

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
18 October 2001 (18.10.2001)

PCT

(10) International Publication Number
WO 01/78023 A1

- (51) International Patent Classification⁷: G07F 19/00
- (21) International Application Number: PCT/PL00/00052
- (22) International Filing Date: 26 July 2000 (26.07.2000)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
P.339477 6 April 2000 (06.04.2000) PL
- (71) Applicants and
(72) Inventors: SOLTYSIŃSKI, Paweł [PL/PL]; ul. Grota-Roweckiego 7, PL-71-218 Szczecin (PL). ZMYŚŁOWSKI, Rafał [PL/PL]; ul. Staromłyńska 3/3, PL-70-561 Szczecin (PL).
- (74) Agent: KACHNIC, Tadeusz; pl. Żołnierza Polskiego 5, PL-70-551 Szczecin (PL).
- (81) Designated States (*national*): AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*



WO 01/78023 A1

(54) Title: METHOD OF CONFIRMATION OF ORDER AND PAYMENT IN ELECTRONIC COMMERCE

(57) Abstract: Disclosed is an Internet-based system of confirmation and payment in electronic transactions. The system includes a special, individual code, assigned to a customer and given by an agent. The customer, while placing an order on merchant's Web site, supplies only the list of ordered goods and his individual code. The merchant sends this code and the value of ordered goods to the agent. The Agent sends a request to the customer to confirm a transaction. The confirmation request consists of, at least, the customer's code and a password selected to confirm this transaction. All confirmation request parts are to be sent using different ways of information transmission. The customer confirms the transaction by returning a reply email, quoting the transaction's password, as sent by the agent in previous step. The agent asks a bank to do money transfer and confirms the validity of transaction to the merchant. The merchant sends goods at customer's address, as provided by the agent.

The method of confirmation of order and payment in electronic commerce

With the increasing popularity of the Internet and World Wide Web, it has become common for merchants to set up their Web sites for marketing and selling goods.

One of the problems encountered by online merchants is the secure way of payment, accepted by their customers. Existing solutions are technically demanding or leaving easy way to fraud.

The presented invention addresses these problems.

This invention relates to safe method of order confirmation and payment in electronic commerce. At the present time, one of the biggest problems is to provide a secure method of payment done by a customer. In most Web-based transactions the customer needs to provide a merchant with his payment card identification numbers, which, when seized by third parties, can be used to fraud customer's money in non authorized transactions. Due to this fact, a research work is still in progress to eliminate this information leakage and to provide a better security to customers.

There is known method of secure payment in electronic commerce, as described in USA patent no. 6029150, where individuals can have their accounts at an agent's system: the agent's system deals with both merchant's online shop and customers. In this method, a customer places an order in online shop, takes encoded information about ordered goods and amount of money to pay and sends these information to the agent's system together with demanded details about online shop and special. individual code. given to the customer when setting

- 2 -

his account at the agent's system. The agent's system sends, by an email, single information in encoded way, containing a special secret password, as set with the customer at the moment of setting up of customer's account. This confirmation as sent by agent's system contains also new secret password to confirm next transaction. The customer forwards such encoded information to the merchant, confirming this way, that the payment will be done by the agent. Basing on this confirmation, the merchant sends goods to the customer.

The above presented invention uses intensive work when sending, quoting and forwarding email, to be done by the customer. This work can increase a human-related mistakes and can be difficult for individuals not skilled enough to use their computers in such a way. Such a method can discourage potential customers. The dynamically changed secret password is a good way of confirming authentication of the customer in the agent's system, but has some flaws – if someone seizes such the email, he can use the new secret password to confirm another transaction before the real customer will attempt to use it. On the other hand, when customer, by accident, forgets the most recent password or is unable to recall it, the new transactions is impossible to get confirmed without personal contact with representatives of the agent. Practically, when focusing on security details, a lot of work is to be done by the customer; he has to order goods, get the encoded goods' list and their value, forward it to the agent's system quoting also valid transaction password, wait for the agent's confirmation and forward it again to the merchant.

Since the delivery address (customer's address) is not predefined, combining this fact with possible secret password leakage, it can lead to fraud. The merchant needs to trust the agent about money transfers. This system utilizes email as single information transmission method, which opens another way to fraud customer's money, because it is common that there is more than one person using computer at home – all other person can have access to the customer's email account. For an example, children can order some goods just by acting the same way as the real customer would do.

- 3 -

The present invention meets following demands:

- there is no need to transfer personal information by the customer, especially – no need to use his card numbers over Internet
- there is a good way to authorize the customer when confirming transaction
- the payment is done by a bank itself right from the customer's account, as the new bank's service, where possible

According to this invention, the method of confirming of an order and a payment request in electronic commerce comprising of setting an individual customer's account at agent's system, using a special password and a list of ordered good at the moment of order, which are sent to the agent together with a transaction confirmation. This method is basing on principle that agent, when registering new customers, provides the customer with customer's unique code and an agreement for further cooperation; the customer, when issuing an order on merchant's Web site, provides only his customer's code and, some way, the list of ordered goods; the merchant sends the customer's code and total value for goods to the agent's system; the agent sends a transaction confirmation request to the customer, comprising of, among others, special one-time only generated password assigned to this particular transaction (all parts of confirmation request are being sent using at least two different information transmission method); the customer quotes that password in his reply mail to the agent, which builds the valid transaction confirmation. The agents sends an order of money transfer to the bank; the bank sends money at provided merchant's account and confirms this payment to the agent. The agent sends the payment confirmation together with customer's delivery address to the merchant, which sends goods to the customer.

The information needed to confirm the transaction is divided to, at least, two parts. It is important to send every part of such information using different way of transmission (email, SMS, pager, fax, etc.).

According to this invention, to confirm the transaction the customer needs to send an reply information to the agent's system, quoting missing parts of the password from different media, for an example a phone SMS system. There is no easy way to fraud the customer without having full access to his email box and, as in this example – mobile phone at the same time. The predefined delivery address (customer's home address by default) makes fraud even more difficult to carry out. Dynamically random generated password for single transaction by agent's system provides good security level when combined with dividing method of sending it to the customer. Different media to send parts of the password does not eliminate non authorized persons at all but seriously made the fraud task far more difficult to do.

Following is an example of transaction done using the method as described in this invention.

The customer places an order on merchant's Web site by selecting goods and providing only his individual code as given by the agent's system when setting up customer's account. The merchant sends the amount of money (as the expected payment for ordered goods) and the customer's code to the agent's system. The agent sends by email a confirmation request to the customer with first part of the code and, by SMS – the second part of the code needed to confirm this transaction. The customer confirms his will to do this transaction by sending back an reply email with quoted both part of secure code (as collected from the agent's email and SMS message). The customer has some predefined time to do it – it depends on conditions set during setting up the customer's account in the agent's system. The agent, after the reception of valid transaction confirmation attempts to order money transfer from customer's bank to merchant's account, provided there is enough money on the customer's bank account and other predefined conditions (maximum payment per day etc.) are also met. If there is no possibility to do such money transfer, the transaction is canceled and both merchant and customer are informed about it. Otherwise, money transfer is executed, the agent sends customer's delivery address to the merchant, the

- 5 -

merchant sends goods to the customer after the reception of the payment.

Claims

1. The method of confirming of an order and a payment request in electronic commerce comprising of setting an individual customer's account at agent's system, using a special password and a list of ordered good at the moment of order, which are sent to the agent together with a transaction confirmation. This method is basing on principle that agent, when registering new customers, provides the customer with customer's unique code and an agreement for further cooperation; the customer, when issuing an order on merchant's Web site, provides only his customer's code and, same way, the list of ordered goods; the merchant sends the customer's code and total value for goods to the agent's system; the agent sends a transaction confirmation request to the customer, comprising of, among others, special one-time only generated password assigned to this particular transaction (all parts of confirmation request are being sent using at least two different information transmission method); the customer quotes that password in his reply mail to the agent, which builds the valid transaction confirmation. The agents sends an order of money transfer to the bank: the bank sends money at provided merchant's account and confirms this payment to the agent. The agent sends the payment confirmation together with customer's

- 7 -

delivery address to the merchant, which sends goods to the customer.

2. The method of claim 1 or/and 2 is based on principle, that the valid transaction password is divided up to at least two parts, and every part is to be sent using different way of information delivery to the customer.

INTERNATIONAL SEARCH REPORT

Inter: nal Application No

PCT/PL 00/00052

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G07F19/00

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 000 832 A (BENALOH JOSH ET AL) 14 December 1999 (1999-12-14) column 2, line 22 - line 38	1
Y	---	2
Y	WO 96 29667 A (SANDBERG DIMENT ERIK) 26 September 1996 (1996-09-26) page 3, line 17 - line 27	2
A	---	1
A	EP 0 813 325 A (AT & T CORP) 17 December 1997 (1997-12-17) column 3, line 2 - line 19	1
A	DE 197 18 103 A (SCHMITZ KIM) 4 June 1998 (1998-06-04) column 1, line 39 -column 2, line 25	1,2

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier 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

Date of the actual completion of the international search

22 January 2001

Date of mailing of the international search report

29/01/2001

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

Schofield, C

INTERNATIONAL SEARCH REPORT

information on patent family members

Inter. nal Application No

PCT/PL 00/00052

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6000832	A	14-12-1999	NONE	
<hr style="border-top: 1px dashed black;"/>				
WO 9629667	A	26-09-1996	US 5826245 A	20-10-1998
			AU 5366096 A	08-10-1996
<hr style="border-top: 1px dashed black;"/>				
EP 0813325	A	17-12-1997	US 5778173 A	07-07-1998
			CA 2205124 A	12-12-1997
			JP 10149397 A	02-06-1998
<hr style="border-top: 1px dashed black;"/>				
DE 19718103	A	04-06-1998	AU 6354598 A	05-11-1998
			CN 1207533 A	10-02-1999
			EP 0875871 A	04-11-1998
			JP 10341224 A	22-12-1998
			US 6078908 A	20-06-2000
<hr style="border-top: 1px dashed black;"/>				