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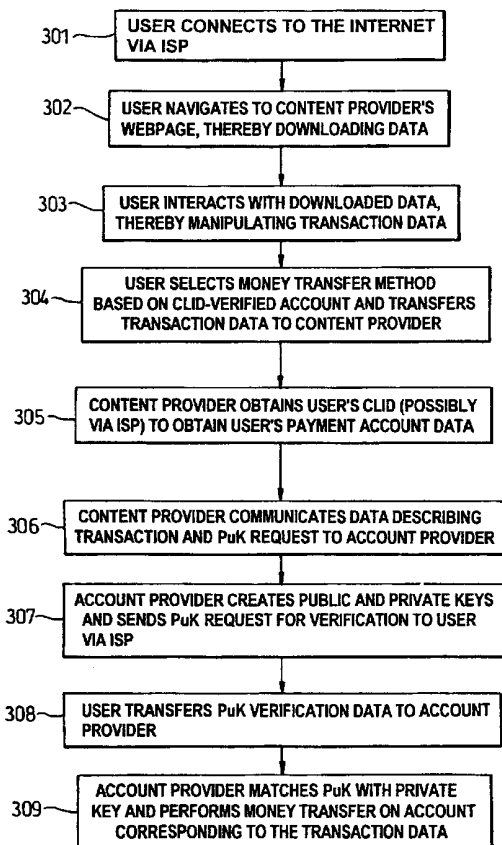
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(54) Title: ELECTRONIC MONEY TRANSFER



(57) Abstract: A system for electronically transferring a sum of money over a communications network. A user downloads data from a content provider. The content provider obtains a caller identifier corresponding to a telephone line which the user is using to download the data. The content provider uses the caller identifier to obtain a payment account reference for the user. By interacting with the data downloaded from the content provider, the user manipulates transaction data representing manipulation of a sum of money. This transaction data is transferred to the content provider who transfers transaction data to an account provider responsible for the payment account of the user. The account provider then performs a corresponding money transfer on the account.



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Electronic Money Transfer

The present invention relates to electronic transfer of a sum of money, and in particular, although not exclusively, to transfer of sums of money representing micro payments.

5 As increasing use of the internet is made for commerce, the need for a secure and easy-to-use means for transferring sums of money is becoming of greater importance. Currently, most monetary transactions over the internet are performed using credit/debit card accounts. However, there are
10 several concerns regarding the security of such transactions, and many people are reluctant to type in their card number on a web site, in case it is misappropriated and used fraudulently.

Alternative methods of transferring money over the
15 internet involve transferring a cash lump sum from a credit card/bank account to an "e-cash" account. Sums are then debited from the e-cash account from suitable web sites which support the e-cash method. Alternatively, buyers can transfer money from a card/bank account into a proprietary
20 currency system (for example eCoin (www.ecoin.com)). Buyers can then spend amounts in the proprietary currency system at compatible web sites.

Unfortunately, there are several different e-cash and proprietary currency systems available on the internet and
25 customers often find that a particular web site from which they wish to make a purchase does not support the particular system they use. As e-cash accounts and transactions

normally incur charges and involve entering personal and financial data, users are reluctant to set up accounts with several different systems. Also, very few banks allow e-cash accounts and transactions and so only a very small
5 proportion of internet users actually use these facilities. Furthermore, in order to set up an e-cash or proprietary currency account, bank/card account data has to be given out over the internet, again raising security issues.

WO 99/08242 (British Telecommunications Public Limited
10 Company) describes a system for providing a transaction record which allows data describing a transaction between a client computer and a server computer to be created for use by a billing system. However, the system described in this document is only capable of crediting or debiting the client
15 computer for retrieving data, for example when a web page is viewed. There is no way described for the system to allow money to be billed relating to more complex interactions between the client computer and the website, for example, buying/selling goods, or paying for more specifically
20 selected data than an entire web page. The system described is also only used with a telephone service billing system. Thus, a user would have to subscribe to a particular telephone service provider to be able to use this system. This has disadvantages such as only being able to pay for
25 communications network retrieved data by via a telephone bill, rather than being able to pay for specific goods/services directly from a bank account for example. Furthermore, the system described looks up a network address

datum stored in a database to obtain the CLID in most cases, and so the security of the system can be compromised.

An aim of the present invention is to provide an easy-to-use system for transferring a sum of money using a communications network. The preferred embodiment is intended to use an account, such as a bank, credit card or telephone charge account, for debiting or crediting amounts of money, and can thereby remove the need for setting up a separate electronic money transfer account. As the preferred embodiment of the invention can rely upon a verified existing account to transfer money, users do not have to enter any card details each time they use the system.

According to one aspect of the present invention there is provided a method of electronically transferring a sum of money, the method including steps of:

- a user entity connecting to a network address related to a content provider entity over a communications network;
- the user entity downloading data from the content provider entity;
- the user entity manipulating transaction data in response to the downloaded data, the transaction including a manipulation of data representing the transfer of a sum of money;
- the user entity transferring the transaction data addressed to the content provider entity;
- the content provider entity obtaining a caller identifier corresponding to the user entity;
- the content provider entity obtaining account data

using the Caller identifier;

the content provider entity transferring data describing the transaction addressed to an account provider entity responsible for the obtained account, and

5 the account provider entity performing a transfer of a sum of money on the obtained account, the money transfer corresponding to the transaction data.

The step of the content provider entity obtaining the caller identifier may be achieved by requesting data
10 representing the caller identifier from a network service provider of the user entity.

The caller identifier can include numerical or alphanumerical data and is intended to provide information identifying the line which the user entity is using to connect to
15 the communications network. The exact nature of the caller identifier may depend on the nature of the communications network. For example, the caller identifier may include a calling line identifier (CLID) which comprises information about the billing telephone number from which the call made
20 by the user entity originated. The CLID value may include an entire phone number or information regarding the area code and local exchange number used by the user entity. The caller identifier may be obtained using the known automatic number identification (ANI). ANI can provide billing
25 information for a phone number of a telephone call from which a call originated, or the telephone number itself. The ANI may be compared to the CLID value for a particular call for additional security.

The step of the content provider entity obtaining the caller identifier may be achieved by requesting data representing a network identifier corresponding to the user identifier using the caller identifier and,
5 using the network identifier to obtain the account data. Where the communications network includes the internet, the network identifier can include an internet protocol (IP) address.

The step of the user entity manipulating transaction
10 data may include the user entity performing one or more of the following actions:

playing a game; purchasing goods or services; downloading further selected data, for example music, video, image, reference information, news or copyright material.

15 It could be possible for the account to be set up by the content provider.

The content provider entity may transfer data including a public key request to the account provider entity. The method may further include steps of the account provider
20 entity requesting verification of the public key from the user entity, and

the account provider entity comparing the user entity verified public key against a private key associated with the user entity before performing the money transfer.

25 The data transferred by the method may be encrypted by algorithm prior to transmission. The encryption algorithm may have public and private elements.

According to another aspect of the present invention

there is provided apparatus for a user entity having an account which can be used to debit and credit sums of money to electronically transfer a sum of money, the apparatus including:

5 means for connecting to a communications network, the connection means including means for providing a caller identifier to another entity;

 means for connecting to a network address related to a content provider entity;

10 means for downloading data from the content provider entity;

 means for manipulating transaction data in response to the downloaded data, the transaction including manipulation of data representing a sum of money, and

15 means for transferring the transaction data addressed to the content provider entity.

 According to a further aspect of the present invention there is provided apparatus for a content provider entity to arrange for the electronic transfer a sum of money to or
20 from an account associated with a user entity, the apparatus including:

 means for downloading data addressed to a user entity connected to a network address related to the content provider entity;

25 means for receiving transaction data from the user entity in response to the downloaded data, the transaction including manipulation of data representing a sum of money;

 means for obtaining a caller identifier corresponding

to the user entity;

means for obtaining user account data using the caller identifier, and

means for transferring data describing the transaction
5 addressed to an account provider entity responsible for the
obtained account, such that the account provider entity can
perform a transfer of a sum of money corresponding to the
transaction data.

According to a further aspect of the present invention
10 there is provided a system for electronically transferring
a sum of money, the system including:

means for a user entity to connect to a network address
related to a content provider entity over a communications
network;

15 means for the user entity to download data from the
content provider entity;

means for the user entity to manipulate transaction
data in response to the downloaded data, the transaction
including manipulation of data representing the transfer of
20 a sum of money;

means for the content provider entity to obtain a
caller identifier corresponding to the user entity;

means for the content provider entity to obtain account
data using the caller identifier;

25 means for the user identity to transfer the transaction
data addressed to the content provider entity;

means for the content provider entity to transfer data
describing the transaction addressed to an account provider

entity responsible for the obtained account, and

means for the account provider entity to perform a transfer of the sum of money on the obtained account, the transfer corresponding to the transaction data.

5 According to a further aspect still of the present invention there is provided a communications network configured to be used in connection with the apparatus, method and system described above.

According to yet another aspect of the present inven-
10 tion there is provided a method of electronically transfer-
ring a sum of money, said method including the steps of:
obtaining a call line identification (CLID) number;
obtaining an account reference using the CLID;
manipulating data representing a transfer of a sum of money;
15 accessing an account corresponding to the obtained account
reference, and
performing a transfer of a sum of money on the accessed
account, the performed money transfer corresponding to the
represented money transfer.

20 The account reference may include a telephone charge
account. The step of manipulating data representing money
transfer may be part of an entertainment service. The sum
of money may comprise a micro payment. Preferably, the step
of obtaining the CLID includes accessing a CLID captured and
25 stored by an internet service provider.

Whilst the invention has been summarised above, it
extends to any inventive combination of the features set out
above or in the following description.

The invention may be performed in various ways, and, by way of example only, an embodiment thereof will now be described, reference being made to the accompanying drawings, in which:

5 Figure 1 illustrates schematically steps which may be performed to transfer a sum of money in accordance with a specific embodiment;

10 Figure 2 illustrates an example of a screen display which may be used as an interface for the money transfer, and

 Figure 3 illustrates schematically steps performed by another embodiment including additional security features.

15 At step 101 of Figure 1, a user connects to the internet via an internet service provider (ISP). This typically involves the user using a personal computer (PC) and a modem to log on to an account which they have opened with the ISP, using suitable internet/World Wide Web navigation software such as Microsoft Explorer (Trade Mark) or Netscape (Trade Mark).

20 The modem uses a conventional land or mobile telephone line to communicate with the ISP. The telephone line is provided by a telecommunications company such as BT which normally performs quite stringent security checks before allowing a user to set up an account. In order to detain a
25 line from the telecommunications company, the user must provide a verified address and bank account details, so it is easy to establish the individual responsible for the line. Furthermore, in the case of a land-based telephone

line, it is easy to confirm the geographical origin of the telephone call.

At step 102, the ISP captures a call line identification (CLID) of the user. CLID capture is an almost universal practice carried out by ISPs in order to attempt to prevent criminal misuse of their services and sometimes to obtain marketing data. The CLID is intended to be a unique identifier corresponding to the telecommunications line which the user's modem is utilising. For some telecommunications networks the CLID capture may be called "Automatic Number Identification" (ANI).

At step 103, the user directs the World Wide Web navigation software to connect to a particular web site which functions in accordance with the preferred embodiment. The user then interacts with the web site at step 104. This interaction typically involves the user selecting on-screen icons and/or entering alpha numerical information in input boxes. Data representing the user's actions is then transferred to the web site software, which may in turn transfer data back to the user. This interaction may involve performing a function which is to result in a transfer of a sum of money. Examples of such functions include the purchasing of software or physical items, in which case the user is to pay the sum of money. Alternatively, the function may result in the user receiving a sum of money, for example, selling bonds or shares. There may even be a mixture of payments by or to the user, for example, resulting from a series of transactions with an on-

line book-maker.

At step 105, the web site obtains the CLID of the user. The web site may obtain the CLID either from the ISP which has already captured it or, alternatively, the web site software itself may be able to send an interrogation pulse to sense the user's CLID without a direct connection to the user's internet account, which can assist in correctly identifying the user who is actually using the communications line which is the source of the interaction.

At step 106, the web site software uses the CLID to contact the telecommunications company providing the user's line in order to access the user's charge account. The web site software will then transfer information regarding the transfer of the sum of money resulting from the user's interaction with the web site, so that a corresponding transfer of money can be made from or to the charge account. The information will typically include the amount of money to be transferred, whether the money is to be paid into or out of the user's account, destination details of another party or parties' account(s) into or out of which the sum of money is to be transferred, details of the web site, including time and date of the user's interactions and the functions performed. Details of the transaction may be included on the telephone charge account bill for the user's information. The web site software may also provide other information or functions, for example, conversion of the sum of money from a local currency in the country where the web site is based into a local currency where the telecommunica-

tions company or user is based. The sum of money will be transferred to the destination account when the bill is paid.

In an alternative embodiment, the user's CLID may be used by a database system to obtain a bank or credit card account reference rather than a telephone charge account. The sum of money could then be directly transferred from or to the card/bank account

Figure 2 illustrates an example of an on-screen display 201 representing a web site providing an "on-line fruit machine". The display includes a play area 202 containing graphics representing reels of a simulated fruit machine. The display 201 also includes a number of icons which may be clicked by the user's mouse pointer in order to play the simulated fruit machine. Playing the simulated fruit machine may be thought of as constituting interaction with the web site at step 104 above.

Icons 203 to 206 represent sums of money which the user can select in order to gamble on the fruit machine. The icons 203 to 206 correspond to specific, small sums of money £1, 50 pence, 10 pence, and 5 pence, respectively. Assuming each spin of the reels allows a sum of 5 pence to be gambled, then clicking on icon 204 (representing 50 pence) would mean that the user has staked 50 pence in return for 10 spins of the reels. Clicking the icons 203 to 206 may be thought of as being equivalent to inserting a coin of corresponding value into a fruit machine. The sum of money staked by the user each time they click one of icons 203 to

206 can then be charged to their telephone charge account in accordance with steps 105 to 106 above.

Referring to Figure 3, a more complex embodiment of the present invention which involves the principles of the known public key encryption for additional security is schematically illustrated. At step 301 a user connects to the internet via his/her ISP. At step 302 the user navigates his/her browser software to a web page related to a particular content provider. In doing this he/she downloads data from the content provider into the memory of his/her computer. The data may include HTML code, Java Applets or other suitable forms of code data and so complex interaction between the user and the content provider is possible.

At step 303 the user interacts with the downloaded data, e.g. by clicking on-screen icons or entering alphanumerical data according to on-screen instructions. This interaction can be one of a number of possible types, for example, the user may play a game, such as the one described above with reference to Figure 2; or may purchase software or data for downloading on to their PC (such as video or music data), or the user may buy goods to be delivered; or purchase other services, such as via an on-line bookmaker. The interaction will normally result in a sum of money either being payable to the user (e.g. in exchange for goods) or to be credited to the user (e.g. a reward for successfully playing a game). Thus, by interacting with the downloaded data, the user has effectively manipulated transaction data representing a transfer of a

sum of money.

At step 304 the user indicates that he/she wishes the money to be transferred using a cash account which can be looked up using his/her CLID. It may be possible for the user to select from a number of accounts which will be used in connection with the transaction. This may be done at step 304 or may be configured by the user prior to connection to the web site, for example by selecting options at the account provider's web site. The content provider may only accept money transfers using this system, in which case the user will not be offered an alternative way of making the payment or receiving the credit.

At step 305 the content provider obtains the CLID of the line which the user is using to connect his/her PC to the web page. This may be achieved by the content provider obtaining the information from the ISP or the content provider may send an interrogation pulse to read the CLID of the user without a direct connection to the internet account of the user. After obtaining the CLID, the content provider uses the CLID as a key to find data relating to an account associated with the user. If there is more than one account associated with the CLID then the database can indicate which of the accounts is to be used for this transaction. This information may be provided by the user as described above. Obtaining the account details may be done in many ways, for example, the content provider may connect to a central database via the communications network, or the user may transfer the relevant information to the content

provider. Alternatively, the content provider may maintain a database itself.

At step 306 the content provider communicates with the account provider responsible for the user's account. The account provider may be a bank or credit/debit card company or may be a company which is authorised to debit or credit money from/to the user. For example, the account provider may be a utility company (e.g. electric, gas) which bills the user. In this case, any credits payable to the user may be deducted from the amount payable on an upcoming bill. The account provider could also be a telecommunications company (including mobile telecommunications); a proprietary billing system or a store card facility which bills the user. The content provider transfers data describing the transaction performed by the user as well as a public key request to the account provider.

At step 307 the account provider receives the data sent by the content provider and creates a public and private key. The account provider stores data representing the private key and sends a public key verification request to the user, typically via the ISP. It will be appreciated by those skilled in the art that the data used by the system may be encrypted before storage or transmission and decrypted when necessary using known algorithms.

At step 308 the user receives the public key verification request and transfers public key verification data back to the account provider. Verification of the public key may involve the user agreeing to terms and conditions of the

content provider and also possibly furnishing further proof of identity, e.g. by entering an account number. Alternatively, the public key verification process may be invisible to the user. As a further possibility, the internet service provider could verify the public key request instead of the user. Once the public key request has been verified, data describing this action is transferred back to the account provider at step 308.

At step 309 the account provider compares the verified public key data with the stored private key corresponding to the user. If this comparison is positive then the account provider performs a money transfer on the user's account corresponding to the transaction data.

The steps described above may be repeated for each transaction in a series of transactions (e.g. every time a game "cycle" is played), or some of the steps, e.g. those involving the Public and Private key data, may only be performed once, with all subsequent transactions by the user continuing to be authorised to debit/credit the user's account until he/she disconnects from the Internet or navigates to another web page.

In this specification, the term "micro payment" is intended to mean a relatively small sum of money. At present, micro payments may be considered to be sums of money of £5 sterling or under. However, definitions vary and micro payments may represent payments which would in the case of cash involve coins or notes of relatively small denomination. They can also include fractions of current

units. Although the present invention is particularly suitable for transactions involving micro payments, it can also be used for larger payment amounts.

Claims

1. A method of electronically transferring a sum of money, the method including steps of:

a user entity connecting to a network address related
5 to a content provider entity over a communications network;

the user entity downloading data from the content provider entity;

the user entity manipulating transaction data in response to the downloaded data, the transaction including
10 a manipulation of data representing the transfer of a sum of money;

the user entity transferring the transaction data addressed to the content provider entity;

the content provider entity obtaining a caller identifier corresponding to the user entity;
15

the content provider entity obtaining account data using the caller identifier;

the content provider entity transferring data describing the transaction addressed to an account provider entity
20 responsible for the obtained account, and

the account provider entity performing a transfer of a sum of money on the obtained account, the money transfer corresponding to the transaction data.

2. A method according to Claim 1, wherein the step of the
25 content provider entity obtaining the caller identifier is achieved by the content provider entity requesting data representing the caller identifier from a network service

provider of the user entity.

3. A method according to Claim 1 or 2, wherein the step of the user entity manipulating transaction data includes the user entity playing a game.

5 4. A method according to Claim 1 or 2, wherein the step of the user entity manipulating transaction data includes the user entity purchasing goods or services.

10 5. A method according to Claim 1 or 2, wherein the step of the user entity manipulating transaction data includes the user entity downloading selected data.

6. A method according to any one of the preceding Claims, further including a step of the content provider entity transferring data including a public key request to the account provider entity.

15 7. A method according to Claim 6, further including steps of:

the account provider entity requesting verification of the public key from the user entity, and

20 the account provider entity comparing the user entity verified public key against a private key associated with the user entity before performing the money transfer step.

8. Apparatus for a user entity having an account which can be used to debit and credit sums of money to electronically transfer a sum of money, the apparatus including:

25 means for connecting to a communications network, the connection means including means for providing a caller identifier to another entity;

means for connecting to a network address related to

the content provider entity;

means for downloading data from the content provider entity;

means for manipulating transaction data in response to the downloaded data, the transaction including manipulation of data representing a sum of money, and

means for transferring the transaction data addressed to the content provider entity.

9. Apparatus for a content provider entity to arrange for the electronic transfer of a sum of money to or from an account associated with a user entity, the apparatus including:

means for downloading data addressed to a user entity connected to a network address related to the content provider entity;

means for receiving transaction data from the user entity in response to the downloaded data, the transaction including manipulation of data representing a sum of money;

means for obtaining a caller identifier corresponding to the user entity;

means for obtaining user account data using the caller identifier, and

means for transferring data describing the transaction addressed to an account provider entity responsible for the obtained account, such that the account provider entity can perform a transfer of a sum of money corresponding to the transaction data.

10. A system for electronically transferring a sum of

money, the system including:

means for a user entity to connect to a network address related to a content provider entity over a communications network;

5 means for the user entity to download the data from the content provider entity;

means for the user entity to manipulate transaction data in response to the downloaded data, the transaction including manipulation of data representing the transfer of
10 a sum of money;

means for the content provider entity to obtain a caller identifier corresponding to the user entity;

means for the content provider entity to obtain account data using the caller identifier;

15 means for the user entity to transfer the transaction data addressed to the content provider entity;

means for the content provider entity to transfer data describing the transaction addressed to an account provider entity responsible for the obtained account, and

20 means for the account provider entity to perform a transfer of the sum of money on the obtained account, the money transfer corresponding to the transaction data.

11. A method of electronically transferring a sum of money, said method comprising steps of:

25 obtaining a call line identification (CLID) number;

obtaining an account reference using the CLID;

manipulating data representing a transfer of a sum of money;

accessing an account corresponding to the obtained account reference, and

performing a transfer of a sum of money on the accessed account, the performed money transfer corresponding to the represented money transfer.

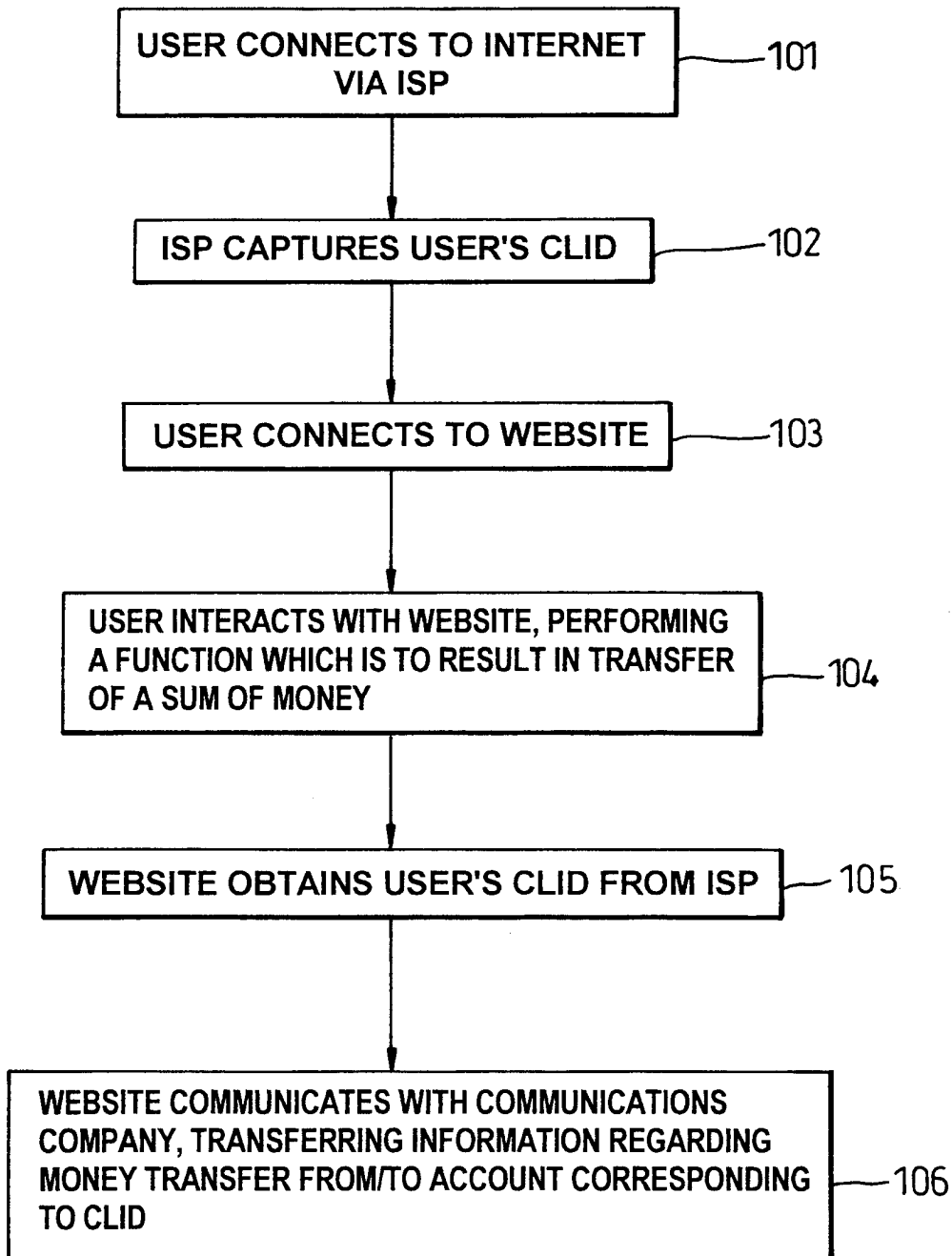
12. A method according to Claim 11, wherein the account reference includes a telephone charge account.

13. A method according to Claim 11 or Claim 12, wherein said step of manipulating data representing money transfer is part of an entertainment service.

14. A method according to any one of the Claims 11 to 13, wherein the sum of money comprises a micro payment.

15. A method according to any one of Claims 11 to 14, wherein said step of obtaining a CLID includes accessing a CLID captured and stored by an internet service provider.

1/3

*Fig. 1*

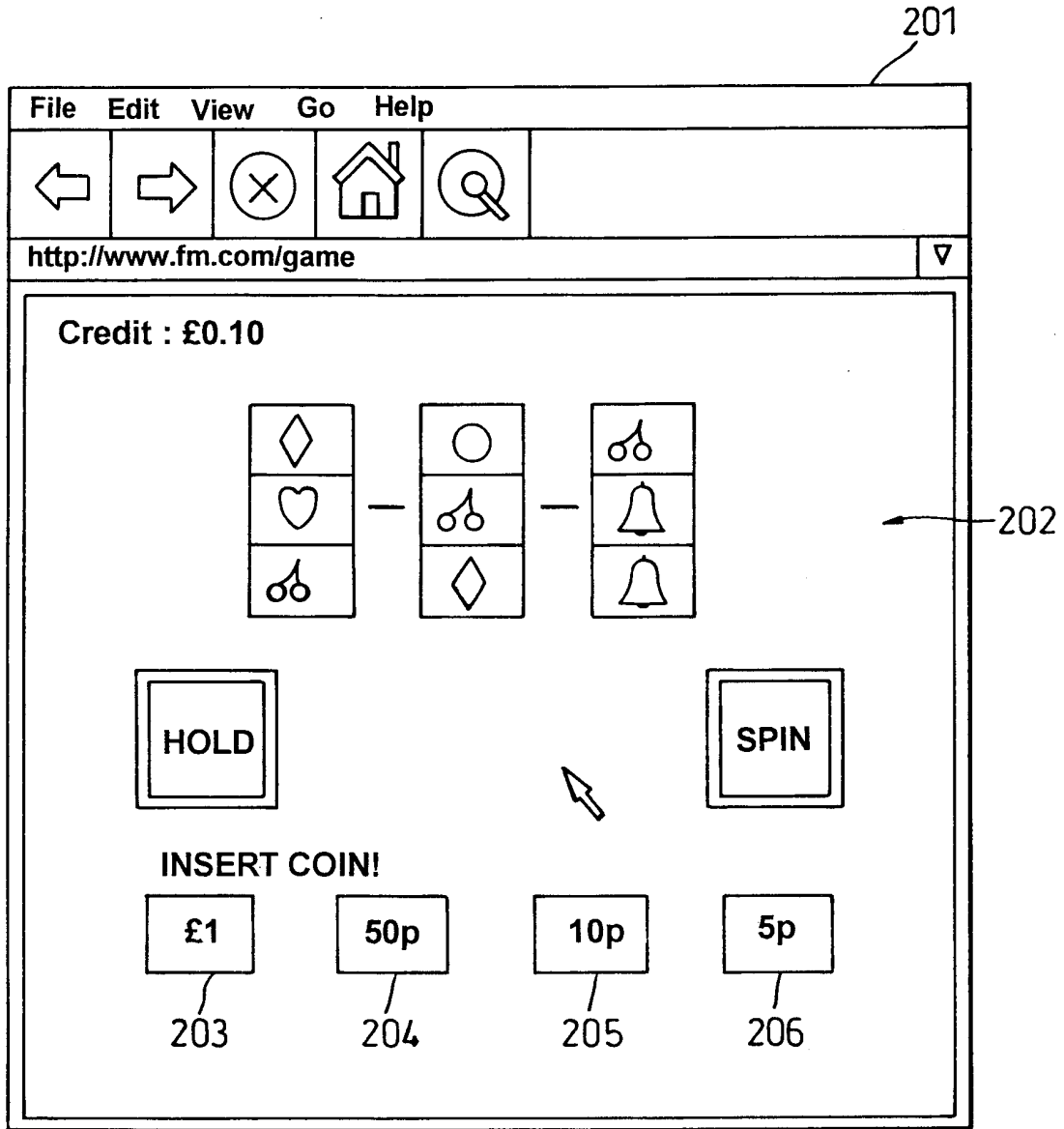
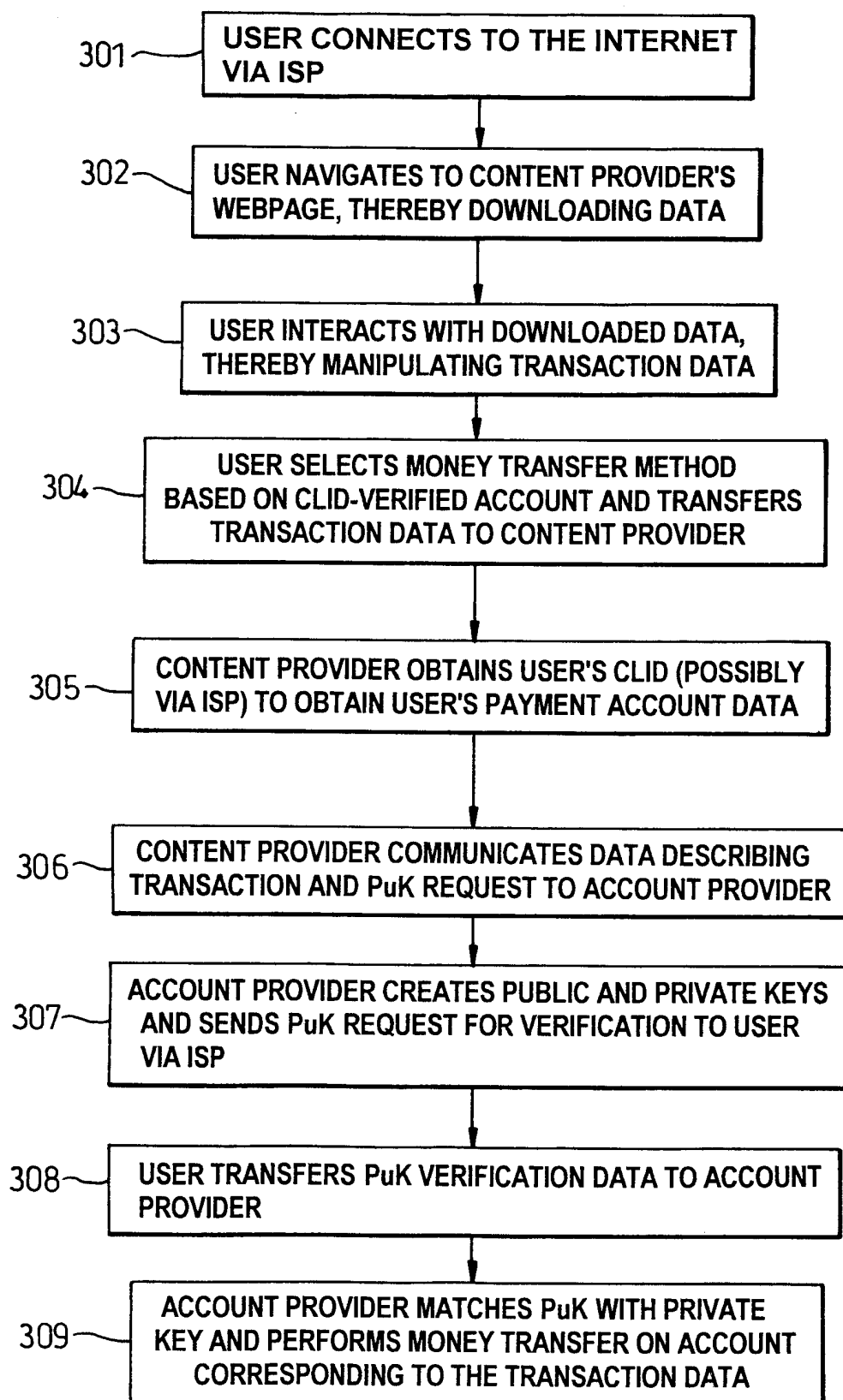


Fig. 2

3/3

*Fig. 3*

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 00/02400

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G07F19/00 H04M15/00				
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) IPC 7 G07F H04M				
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 practical, search terms used) EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX, IBM-TDB				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 5 905 736 A (RONEN YZHAK ET AL) 18 May 1999 (1999-05-18)	1,2,4,5, 8-12,14, 15		
Y	column 2, line 5 -column 2, line 46 column 3, line 22 -column 6, line 51 column 8, line 56 -column 9, line 22; figure 1 ---	3,6,7,13		
Y	US 5 833 537 A (BARRIE ROBERT) 10 November 1998 (1998-11-10) column 2, line 60 -column 3, line 13 column 4, line 42 -column 4, line 60 column 5, line 27 -column 5, line 30 column 6, line 24 -column 6, line 27; figures 1-3 --- -/--	3,13		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.				
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<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but 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 </td> <td style="width: 50%; border: none; vertical-align: top;"> "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 </td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but 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
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Date of the actual completion of the international search <p style="text-align: center;">27 October 2000</p>	Date of mailing of the international search report <p style="text-align: center;">06/11/2000</p>			
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer <p style="text-align: center;">Ruggiu, M</p>			

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/02400

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 99 30293 A (HELSINGIN PUHELIN OYJ ; ISOTALO LAURI (FI)) 17 June 1999 (1999-06-17) column 4, line 5 -column 4, line 12 ---	6,7
Y	EP 0 765 068 A (AT & T CORP) 26 March 1997 (1997-03-26) column 3, line 18 -column 3, line 34 column 8, line 57 -column 9, line 29 column 7, line 57 -column 8, line 35 column 10, line 38 -column 11, line 3; figures 6,9 ---	6,7
X	WO 97 29584 A (HYVOENEN MIKA ;MELEN BJOERN (FI); ERICSSON TELEFON AB L M (SE)) 14 August 1997 (1997-08-14) abstract -----	1,2,4, 8-12,14, 15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/02400

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5905736 A	18-05-1999	AU 2200397 A WO 9740615 A	12-11-1997 30-10-1997
US 5833537 A	10-11-1998	NONE	
WO 9930293 A	17-06-1999	FI 974342 A AU 1240599 A EP 1042740 A	27-05-1999 28-06-1999 11-10-2000
EP 0765068 A	26-03-1997	US 5745556 A AU 709790 B AU 6571896 A CA 2182818 A JP 9153964 A US 5864610 A	28-04-1998 09-09-1999 27-03-1997 23-03-1997 10-06-1997 26-01-1999
WO 9729584 A	14-08-1997	FI 960619 A AU 719635 B AU 1726497 A BR 9707396 A CN 1210645 A EP 0873645 A NO 983561 A PL 328409 A US 5956391 A	10-08-1997 11-05-2000 28-08-1997 06-04-1999 10-03-1999 28-10-1998 09-10-1998 18-01-1999 21-09-1999