also frequency of accesses for the browser file or access log every user in connection with the user's name and the password.

The database 3 for browser file is used for storing advertisement and catalogue of goods and the like dealing in a plurality of companies and/or cyber moles as a browser file. The browser file may be a text format, but it is desirable that it is formed by hypertext format, because each file can be formed to be linked with a voice, a picture and/or a moving picture.

The database 4 for link is used for previously storing information of pay sites linked to make it possible to settle an account with an custodian of the server 1. In order to make it possible, the server 1 has a search engine for searching sites to be linked by the database 4 for link and a settlement program for performing the settlement with a linked site.

The settlement program has a function for storing frequency of accesses by adding an increment when an access is made to a browser file through the network, a function for permitting to search pay sites after the adding processing is completed, a function for performing an electronic settlement when some goods are purchased on the browser files, and a function for executing a processing for subtracting and storing frequency corresponding to frequency of accesses. The server 1 is constructed to execute the above functions and execute the electronic settlement between pay sites to be settled and the user terminal 5.

It is explained how to execute the electronic settlement as to cases that goods are purchased on the network. First of all, the user purchases the prepaid card P at the ATM terminal unit in the manner as mentioned above. Thereafter, the user sets the prepaid card in the reader/writer unit 6 attached to the user terminal 5 (a computer terminal installed in a company or home and the like or mobile electronic device such as codeless telephone and the like) to be used by the user. Otherwise the information for exclusive use of the prepaid card such as the prepaid card number and the like is manually inputted into the computer terminal by using the ten key or into the wireless telephone and the like by using the dial keys.

One embodiment of the electronic commerce in which the prepaid card is used is explained in reference to Figs. 1 and 4. First, the user accesses the server 1 by means of the user terminal 5 through the internet. As a result, the server 1 returns a file for reply to the user terminal 5 to cause the user terminal 5 to display a homepage for new registration by the WWW browser of the server. The homepage is a page for making a new registration, for making a link with the browser pages and for inputting a registered user's name and password.

In case the new registration is to be performed, the term "registration of user" is clicked to proceed to a page for registration. In the page for registration, the user inputs an address, a name, a prepaid card number, a discrimination number of the prepaid card and the like and then the user fills a questionnaire in accordance with requirements (step 50). The server 1 registers data inputted by the user in the database 2 for user profile and gives the user a suitable name and a password for log-in to the

database for the user profile. By doing so, the user can proceed to the browser file pages. The above operation is performed every new prepaid card.

On the other hand, in case the user has been already registered, the user inputs the user's name and password for log-in in the homepage and then clicks "OK" button. As a result, the data concerning to the user is transmitted to the server 1 and then the user's name and password are confirmed at the server 1. When the user's name and password are confirmed to be correct, the user proceeds to the page of the browser file.

The user sees the browser file page and then proceeds to the retrieval of a link for a pay site. That is to say, if the user clicks "pay site" in the browser page, the user can proceed to a retrieval page. In the retrieval page, there are some buttons allotted for types. The user can retrieve a link for the user's favorite site by the buttons. Accordingly, when the user clicks a button corresponding to the user's favorite type, a link page corresponding to the clicked button is retrieved from the database 4 for link and then can have a look at a table of the linked pay site list.

This linked pay site list indicates not only the name and URL of the linked page but also goods and prices thereof.

Accordingly, for example, if the user clicks a name of a pay site to be linked and name or names of goods and then clicks a button for determining to purchase the goods. The fact of the determination is transmitted to the server 1 (step 51). As a result, the server 1 transmits the name or names of the purchased goods and the prices of them to the database 2 for user every user to memorize data of them in the database 2 for user.

When the user addresses to purchase some goods in the above manner, at a step 52, the server 1 puts together data composed of user information, goods information including purchased goods code numbers, the names and prices of the purchased goods and quantities thereof and the like, and transfer account information for the trader and others, on the basis of information from the user profile 2 and the browser profile 3. At a step 53, it is checked whether or not all data necessary for the electronic commerce are put together. If the result of the check is "NO", the program is returned to the step 52, but if the result of the check is "YES", at a step 54, the server 1 transmits an intensive data including the purchase price data to the settlement bank B, the pay site 7 and the user terminal 5.

In the user terminal 5, the user checks via the pay site 7 as to whether or not the balance of the set amount of the prepaid card is larger than the purchase price on the basis of information instructed by the server 1 (step 56). Thereafter, the user terminal 5 performs a processing for subtracting the amount corresponding to the purchase price from the credit grant balance of the set amount (step 57). The user terminal 5 transmits the subtracting processing information to the server 1 and the settlement bank for executing a processing for approving the electronic commerce.

When the server 1 receives the subtracting processing information transmitted from the user terminal 5, the server 1 puts together the subtracting processing information as approval information at a step 52 and then transmits the approval information together with the name of the user, the prepaid card number and the like to the settlement bank B as an intensive information.

On the other hand, the settlement bank B, at a step 60, receives the intensive data transmitted from the server 1 and then, at a step 61, collates the intensive data with the prepaid card number, the name of the user's bank, the branch's name of the bank, the number of the user's account, the set amount, the balance and the like of the user previously stored in a personal information file 62. At a step 63, if the collation is judged to be improper, impossible information for settlement is made at a step 64 and then the impossible information for settlement is transmitted to the server 1. As a result, the server 1 executes a processing for failing the transaction (step 65).

At the step 63, if the collation is judged to be proper, a transfer file is formed at a step 66 and then, at a step 67, terms such as a transfer account and the like necessary for transfer are checked by referring to transfer information and the approval information included in the intensive data. At a step 68, as a result of the check, if the transfer processing is denied, the processing proceeds to the step 64 to execute the impossible processing for settlement. On the other hand, at the step 68, if the transfer processing is approved, the processing proceeds to a step 69 to execute the transfer processing. Thereafter, at a step 70, the settlement information indicating that the transfer processing has been completed is transmitted to the server 1. At a step 71, the server 1 receives the settlement information and instructs the pay site (store) 7 to ship the purchased goods. In the pay site (store), when the settlement information and the goods information to be shipped are transmitted from the server 1, a processing for shipping the purchased goods is started.

As mentioned above, the settlement bank B confirms as to whether or not the prepaid card is used in proper on the basis of the settlement data transmitted from the server 1. If the transaction by the prepaid card is proper, the settlement bank executes the settlement processing within the scope of the limit of amount available for payment by the prepaid card. That is to say, the settlement bank B transfers the amount of money corresponding to the purchase price (The amount may includes a service fee and the like for the settlement bank or the trader on the internet.) to a bank account designated by the trader in the pay site. Whereby a series of settlement processing is completed.

The prepaid card settlement system on the internet relating to the above embodiment is constructed as mentioned above. Accordingly, it is not feared that the personal information such as an identification number or a card number of the debit card or the credit card is leaked on the internet. As a result, on the internet in which the secret of communication is not guaranteed, it is not feared that the debit card or the credit card is used in improper by the forgery or debasement. The safe electronic commerce can be achieved. This is epoch-making effects and advantages the present invention can achieve.

Further, in the above embodiment, in case the prepaid card is issued by using the credit card, the set amount information is determined by application of the person who is going to possess the credit card, but the present invention is not limited to the case. The set amount information may be determined by the credit card issuance company within the scope of an amount available for credit card designated by the credit card issuance

company on the basis of an examination of the application contents by the person who applies the issuance of the credit card.

Furthermore, in the present invention, conventional magnetic cards or IC cards may be adopted as prepaid cards P, but it is desirable that fuse cards as shown in Fig. 2 are adopted as prepaid cards, in order to surely prevent forgery or debasement of the prepaid cards. The fuse card is also called a capacitive card.

In the fuse card, fuses are cut in accordance with a paid amount to store a rough amount. That is to say, the fuse card includes a first memory area 24 for storing rough amount of the balance after payment of a price or a charge by using the fuse card, and a second memory area 22 for previously storing a set amount (for example, five thousand yen) and for changeably storing the balance.

The fuse card includes capacitive memory area as the first memory area 24. In the capacitive memory area, data is memorized by a state in which some of fuses are cut. The capacitive memory area includes, on one surface thereof, a plurality of first electrodes arranged in a row to correspond to arrangement of input/output terminal electrodes on the reader/writer and a second electrode having a longitudinal shape arranged in parallel to the row of the first electrodes. The first electrodes and the second electrode are connected by fuses, respectively. In case the fuses are not cut, electric current freely flows between the first electrodes and the second electrode through the fuses, respectively, since the fuses has a very small resistance value. In case a fuse is cut, the electric current flowing through the cut fuse is sharply reduced, since the cut fuse has very large resistance value.

In the above circuit of fuses and electrodes, a required voltage (12-16 volts) is applied to a fuse so that a large electric current flows through the fuse to cut off the fuse. As a result, the fuse becomes spent. Fuses which are not cut functions as unused closed circuits and one closed circuit gives one bit of digital data. Accordingly, the closed circuits are optionally formed to store a required amount data in the first memory area.

Further, the first memory area 24 may be not only a capacitive memory area but also an IC memory area accommodated in the fuse card P for electrically storing data, a magnetic memory area using a magnetic recording track positioned in the card P or on the surface of the card P, or other conventional memory means. It is generally desirable to adopt the capacitive memory area in order to prevent the prepaid card from being forged or altered.

On the other hand, the second memory area 22 comprises magnetic tracks in accordance with storage capacity. In the embodiment, the magnetic memory area constructing the second memory area 22 is formed by applying thermoplasticity thermal recording material like plastic to the prepaid card.

In the fuse card relating to the present invention, the rough amount omitting a fraction of the balance is stored in the first memory area 24, but not only an identification number or a personal information of the user possessing the fuse card but also data relating to a source of the debit card D are not at all stored in the prepaid card.

Further, in the above embodiments in the present invention, the explanation is made about an example in which the set amount information

available for payment is stored in the prepaid card, but the present invention is not limited to the above embodiment. The prepaid card may store an amount of money itself available for payment of price or charge, as a conventional prepaid card.

Furthermore, in the prepaid card relating to the present invention, the user can exchange the prepaid card for cash. The prepaid card in which a balance is recorded is inserted into the ATM terminal unit installed in the bank (The bank includes a settlement bank for the credit card) at which the prepaid card is purchased. At the same time, the debit or credit card also is inserted into the ATM terminal unit. Thereafter, if the identification number is inputted to the ATM terminal unit and if the identification number is proper, the user can withdraw money from the user's account as to the balance of the set amount of the prepaid card.

Thereafter, of course, the prepaid card is processed in invalid state. Accordingly, the prepaid cards are improved not only in security thereof but also in utility and convenience thereof.

As mentioned above, in the present invention, the settlement of a price or a charge occurring in using the internet is performed by using a computer terminal or a doceless telephone and the like. In the settlement on the internet, a debit or credit card is not used as a card for settlement. The settlement on the internet is performed by using the disposable prepaid card purchased by the debit or credit card. By doing so, , when the prepaid card is purchased, the inputted identification number is collated with the identification number recorded in the settlement band or the debit card issuance company designated by the user of the debit or credit card and it is

checked as to whether or not the debit card is a stolen or lost card, in order to avoid an unjust use of the debit card.

Further, in the present invention, places or machines for purchasing the prepaid card is limited to places or machines like the ATM terminal unit capable of withdrawing cash from accounts by using the debit or credit card, installed in banks or post offices. Accordingly, it is surely prevented that the identification number of the debit or credit card is leaked on the internet. Further, since the person who purchased the prepaid card is not required to input the identification number, the personal information like the identification number is not leaked when the person purchases goods.

In the present invention, further, the prepaid card records not the amount available for payment itself but the scope of the amount available for payment as the set amount information. The actual settlement is performed by only information data of the prepaid card between the settlement bank or the credit card issuance company designated by the person possessing the debit or credit card and the trader on the internet. Accordingly, information of the debit or credit card is not transmitted on the internet, as a result, the electronic commerce can be readily realized under a high security.

CLAIMS

1. A prepaid card settlement system on the internet for executing the settlement of a price or charge occurring on the internet by an electronic terminal unit set in a state available for the internet, said system comprising:

an ATM terminal unit issuing a prepaid card retaining set amount information relating to an amount available for the prepaid card and discrimination number information for the prepaid card other than identification information for an debit or credit card, after it is approved to use said ATM terminal unit on the basis of setting the debit or credit card and inputting a predetermined identification number for the debit or credit card;

an electronic terminal unit set in a state available for the internet for instructing to pay a price or charge occurring on the internet by the prepaid card; and

a price or charge settlement processing system for processing on-line the settlement of the price or charge occurring on the internet within an available amount determined by said set amount information on the basis of said discrimination number information for the prepaid card.

2. A prepaid card settlement system according to Claim 1, wherein said electronic terminal unit is a portable electronic terminal which is any one of a cordless telephone, a PHS telephone and a portable computer.

3. A prepaid card settlement system according to Claim 1, wherein said electronic terminal unit is a reader/writer for the prepaid card incorporated

in or connected to a computer terminal unit.

4. A prepaid card settlement system according to Claim 1, wherein said electronic terminal unit instructs an electronic settlement by inputting the discrimination number information for the prepaid card through input keys of said electronic terminal unit.

5. A prepaid card settlement system according to Claim 4, wherein said input keys are dial keys or ten keys.

6. A prepaid card settlement system according to Claim 1, wherein said discrimination number information for the prepaid card is a card number and/or an authentication number for the prepaid card.

7. A prepaid card settlement system according to Claim 1, wherein said price or charge settlement processing system including:

a first electronic device installed by an internet company or a trader for producing a price or charge settlement data on the basis of an instruction of using the prepaid card from said electronic terminal unit; and

a second electronic device for receiving said price or charge settlement data from said first electronic device and for transferring the price or charge to an account designated by said trader on the basis of said price or charge settlement data.

8. A prepaid card settlement system according to Claim 7, wherein said second electronic device executes a processing for subtracting the price or charge from said set amount information and a processing for making the settlement for the prepaid card invalid when a balance of the subtracted set amount information runs out.

9. A prepaid card settlement system according to Claim 1, wherein said

set amount information retained by the prepaid card is amount information available for settlement within a set amount a user of the debit or credit card inputs from said ATM terminal unit within the scope of a limit amount approved by the bank or company.

10. A prepaid card settlement system according to Claim 9, wherein said bank or company is a credit card settlement bank designated by the user who is going to possess the credit card.

11. A prepaid card settlement system according to Claim 10, wherein said second electronic device including:

means for confirming as to whether or not an account designated by the user who is going to possess the credit card has a balance not less than a required limit amount available for the prepaid card, when the user applies to issue the credit card; and

means for issuing the credit card capable of issuing a prepaid card after executing a processing for fixing the account in a state that a cash corresponding to the limit amount for the prepaid card cannot be withdrawn from the account.

12. A prepaid card settlement system according to Claim 1, wherein said prepaid card includes a first memory area for storing rough amount of the balance after payment of the price or a charge by cutting a part of fuses, and a second memory area for previously storing the set amount information and for changeably storing the balance, said ATM terminal unit issues the prepaid card after cutting a part of the fuses to correspond to the discrimination number information.

13. A prepaid card for paying a price or charge via an electronic terminal

unit set in a state available for the internet, said prepaid card being issued by an ATM terminal unit installed by a bank or a company in which a debit or credit card can be used after confirming a user approval by setting the debit or credit card to said ATM terminal unit and inputting a predetermined identification number in said ATM terminal unit, and said prepaid card retaining a card number for specifying a personal information memory area for the user in a personal information file of the bank or the company, set amount information relating to an amount available for the prepaid card, and an authentication number for confirming the user other than identification information for the debit or credit card.

14. A prepaid card according to Claim 13, wherein discrimination number information for the prepaid card is formed by combining said set amount information and said authentication number.

15. An apparatus for issuing a prepaid card for paying a price or charge via an electronic terminal unit set in a state available for the internet, said apparatus is managed by a bank or a company in which a debit or credit card can be used, said apparatus comprising:

means for setting said debit or credit card;

means for inputting set amount information relating to an available amount for the prepaid card, and required information including identification information for the debit or credit card;

means for confirming to set the debit or credit card to said setting means and to input the set amount information and the identification information;

means for approving issuance of the prepaid card after it is confirmed

that the set amount information falls within the scope of a balance of a user's account in the bank or the company; and

means for issuing the prepaid card retaining the set amount information relating to an amount available for the prepaid card and discrimination number information for the prepaid card other than the identification information for the debit or credit card, after said approving means approves.

16. A method for issuing a prepaid card for paying a price or charge via an electronic terminal unit set in a state available for the internet, said method comprising steps of:

setting said debit or credit card;

inputting set amount information relating to an available amount for the prepaid card, and required information including identification information for the debit or credit card;

confirming to set the debit or credit card and to input the set amount information and the identification information;

approving issuance of the prepaid card after it is confirmed that the set amount information falls within the scope of a balance of a user's account in the bank or the company; and

issuing the prepaid card retaining the set amount information relating to an amount available for the prepaid card and discrimination number information for the prepaid card other than the identification information for the debit or credit card, after said approving step approves.

17. A settlement processing apparatus for executing the settlement by a prepaid card of a price or charge occurring on the internet by using an

electronic terminal unit set in a state available for the internet, said apparatus comprising:

means for receiving card information including a card number and discrimination number information retained by the prepaid card, and data relating to amount to be paid;

means for retrieving a user's personal information file on the basis of the discrimination number information of the prepaid card to execute collation;

means for executing a processing for making the settlement impossible when the collation is improper; and

means for executing a processing for confirming requirements for transfer to a trader and transferring the price or charge to an account of the trader when the collation is proper.

18. A settlement processing method for executing the settlement by a prepaid card of a price or charge occurring on the internet by using an electronic terminal unit set in a state available for the internet, said method comprising steps of:

receiving card information including a card number and discrimination number information retained by the prepaid card, and data relating to amount to be paid;

retrieving a user's personal information file on the basis of the discrimination number information of the prepaid card to execute collation;

executing a processing for making the settlement impossible when the collation is improper; and

means for executing a processing for confirming requirements for

transfer to a trader and transferring the price or charge to an account of the trader when the collation is proper.

19. A prepaid card settlement method for executing the settlement of a price or charge occurring on the internet by using an electronic terminal unit set in a state available for the internet, said method comprising steps of:

issuing the prepaid card retaining set amount information relating to an amount available for the prepaid card and discrimination number information for the prepaid card other than identification information for a debit or credit card, after a user is approved by setting the debit or credit card to an ATM terminal unit installed by a bank or a company in which the debit or credit card can be used and inputting identification number information for the debit or credit card;

instructing to pay the price or charge occurring on the internet by the prepaid card through an electronic terminal unit set in a state available for the internet; and

executing on-line the settlement of the price or charge within the scope of an amount available for the prepaid card determined by the set amount information on the basis of the discrimination number information for the prepaid card.

FIG. 1

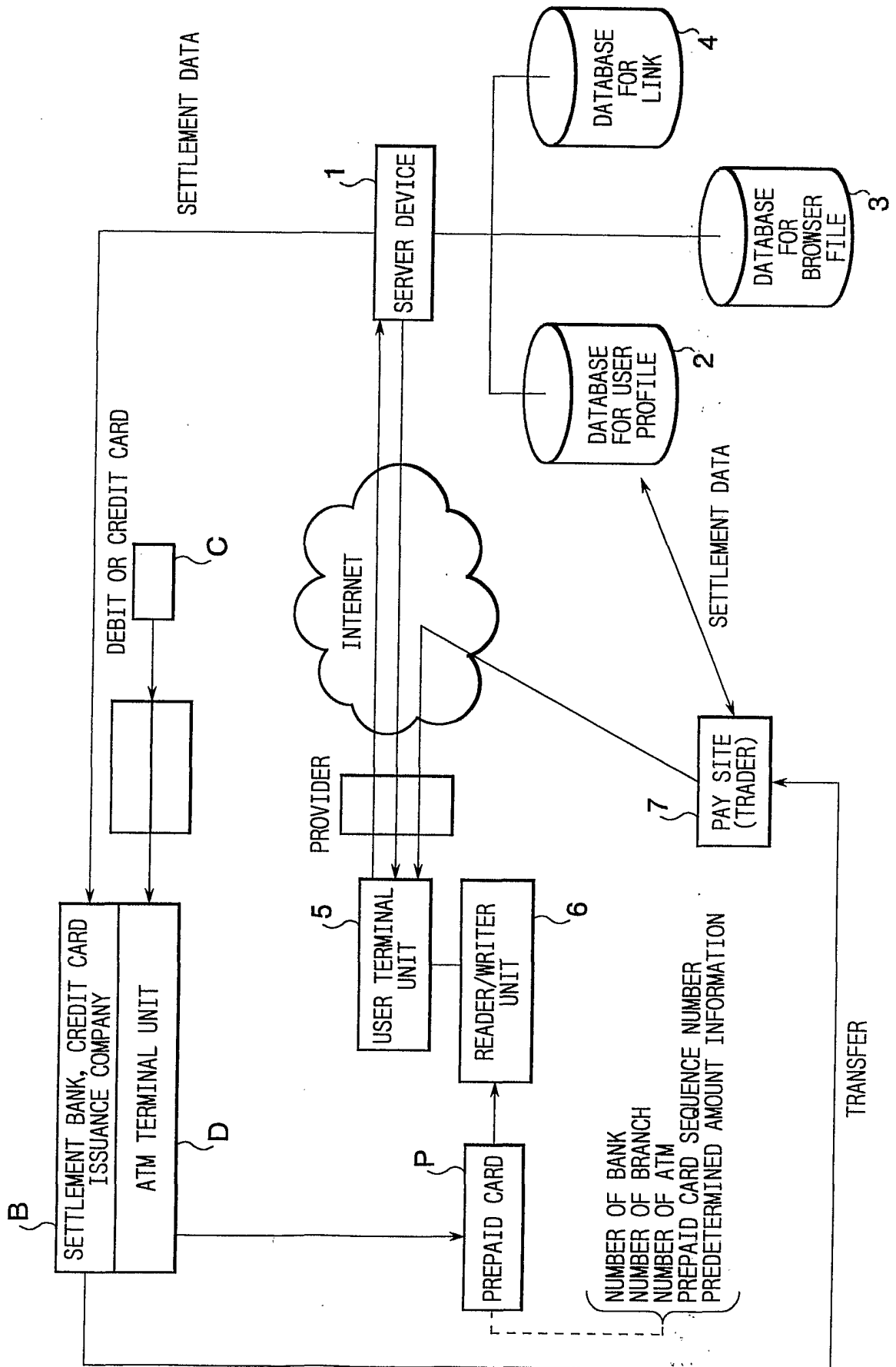


FIG. 2

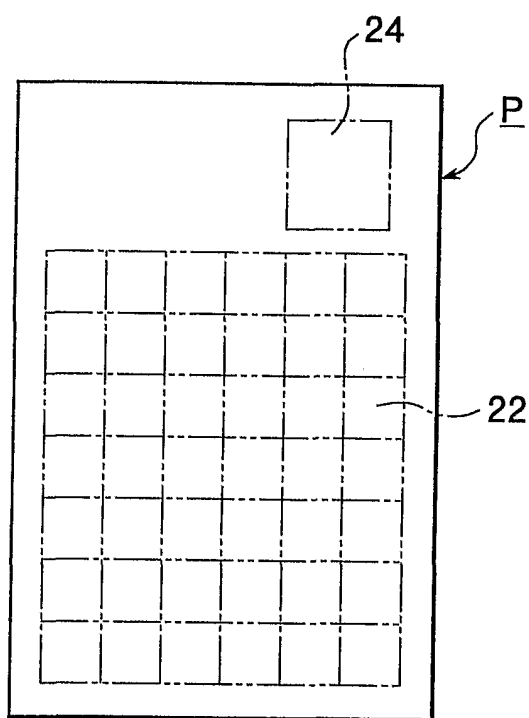


FIG. 3

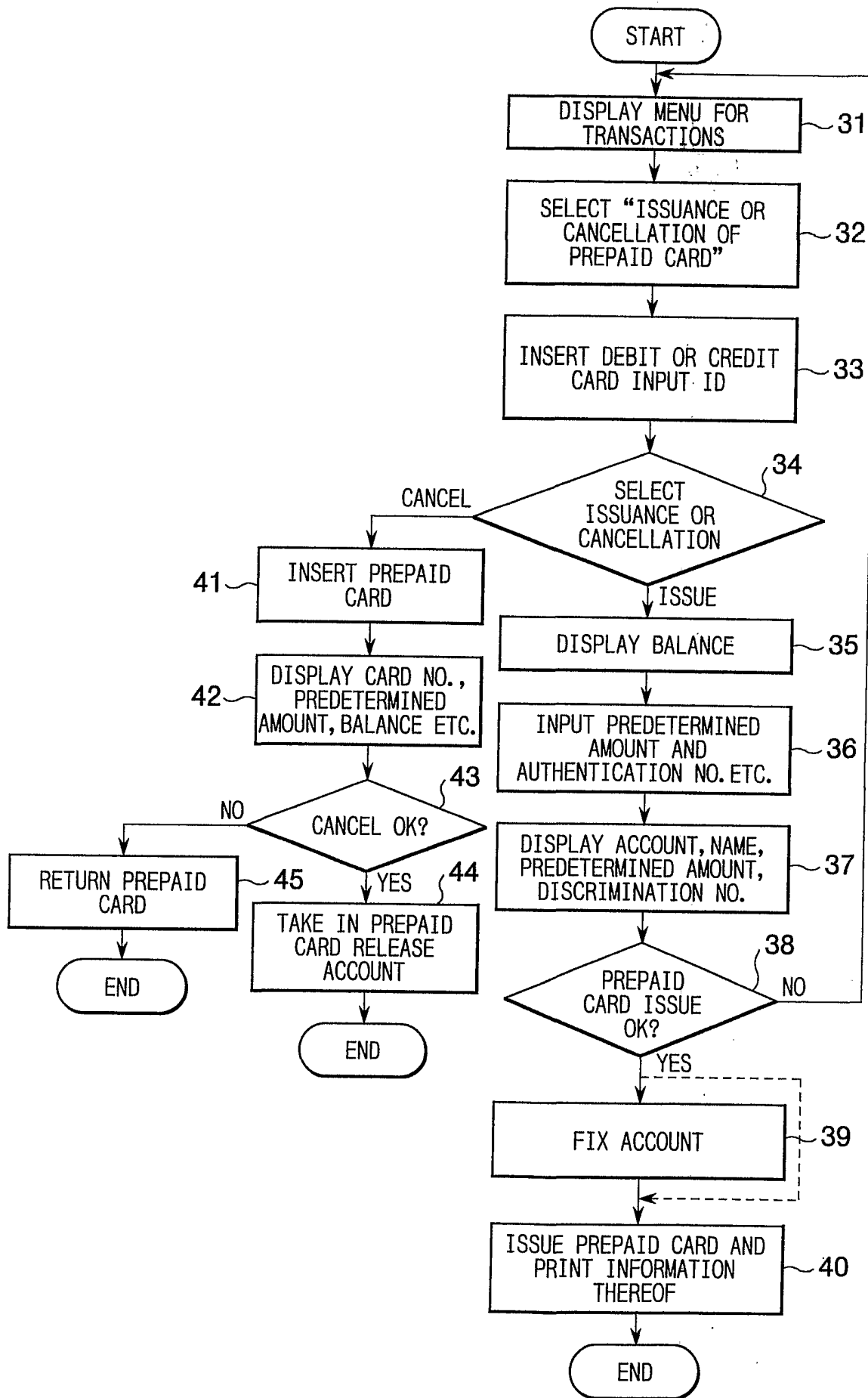


FIG. 4

