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(54) **PROCESSING PAYMENT ON THE INTERNET**

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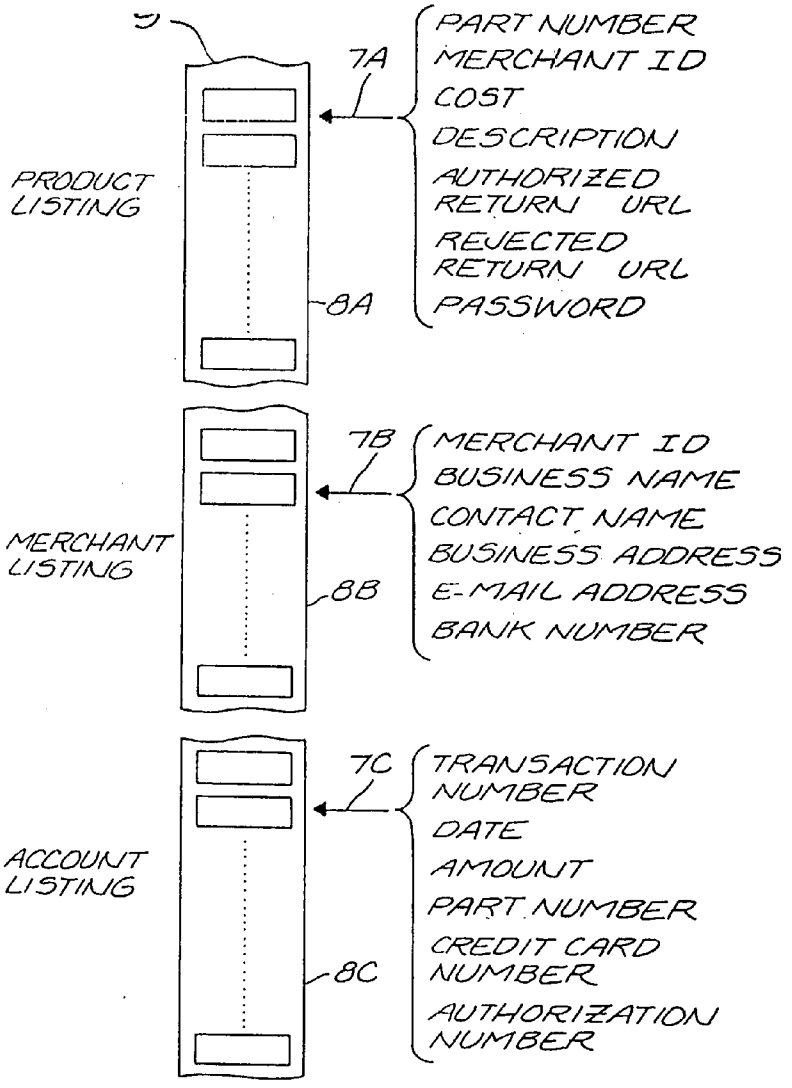
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(57) **ABSTRACT**

A method of operating a computer on a network of computers for the purpose of collecting payments due a remote computer on the network (such as the Internet). The method for payment processing includes the steps of: receiving the customer's account data and amount data; establishing an authorization indicia; and, communicating said authorization indicia to a remote computer (such as the merchant's computer) on the network.



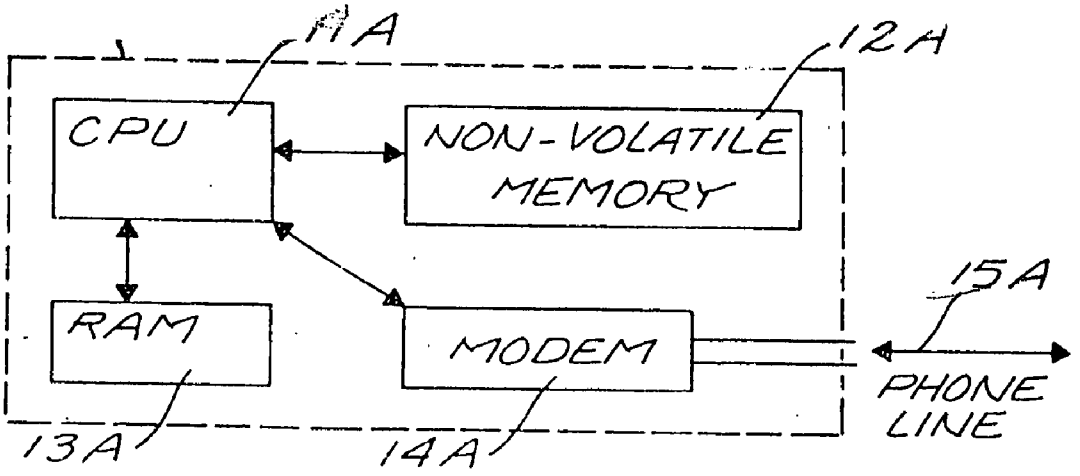

1
11A
12A
CPU
NON-VOLATILE MEMORY
RAM
MODEM
15A
PHONE LINE
13A
14A

FIG. 1A

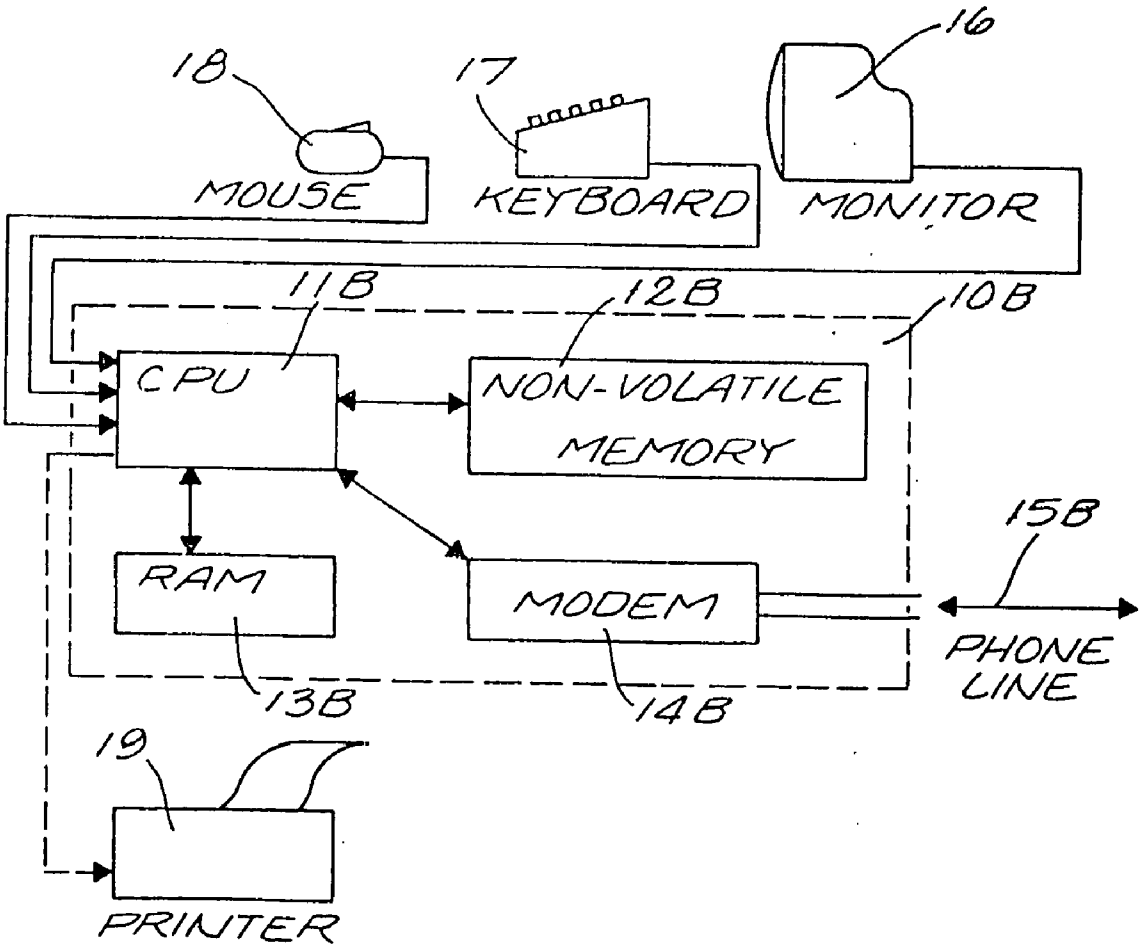

16
18
17
MOUSE
KEYBOARD
MONITOR
11B
12B
10B
CPU
NON-VOLATILE MEMORY
15B
RAM
MODEM
PHONE LINE
13B
14B
19
PRINTER

FIG. 1B

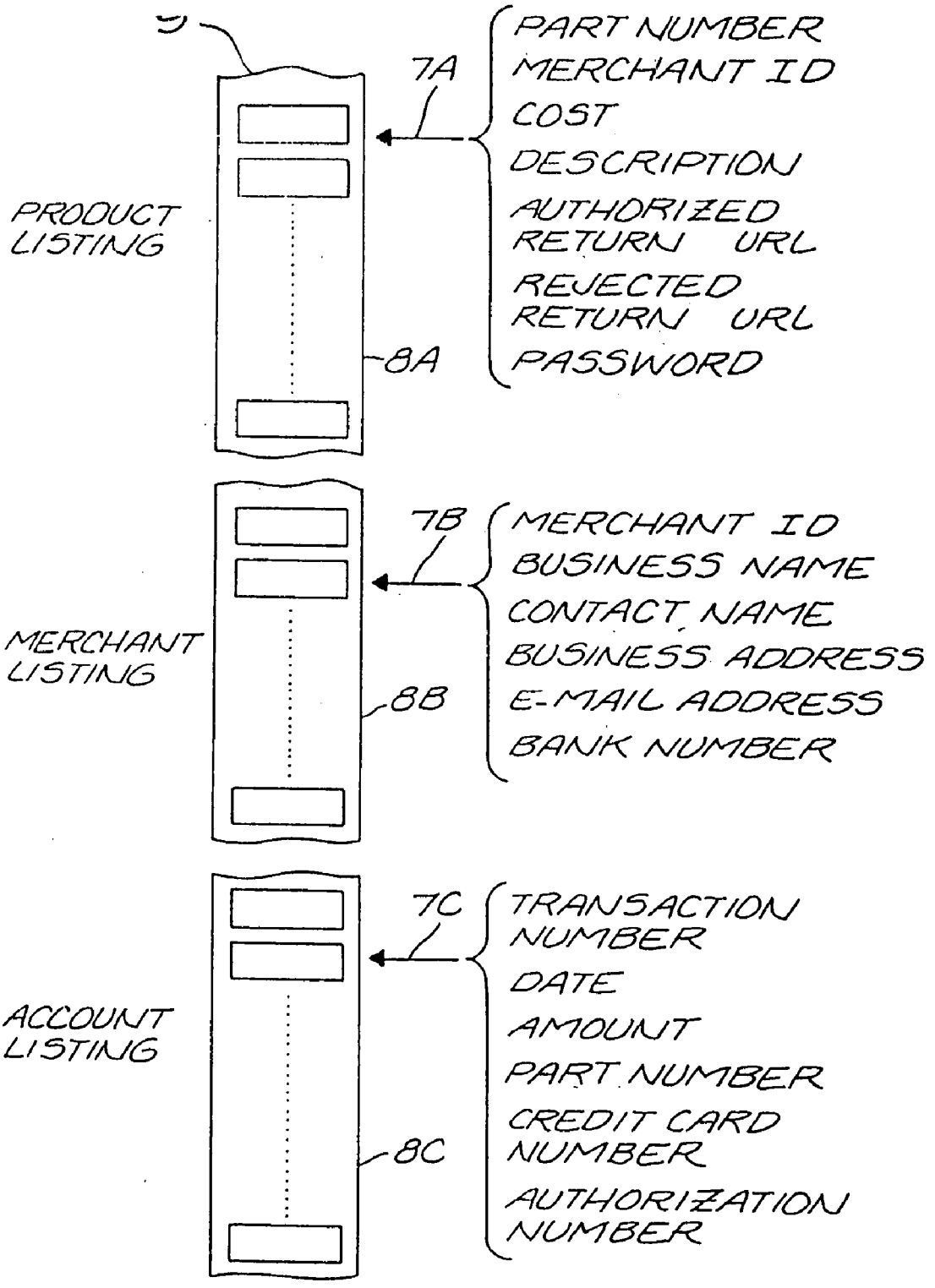

9
7A
PART NUMBER
MERCHANT ID
COST
DESCRIPTION
AUTHORIZED RETURN URL
REJECTED RETURN URL
PASSWORD
PRODUCT LISTING
8A
7B
MERCHANT ID
BUSINESS NAME
CONTACT NAME
BUSINESS ADDRESS
E-MAIL ADDRESS
BANK NUMBER
MERCHANT LISTING
8B
7C
TRANSACTION NUMBER
DATE
AMOUNT
PART NUMBER
CREDIT CARD NUMBER
AUTHORIZATION NUMBER
ACCOUNT LISTING
8C

FIG. 1C

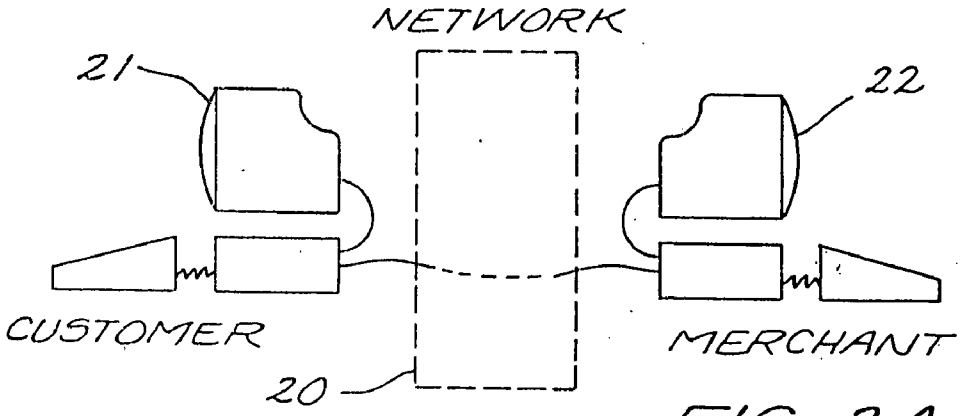


FIG. 2A

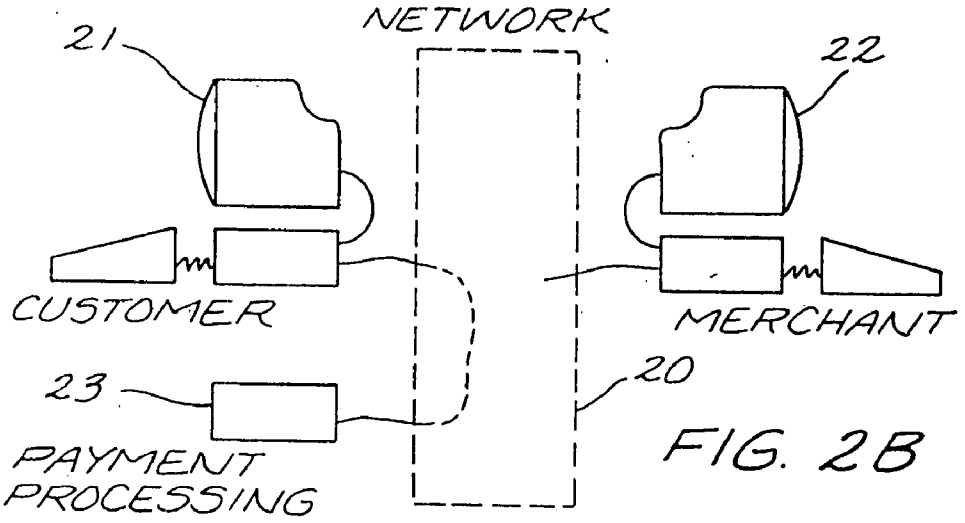


FIG. 2B

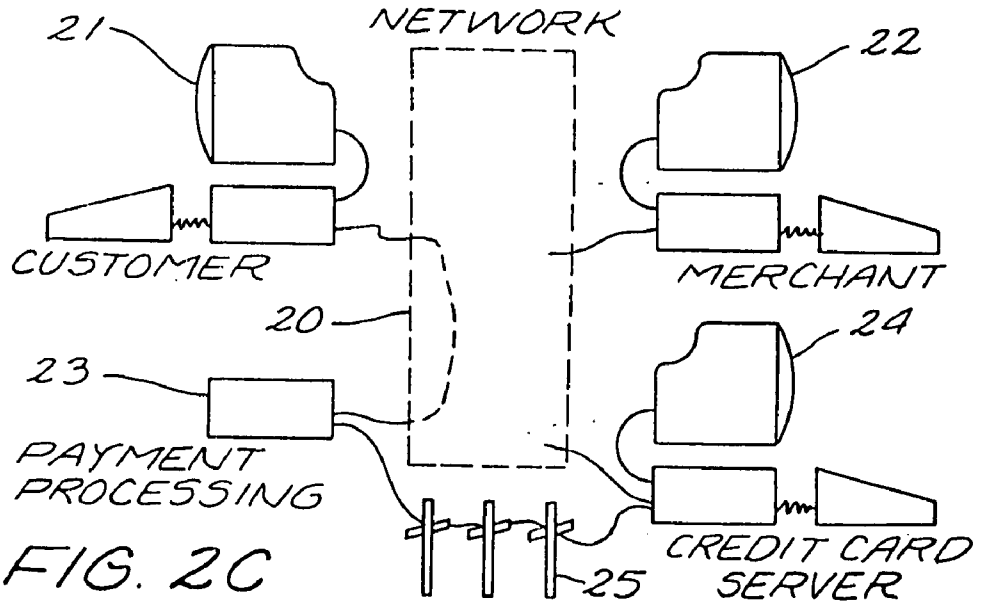


FIG. 2C

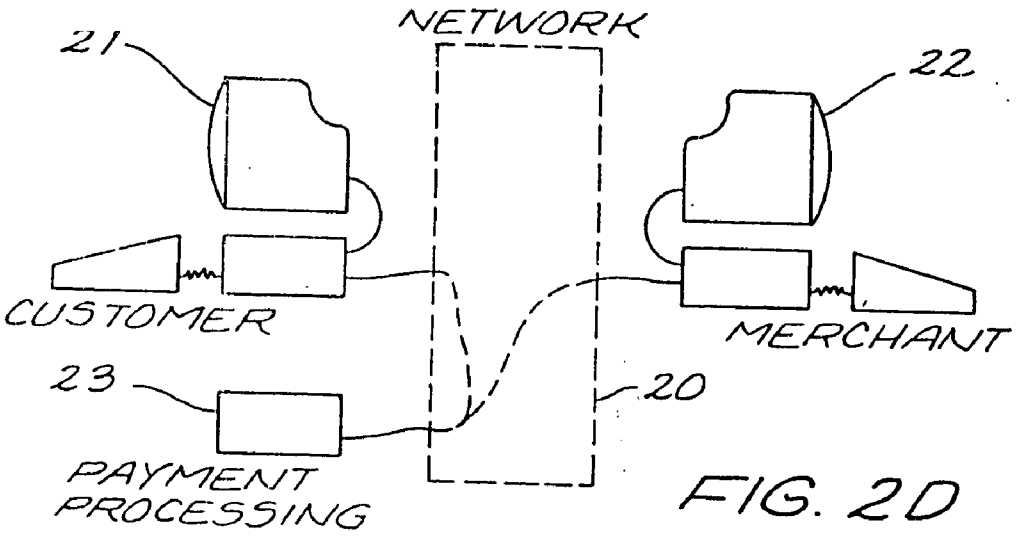
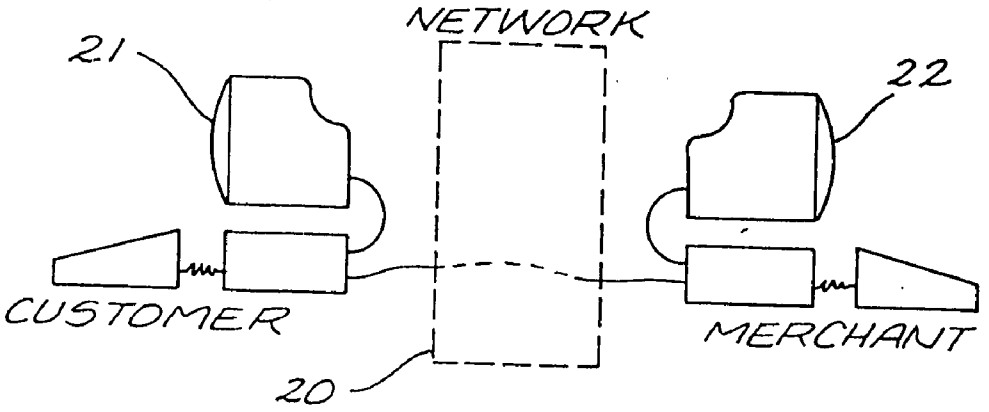

NETWORK
21
22
CUSTOMER
MERCHANT
23
20
PAYMENT
PROCESSING

FIG. 2D


NETWORK
21
22
CUSTOMER
MERCHANT
20

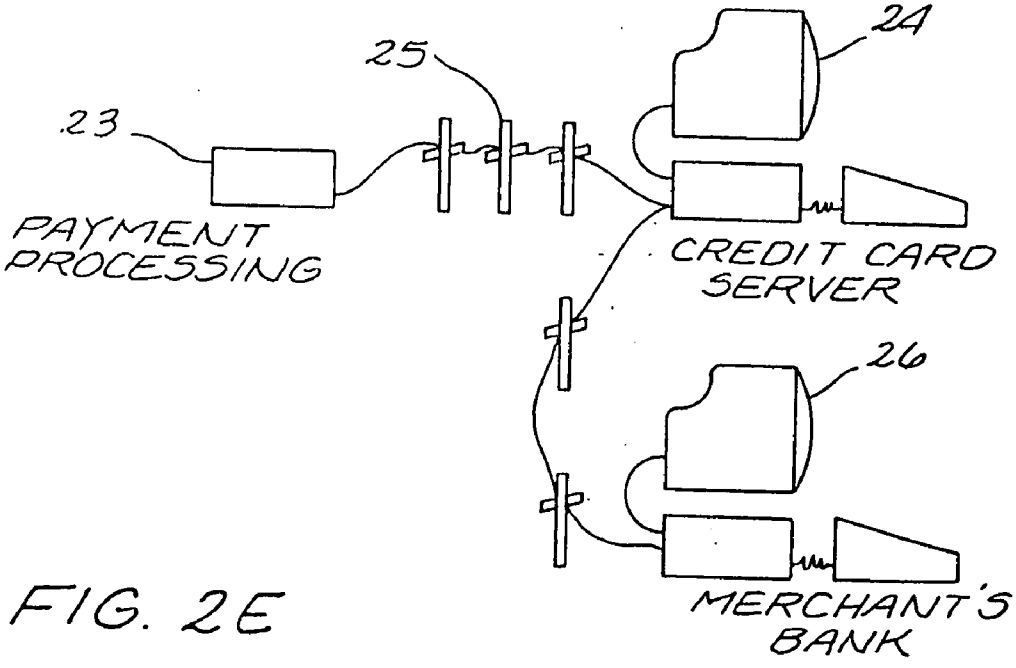

24
25
23
PAYMENT
PROCESSING
CREDIT CARD
SERVER
26
MERCHANT'S
BANK

FIG. 2E

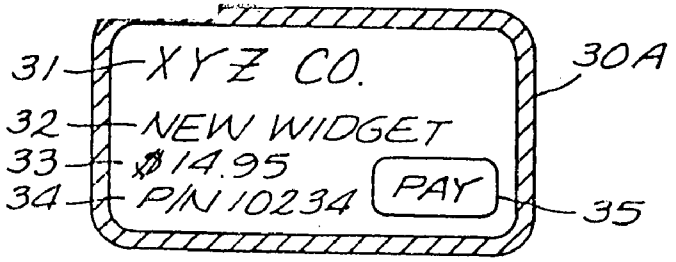


FIG. 3A

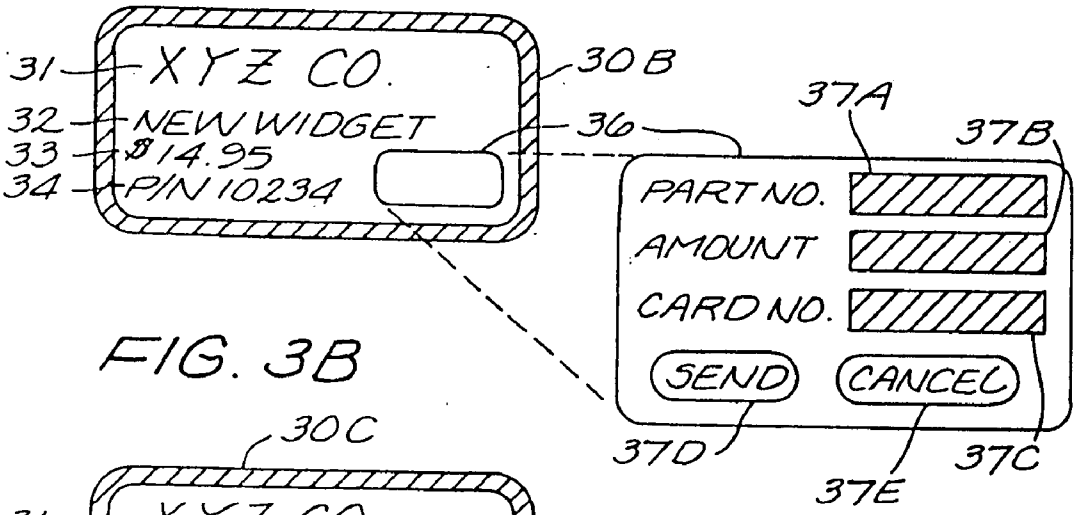


FIG. 3B

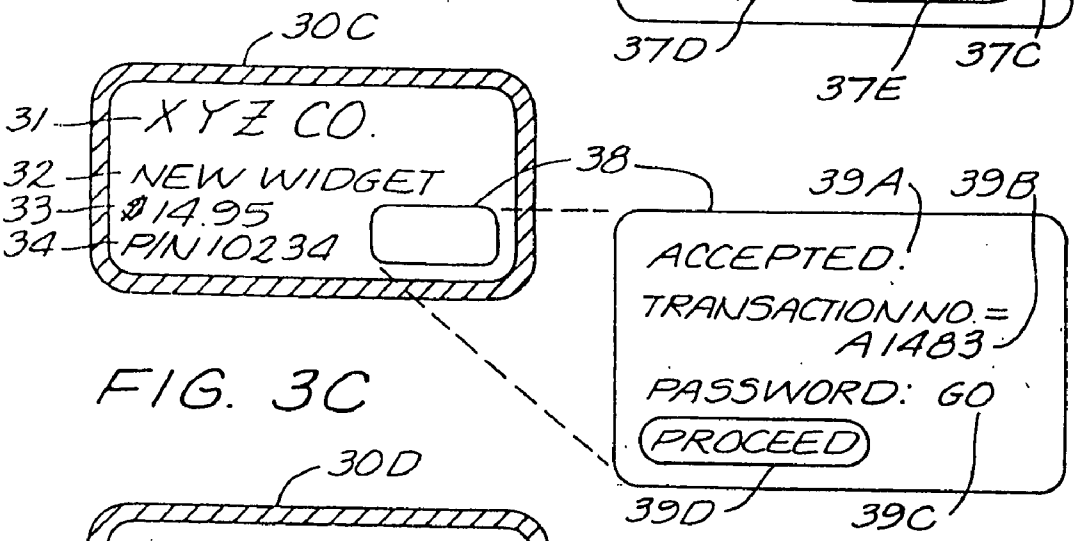


FIG. 3C

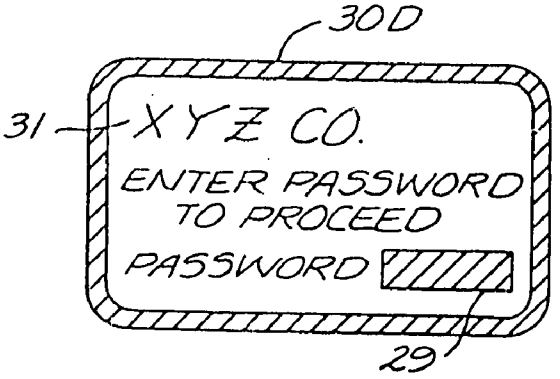


FIG. 3D

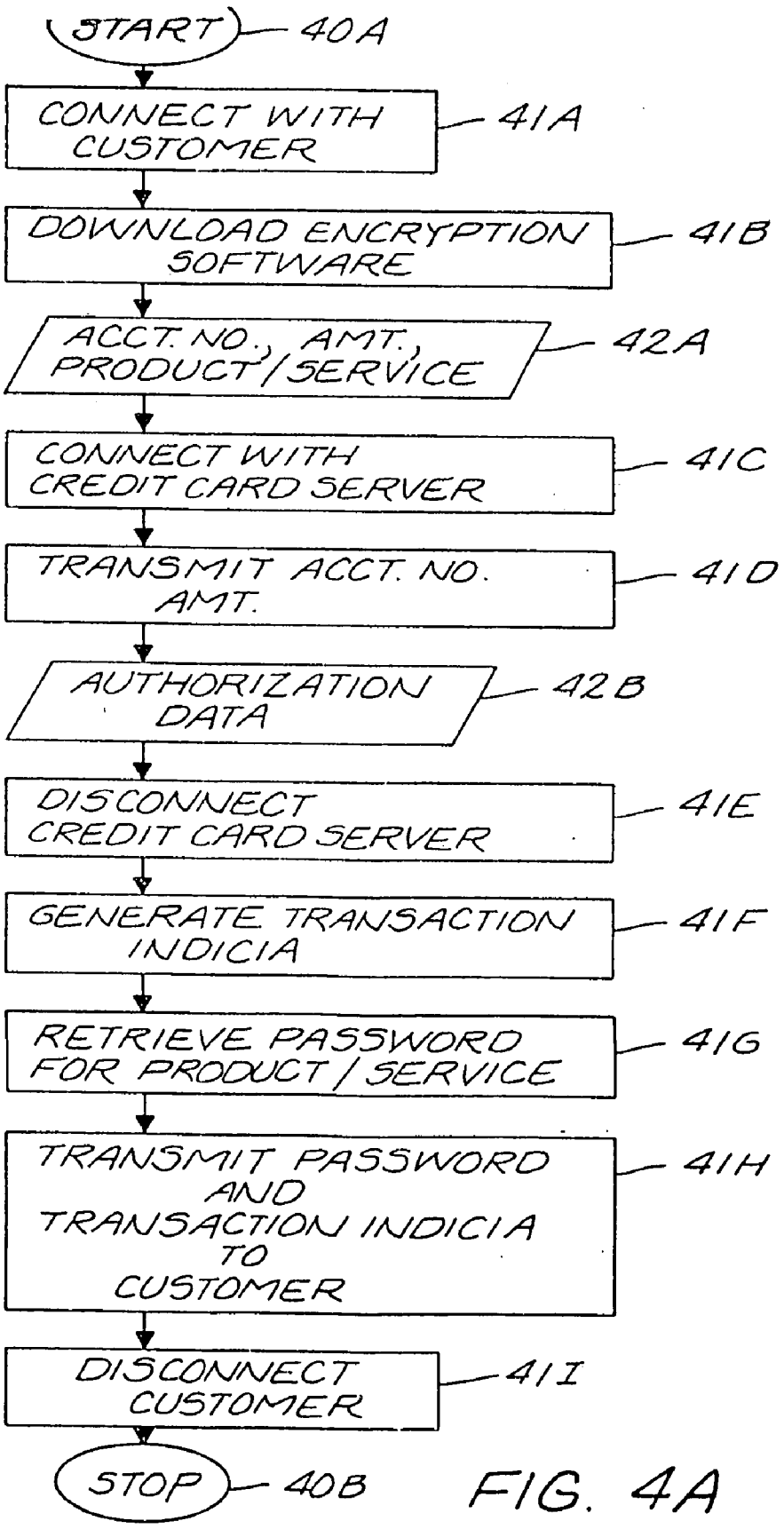
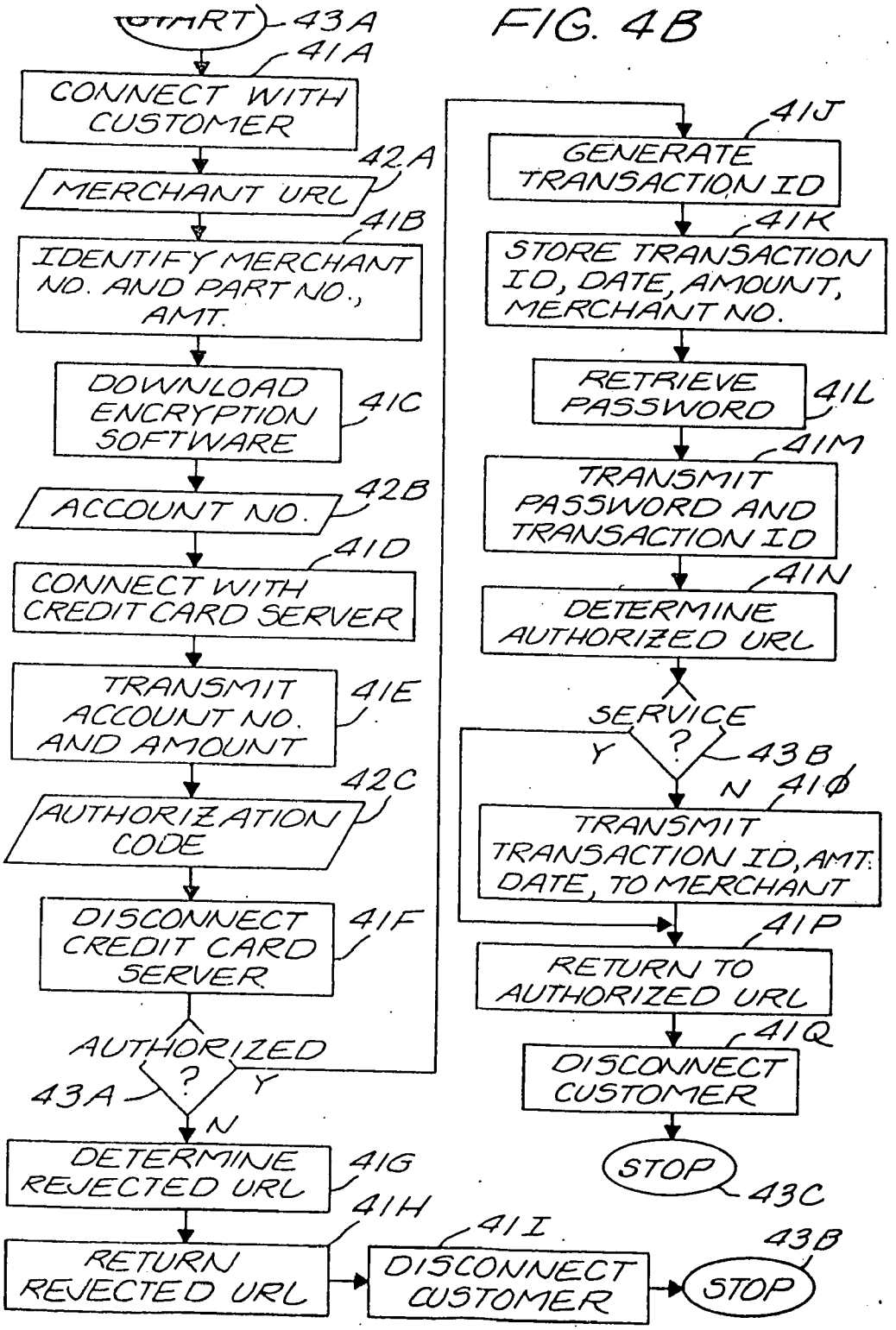

START
40A
CONNECT WITH CUSTOMER
41A
DOWNLOAD ENCRYPTION SOFTWARE
41B
ACCT. NO., AMT., PRODUCT/SERVICE
42A
CONNECT WITH CREDIT CARD SERVER
41C
TRANSMIT ACCT. NO. AMT.
41D
AUTHORIZATION DATA
42B
DISCONNECT CREDIT CARD SERVER
41E
GENERATE TRANSACTION INDICIA
41F
RETRIEVE PASSWORD FOR PRODUCT / SERVICE
41G
TRANSMIT PASSWORD AND TRANSACTION INDICIA TO CUSTOMER
41H
DISCONNECT CUSTOMER
41I
STOP
40B

FIG. 4A

FIG. 4B


START
43A
41A
CONNECT WITH CUSTOMER
42A
MERCHANT URL
41B
IDENTIFY MERCHANT NO. AND PART NO., AMT.
DOWNLOAD ENCRYPTION SOFTWARE
41C
42B
ACCOUNT NO.
41D
CONNECT WITH CREDIT CARD SERVER
TRANSMIT ACCOUNT NO. AND AMOUNT
41E
42C
AUTHORIZATION CODE
DISCONNECT CREDIT CARD SERVER
41F
AUTHORIZED ?
43A
Y
N
DETERMINE REJECTED URL
41G
41H
RETURN REJECTED URL
41I
DISCONNECT CUSTOMER
43B
STOP
41J
GENERATE TRANSACTION ID
41K
STORE TRANSACTION ID, DATE, AMOUNT, MERCHANT NO.
RETRIEVE PASSWORD
41L
41M
TRANSMIT PASSWORD AND TRANSACTION ID
41N
DETERMINE AUTHORIZED URL
SERVICE ?
Y
43B
N
41Ø
TRANSMIT TRANSACTION ID, AMT. DATE, TO MERCHANT
41P
RETURN TO AUTHORIZED URL
41Q
DISCONNECT CUSTOMER
STOP
43C

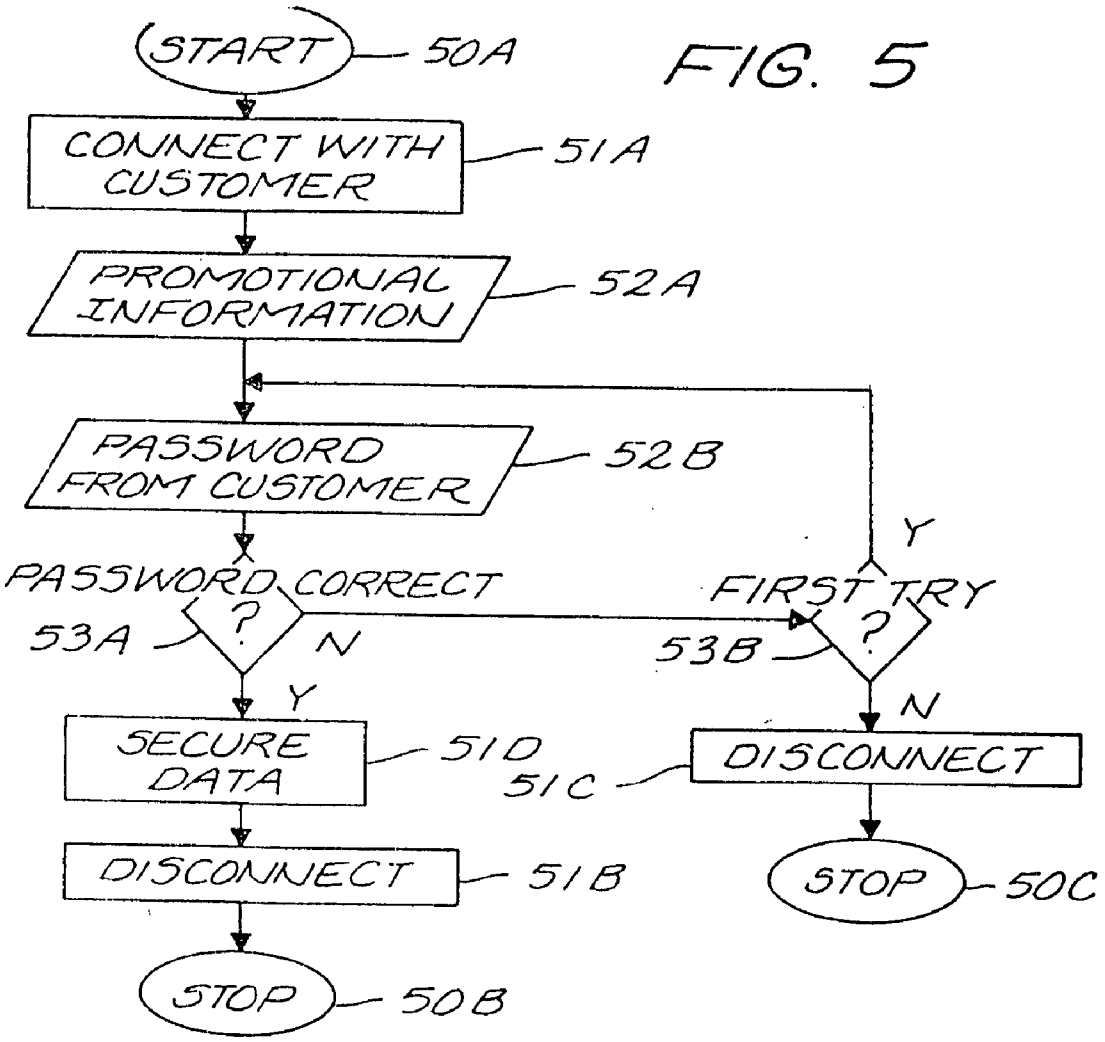

START
50A
CONNECT WITH CUSTOMER
51A
PROMOTIONAL INFORMATION
52A
PASSWORD FROM CUSTOMER
52B
PASSWORD CORRECT ?
53A
N
Y
SECURE DATA
51D
DISCONNECT
51B
STOP
50B
FIRST TRY ?
53B
Y
N
DISCONNECT
51C
STOP
50C

FIG. 5

PROCESSING PAYMENT ON THE INTERNET

[0001] This is a continuation of U.S. patent application Ser. No. 09/654,339, filed on Sep. 8, 2000, and entitled, "Method of Processing on a Network of Computer Such as the Internet", which was a continuation of U.S. patent application Ser. No. 09/400,724, filed on Sep. 21, 1999, and entitled "Financial System of Computers", which was a continuation of U.S. patent application Ser. No. 09/166,749 filed on Oct. 5, 1998, and entitled "Financial System of Computers", which was a continuation of U.S. patent application Ser. No. 08/597,017, entitled "An Improved Financial Transactions System" filed Feb. 5, 1996, now U.S. Pat. No. 5,822,737, issued on Oct. 13, 1998.

BACKGROUND OF THE INVENTION

[0002] This invention relates generally to financial transactions and more particularly to transactions involving credit or debit cards.

[0003] The time is fast approaching where a significant amount of commerce will be conducted using distributed networks of computers such as the Internet. The reason this ground-swell of commerce will occur is the ability of a single merchant to economically reach a vast number of potential customers at substantially no costs. Further, the customers are able to review a great number of vendors and their products with the ease of a few key strokes and clicks of the mouse.

[0004] Although there are vast numbers of merchants already using such networks, the sales volume has been particularly low due to a variety of reasons. One reason which has depressed commerce on the networks, is the difficulty with which customers can pay for their purchases.

[0005] A variety of techniques have been developed to cure this problem ranging from accepting phone orders to the establishment of another currency called "E-Cash".

[0006] Phone orders in response to merchant promotional materials creates a variety of problems. One major problem is the requirements for phone lines and personnel to receive and process the phone orders. Another hurdle is the simple fact that most customers have a single phone line to their residence and this line is used by the computer for accessing the network; the customer has to disconnect from the network to make the phone order.

[0007] Although E-Cash is a viable alternative, it is faced with some enormous problems which will be difficult or impossible to address. These include: counterfeiting problems; government reluctance to accept the concept; difficulties in getting access for handling E-Cash; and, the low number of users and merchants which can use E-Cash.

[0008] It is clear from the foregoing that there is a need for an efficient methodology and system to accept payment over distributed computer networks.

SUMMARY OF THE INVENTION

[0009] The present invention contemplates a totally automated system for securing payment via a distributed network of computers. In this context, the invention creates an automated payment system particularly suited for purchases over a network such as the Internet.

[0010] Although the present invention is described relative to the Internet, its application is not so limited and is intended to be used on any distributed computer system in which merchants and consumers interact for the purpose of supplying and purchasing goods or services.

[0011] In such a distributed computer network, a merchant or vending computer contains certain promotional information which is communicated to a customer's computer. This information is intended to give the customer sufficient information to make a decision on if the goods/services are acceptable.

[0012] As used within this discussion, the term "merchant computer" signifies a computer system which is used for the purpose of selling goods or services. The vendor itself does not necessarily own the computer; in some situations, the computer is operated on behalf of the merchant or vendor.

[0013] Based upon the promotional information, the consumer/operator of the customer's computer decides to purchase the services or goods described by the promotional information.

[0014] It is at this point where the present invention is particularly powerful as it provides a simple, easy, methodology and linkage for the customer to pay for the goods/services.

[0015] In this context, the customer's computer is linked to a payment processing computer and the customer's credit card number and the amount of the goods or services is transmitted to the payment processing computer. For security reasons, an encrypting software package is first downloaded to the customer's computer so that the credit card number is secure from "hackers" who might also be on the network.

[0016] Although the term "credit card" is used, the invention covers the use of any type of financial guarantee card such as automatic debit accounts, checking account numbers, savings account numbers, and other such devices obvious to those of ordinary skill in the art.

[0017] The payment processing computer automatically contacts a bank for verification of the credit card and amount; the bank transmits an authorization to the payment processing computer. This authorization, usually in the form of a number, is stored within the payment processing computer's memory for later reference.

[0018] The link or connection with the bank is terminated by the payment processing computer and the payment processing computer turns its attention to the customer's computer. The payment processing computer communicates a self-generated transaction indicia, and in some embodiments a password, to the customer's computer.

[0019] The transaction indicia is generated by the payment processing computer for proper record keeping. The transaction indicia is also used by the customer to verify that an order has been generated and accepted.

[0020] The password is defined by the merchant's computer for the payment processing computer to pass along to the customer's computer. The password is used by the customer's computer to gain access to restricted material within the merchant's computer.

[0021] As example, assume the merchant's computer is supplying information as to genealogy. As an initial process, the customer enters the name being researched and receives a preliminary report on the genealogy (the promotional material). To proceed though, and get the actual data, the customer must pay to access this further information.

[0022] To do so, the customer links with the payment processing computer, and in the manner outlined above, receives back the transaction indicia and the password. The payment processing computer links the customer computer back to the merchant computer; the customer provides the password to the merchant's computer and is given access to the full genealogy report.

[0023] As outlined in this example, in the embodiment where a password is used, the customer's computer uses the password with the merchant's computer in obtaining access to protected information or to establish shipping instructions.

[0024] The re-linking of the customer computer to the merchant computer is accomplished in a variety of ways. In the preferred embodiment, the payment processing computer obtains the merchant's address or Unique Recognition Location (URL) from the customer computer when the customer connects with the payment processing computer. This URL is used in a variety of ways, to identify the merchant, to establish the amount of the product/service, and to establish the return URL when the payment processing computer is done with its task for the customer computer.

[0025] By selective use of the URL on the merchant's part, the URL transmits a tremendous amount of information to the payment processing computer. As example, assume the URL for the home-page of the merchant is: http://merchant-.com/widget.

[0026] When the merchant is selling a single product (a widget), this URL is easy to match to the product. When the merchant wants to sell a variety of widgets, then for a blue widget, the URL might be:

http://merchant.com/widget/blue.

[0027] In some embodiments, the customer's computer is not linked back to the originating URL of the Merchant computer but rather to another URL. The return URL is stored in the payment processing computer and is used when the Merchant wants the customer/consumer to be passed back to a different location (i.e. where the restricted access information is accessible, or to inform the consumer that their card has been rejected).

[0028] The invention, together with various embodiments thereof, will be more fully explained by the accompanying drawings and the following descriptions.

DRAWINGS IN BRIEF

[0029] **FIGS. 1A and 1B** are block diagrams of the two computer configurations used in the preferred embodiment.

[0030] **FIG. 1C** is a graphical representation of the preferred memory organization for the computer illustrated in **FIG. 1A**.

[0031] **FIGS. 2A, 2B**, 2C, 2D, and 2E graphically illustrate the connections and disconnections of the preferred order. **FIGS. 3A, 3B**, 3C, and 3D are frontal views of one embodiment of a consumer's display screen.

[0032] **FIG. 4A** is a flow-chart of the preferred embodiment's payment processing operation.

[0033] **FIG. 4B** is a flow-chart of an alternative embodiment's payment processing operation.

[0034] **FIG. 5** is a flow-chart of the operation of the merchant's computer.

DRAWINGS IN DETAIL

[0035] **FIGS. 1A and 1B** are block diagrams of the two computer configurations used in the preferred embodiment.

[0036] **FIG. 1A** illustrates the configuration of the preferred payment processing computer. As shown, computer **10**A is a simple layout of a Central-processing-Unit (CPU) **11**A which uses both non-volatile memory **12**A and Random-Access-Memory (RAM) **13**A.

[0037] Communication to and from CPU **11**A is via modem **14**A which communicates with other computers via the network connected by phone line **15**A.

[0038] Computer **10**B, illustrated in **FIG. 1B**, shows the preferred computer configuration used for the merchant computer and the customer computer. Again, CPU **11**B is connected to memories RAM **13**B and non-volatile memory **12**B. In the case of the merchant computer, the promotional material is stored on non-volatile memory **12**B and is retrieved and communicated by CPU **11**B using modem **14**B and phone line **15**B.

[0039] This system is able to communicate with an operator via monitor **16** for visual information. Monitor **16** is used for the perusal of the promotional material by the customer.

[0040] Keyboard **17** is used to communicate operator commands to CPU **11**B. In like fashion, mouse input device **18** is also used for operator input to CPU **11**B.

[0041] Optional printer **19** is used to create a hard copy of the material being displayed to the operator/customer via monitor **16**.

[0042] The differences between the computers shown in **FIGS. 1A and 1B** are pronounce since the payment processing computer of **FIG. 1A** does not require input or direction from a human operator. Rather, in the preferred embodiment, the payment processing computer runs totally automatically and collects all of the data and information it requires for its operation automatically from the computers with which it is linked and with what is stored in its memory.

[0043] **FIG. 1C** is a graphical representation of the preferred memory organization for the computer illustrated in **FIG. 1A**.

[0044] Memory **9**, located preferably in non-volatile memory **12**A, has three sections. The first section **8**A is the product listing reference which is composed of multiple groupings. This data remains relative constant and is defined by the merchant. Each grouping, such as **7**A, includes data identifying:

[0045] Part Number

[0046] Merchant Identification

[0047] Cost of Product/Service

[0048] Description of the Product/Service

[0049] Authorized Return URL

[0050] Rejected Return URL

[0051] Password

[0052] The second section is for defining the merchant's information. Each grouping **7**B within section **8**B contains relative constant information such as:

[0053] Merchant Identification

[0054] Business Name

[0055] Contact Name within the Business

[0056] Business Address

[0057] E-Mail address for the Business

[0058] Bank Checking Number for the Business

[0059] The third section **8**C is an accounting listing which is constantly up-graded as new payments are processed. This section is used for making full accounting to the various merchants. Grouping **7**C within section **8**C contain:

[0060] Transaction Number

[0061] Date of transaction

[0062] Amount of the transaction

[0063] Part number involved in transaction

[0064] Credit Card Number

[0065] Authorization Number

[0066] The authorization number is the indicia received from the bank indicating that the credit card charge has been accepted.

[0067] The use of memory **9** allows the payment processing computer to have access to the necessary information to handle the linkage and perform the proper accounting.

[0068] **FIGS. 2A, 2B**, 2C, 2D, and 2E graphically illustrate the connections and disconnections of the preferred order.

[0069] Referring to **FIG. 2A**, in a typical fashion, a consumer via customer computer **21** enters the network **20** and searches through various merchant computers until the consumer locates the merchant of choice and connects with merchant computer **22**. Merchant computer **22** communicates the promotional material via network **20** to customer computer **21**.

[0070] When the consumer decides to buy the service or product from merchant **22**, as shown in **FIG. 2B**, the link with merchant computer **22** is broken and customer computer **21** links with the payment processing computer **23**. In the change from merchant computer **22** to payment processing computer **23**, an indicia of the URL or the product being promoted by merchant computer **22** is communicated to the payment processing computer **23**.

[0071] The indicia as a URL of the last site is available through normal network operations and its handling is obvious to those of ordinary skill in the art. The product number is easily combined with the URL; thereby making the product number also available to the payment processing computer **23**.

[0072] In some embodiments, the originating URL is crossed checked to a memory data base to achieve the product number. In this embodiment, the merchant structures its material so that only a single product/service is associated with a specific URL.

[0073] Using the product number (or developing the product number from the merchant's URL), the payment processing computer is able to cross reference its own memory (as described earlier) to achieve other important information including: the amount of the product/service, a description of the product/service, the name and address of the merchant, and other which will be used in later operations.

[0074] The payment processing computer **23** accepts from the customer computer **21**, the credit card account number which is to be debited the amount of the product.

[0075] As shown in **FIG. 2C**, in this embodiment, while maintaining linkage with the customer computer **21**, the payment processing computer **23** establishes a link via phone lines **25** with the credit card server computer **24**. The credit card account number and amount is communicated to the credit card server computer **24** which responds to the payment: processing computer **23** with an authorization indicia. This authorization indicia gives the acceptance or denial of the charge.

[0076] If a product is to be shipped, and if the charge has been authorized, as shown in **FIG. 2D**, the payment processing computer **23** connects with the merchant computer **22** and directs the merchant to ship the product to the consumer.

[0077] As shown in **FIG. 2E**, since the payment processing computer **23** has identified the product number, it is able to retrieve from its memory the URL for reconnecting the customer computer **21** with the merchant computer **22**. In this manner, the entire operation is totally transparent to the consumer since they feel they have been continuously working with the merchant computer **22**.

[0078] Further, using the URL's from its memory, the payment processing computer **23** is able to link the customer computer **21** to the merchant computer **22** at an address which is different from where the consumer was originally connected. In this manner, the payment processing computer **23** is able to direct the consumer to different locations which are consistent with the authorization indicia (accept/reject) on their credit card.

[0079] As example, assume, the credit card was authorized, then the consumer could reconnected to an area which has restricted access so that the consumer can gain the information paid for; if on the other hand, the credit card was rejected, the connection would be to a page indicating such and possibly asking for another card number.

[0080] In this manner, the payment processing computer **23** is able to control the operation and interface between the customer computer **21** and the merchant computer **22**.

[0081] Periodically, the payment processing computer **23** connects via the phone line **25** with the credit card server **24** and instructs it to transfer the appropriate amount of funds to the merchant's bank computer **26** so that the merchant has access to the funds paid for his product/service provided to the consumer.

[0082] **FIGS. 3A, 3B**, 3C, and 3D are frontal views of one embodiment of a consumer's display screen.

[0083] Screen **30**A is designed to provide the promotional information so that the consumer is attracted to purchase the product. In screen **30**A is the name of the merchant company (XYZ CO.) **31**, the name of the product (widget) **32**, the price ($14.95) **33**, and the part number (#10234) **34**.

[0084] Also located on screen **30**A is a software key **35** which allows the consumer to pay for the product. In this embodiment, by activating this software key **35** (typically through a click of the mouse), screen **30**A is changed to screen **30**B which is identical except that the software key **35** has been replaced with an order window **36**.

[0085] Order window **36** allows the consumer to complete the necessary information to order the product. This includes the part number **37**A, the amount **37**B, and the credit card number **37**C. When the consumer is ready, the software key 'send"**37**D or the software key "Cancel"**37**E is activated. In the case of a cancel, the screen returns to screen **30**A.

[0086] In a 'send"**37**D, mode, the payment processing computer contacts the bank computer and determines if the credit card is valid and if the amount is available. If the charge is authorized, the screen changes to **30**C in which the order window **36** has been replaced with authorization window **38** which shows that the charge has been accepted **39**A, the transaction no. (A1483) **39**B, and the password ("GO") **39**C which the consumer is to use with the merchant.

[0087] When this information has either been printed or committed to memory, the consumer activates software key **39**D to "Proceed" to screen **30**D. At this point, the consumer is able to enter the password **29** so that the restricted access is lifted. In the genealogy example, it is at this point the consumer gains access to the full report.

[0088] **FIG. 4A** is a flow-chart of the preferred embodiment's payment processing operation.

[0089] After start **40**A, a connection is made with the customer computer **41**A and the encryption software is downloaded to the customer computer **41**B. Encryption software is preferably used for transmittal of the credit card number so that the integrity of the card is not jeopardized.

[0090] The consumer computer then communicates, and the payment processing computer accepts, the account number, the amount, and the identification of the product or service, **42**A. A connection is made with the credit card server **41**C and the account number and amount is transmitted **41**D to the credit card server over the established phone lines. In response to this query, the authorization data is received **42**B and the connection with the credit card server **41**E is broken.

[0091] A transaction indicia is generated **41**F. This transaction indicia is not the authorization data but serves as an internal monitoring system for the payment processing computer so that the accounting is kept accurate.

[0092] From the memory, the password is withdrawn **41**G for the product so ordered; and, the password and transaction indicia is transmitted to the customer computer **41**H.

[0093] At this point, the connection with the customer computer is terminated **41**I and the program stops **40**B.

[0094] **FIG. 4B** is a flow-chart of an alternative embodiment's payment processing operation.

[0095] After start **43**A, the program connects with the customer computer **44**A and at the same time obtains the merchant URL **45**A. Using the merchant URL, the payment processing computer searches its memory and identifies the merchant number, the part number, and the purchase amount **44**B.

[0096] The encryption software is downloaded into the customer computer **44**C and the credit card account number is received **45**. A connection is then made with the credit card server computer **44**D and the account number and the amount is transmitted **44**E. This inquiry results in an authorization code **45**C being received and the connection with the credit card server being broken **44**F.

[0097] A check is then made to see if the credit card purchase was authorized **46**A.

[0098] If the credit card purchase was denied, the URL to use for a rejection is withdrawn from memory **44**G and the Customer computer is connected to the merchant computer at this URL **44**H leaving the payment processing computer able to disconnect **44**I and stop **43**B.

[0099] Should the credit card purchase be accepted, **46**A, then the program generates a transaction identification **44**J. This transaction identification is stored along with the date, amount of purchase, and the merchant number **44**K.

[0100] The password is retrieved from memory **44**L and it, together with the transaction identification, is transmitted to the customer computer **44**M.

[0101] From memory, the authorized URL is withdrawn **44**N.

[0102] A determination, based upon stored data, is made as to the character of the product (service or goods) **46**B. If the product relates to goods which are to be shipped, a shipping order including the transaction identification, the amount, the date, and address of the customer, is communicated to the merchant **440** to satisfy the order. If the product is a 'service", the program skis to step **44**P.

[0103] The customer computer is then connected to the authorized URL **44**P and the connection with the customer computer is terminated **44**Q allowing the program to stop **43**C.

[0104] **FIG. 5** is a flow-chart of the operation of the merchant's computer.

[0105] After start **50**A, the merchant computer connects with the customer computer **51**A and communicates the promotional material **52**A. The password is received from the customer **52**B and is checked to see if it is the correct password **53**A.

[0106] If the password is incorrect, a determination is made on if it is the customer's first try **53**B; if it is, then the customer is given another chance to enter the correct pass-

word **52**B. If the customer has tried twice to enter the correct password, the connection with the customer is terminated **51**C and the program stops **50**C.

[**0107**] If the password is correct, **53**A, then the secure or restricted access data is communicated to the customer's computer **51**D and the connection with the customer's computer is terminated **51**B. The program then stops **50**B.

[**0108**] In this manner, secure information is selectively transmitted to a customer's computer upon the presentation of a password.

[**0109**] It is clear from the foregoing that the present invention creates a highly improved system for acceptance and processing of payments over a distributed computer network.

What is claimed is:

1. A system of computers comprising:

a) a computer network;

b) a phone network;

c) a first computer containing promotional data, said first computer programmed to communicate said promotional data via said computer network to a remote computer;

d) a second computer being linked via said computer network with said first computer programmed to

1) receive said promotional data, and,

2) responsive to input from an operator, for initiate an order;

e) a third computer; and,

f) a fourth computer, remote from said first computer and programmed to:

1) receive customer account data and amount data from said second computer and said first computer via said computer network,

2) communicate said customer amount data and said amount data to said third computer via said phone network,

3) receive an authorization indicia from said third computer via the phone network, and,

4) via said computer network, communicate, a representation of said authorization indicia to said second computer, and,

B) a representation of said authorization indicia to said first computer.

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