



(11) **EP 2 166 501 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
24.03.2010 Bulletin 2010/12

(51) Int Cl.:
G06Q 30/00 (2006.01)

(21) Application number: **09010752.5**

(22) Date of filing: **21.08.2009**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK SM TR**
Designated Extension States:
AL BA RS

(71) Applicant: **Monet+, a.s.**
763 14 Zlin, Stipa (CZ)

(72) Inventor: **Endrys, Bretislav**
760 01 Zlin (CZ)

(74) Representative: **Andera, Jiri et al**
Rott, Ruzucka & Guttmann
Vinohradska 37/938
120 00 Praha 2 (CZ)

(30) Priority: **16.09.2008 CZ 200820322 U**

(54) **System for issuing, management and accessing of electronic simplified value added tax invoices**

(57) System for issuing, management and accessing of electronic simplified VAT invoices providing remote access to them, comprises the central store (1) of simplified VAT invoices which is through the access and authentication server (2) of processing simplified VAT invoices and using the electronic data network (3) connected to the device (4) for issuing simplified VAT invoices and affixing the customer's identifier (8) to them, where the device (4) is connected to the device (5) for reading customers' identifiers (8), and the central store (1) of simplified VAT invoices is connected with the customer's client access point (6) through the server (2) for processing

and the electronic data network (3), and the access to the central store (1) of simplified VAT invoices is provided for the merchant after the merchant registers and discloses the merchant's full identity, i.e. both identification and authentication data of the merchant, and access to the central store (1) of simplified VAT invoices is provided for the customer on the level of the anonymous identifier (8) which is the unique code on the identifier (8) data carrier and the customer's identifier (8) is readable at the merchant's end by the device (5) for reading the customer's identifier (8), and the integrity and non-repudiation of the data content of VAT invoices is ensured in the central store (1) of simplified VAT invoices.

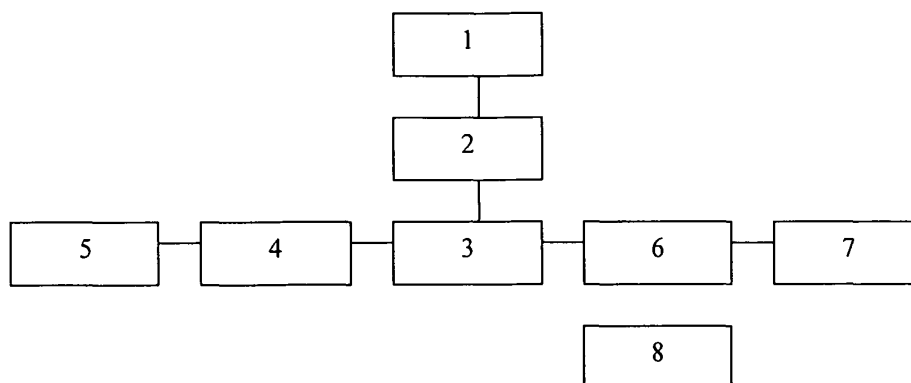


Fig 1

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Description

Technical field of the invention

[0001] The invention relates to the system of issuing, management and accessing of electronic simplified value added tax invoices which can be issued for customers by business entities. Out of value added tax invoices which are allowed by currently valid legislation, the utility model focuses on the simplified value added tax invoice.

Background of the Invention

[0002] At present merchants rendering taxable supplies paid for in cash or by payment cards or cheques are obliged to issue a simplified value added tax invoice (hereinafter referred to as "the simplified VAT invoice") to the buyer (hereinafter referred to as "the customer") upon the buyer's request, immediately on rendering taxable supplies. The simplified VAT invoice must comply with conditions, provisions and elements required by generally valid legislation. All customers, both physical persons and legal entities, can have reasons for keeping simplified VAT invoices, or for further processing of such invoices, such as keeping invoices for handling claims, and processing such invoices for accounting purposes, their archiving and many others. Paper is the most frequent carrier of simplified VAT invoices. This also affects current methods of VAT invoice processing. The VAT invoice is printed or written on the basis of the payment made by the customer; the invoice bears the merchant's stamp and signature, if applicable, and as such it is given to the customer. However, the current legislation also allows the existence of simplified VAT invoices in electronic format and such format of the document offers new methods for its further use and processing. The main aim of the present solution is to remove drawbacks arising out of the issuing, giving, registering and archiving of paper VAT invoices. The disadvantages of paper VAT invoices and handling with them include a possible loss of their readability, damage to the invoice caused by crumpling, tearing or losing it, etc., and the high costs of registration and archiving of invoices and higher labour input in their further processing.

[0003] The afore-said reasons suggest it is convenient to issue simplified VAT invoices in electronic format. However, operations relating to this differ significantly from the paper format as the customer is not able to receive an electronic simplified VAT invoice at the moment of performing the purchase, i.e. making the payment. The individual immediate receipt of electronic simplified VAT invoices by the customer is practically excluded, it would put high requirements on a reliable, compatible medium, its permanent availability for the customer and it would make the service longer at the point of sale, which is not desirable either.

Summary of the Invention

[0004] The disadvantages of the processing of and handling with simplified VAT invoices are removed considerably by the system of issuing, management and accessing of electronic simplified VAT invoices which is **characterized in that** it comprises a central store of simplified VAT invoices which is connected through an access and authentication server for simplified VAT invoices processing and through an electronic data network to a device for issuing simplified VAT invoices and affixing the customer's identifier to them, and the device is connected to a device for reading the customer's identifier, at the same time the central store of simplified VAT invoices is connected with the customer's client access point through the processing server using the electronic data network, and access to the simplified VAT invoices central store is provided for the merchant after the merchant registers and discloses his/her full identity, i.e. both his/her identification and authentication data, while access to the simplified VAT invoices central store is provided for the customer on the level of an anonymous identifier which is a unique code contained on the identifier data carrier. The customer's identifier is readable by a device capable of reading customers' identifiers placed on the merchant's end, the integrity and non-repudiation of simplified VAT invoices data content is ensured in the simplified VAT invoices central store.

[0005] Data carriers of identifier include carriers with identifier graphically printed on it in the form of a readable barcode, contact smart cards, contactless smart cards, or other devices/interfaces, such as mobile telephones, PDAs, various personal objects with a contactless chip or other devices/interfaces which are readable by devices for reading the customer's identifier.

[0006] The central store of simplified VAT invoices is connected with the applications linked to simplified VAT invoices through the electronic data network, both in web applications, such as gateways, data browsing, simplified VAT invoices management, and in distributed applications, such as accounting systems, driving logs, accounting and registration systems, etc.

[0007] In addition, the central store can be used for loyalty programs where central data about purchases are linked to the client's anonymous identifier and the merchant offering a loyalty program knows, after the client registers for the loyalty program, the link between the anonymous identifier and the specific customer, and the data are used for loyalty purposes.

[0008] The device for issuing simplified VAT invoices and affixing the customer's identifier to them and sending them to the central store is for example the merchant's cash register, computer or another similar device.

[0009] The customer's client access point is further connected with the customer's output device.

[0010] The client's access point is a computer, mobile telephone, PDA, etc.

[0011] The output device is e.g. a printer, monitor, dis-

play, etc.

[0012] The point of sale is equipped with technical devices for producing simplified VAT invoices in electronic format and it has connectivity to the electronic store. After completing the payment transaction at the point of sale, a simplified VAT invoice is made and after the authorization of the point of sale to the simplified VAT invoice database such created VAT invoice is stored there. Each VAT invoice stored in the electronic database has its integrity, including non-repudiation by the entity issuing the simplified VAT invoice.

[0013] The access to stored invoices is provided for both the merchant and the customer. Either of the group of entities (the merchant and the customer) must authenticate before accessing the store through the electronic channel and the result of the authentication enables the entity to access only the data which belong to such entity.

[0014] The electronic format of the data content of the simplified VAT invoice is identical with its paper equivalent. If the invoice is centrally stored in the database, the appropriate identifier is affixed to it by which it is linked with the customer. Such identifier is anonymous in relation to the customer's identity in the system (no direct link to the customer's identity is established internally in the system), it must only fulfil the uniqueness requirement. Various identification cards (issued by other issuer than the system provider) can be used as identifiers, for instance smart cards, contactless cards, barcode cards, or directly devices (such as mobile telephones). The point of sale must be able to read the identifier from its carrier (a smart card, device).

[0015] Business entities which would like to issue electronic VAT invoices must register with the VAT invoices central database and select the method of authentication and data transfer so that the system can provide access only for registered entities.

[0016] Also, each new customer (the system user) must be registered with the VAT invoices database. The registration process checks that the customer's identifier is unique and the link between such identifier and the authentication data defined by the customer is created (e.g. login name and password combination), which remains confidential information of the customer as the identifier holder. The authentication data of the customer are used to access electronic simplified VAT invoices through electronic channels.

[0017] Customers can produce various identifiers when they pay at the point of sale which can generate simplified VAT invoices, so that private payments can be separated from the payments made on behalf of business entities. The device capable of issuing simplified VAT invoice and affixing the customer's identifier to it sends such generated electronic VAT invoices to the central database. The storing of VAT invoices in the data store involves the ensuring of the invoice integrity, including the holder's identifier.

[0018] The advantages of the present solution include: the availability of simplified VAT invoices throughout the

required archiving period (paper invoices can be lost, damaged), VAT invoices are easy to search and sort, the option of integration with other applications which use simplified VAT invoices (such as driving logs, simplified VAT invoices from petrol stations and links to accounting systems), provision of access to simplified VAT invoices for auditing government bodies, and the possibility of storing invoices anonymously which prevents misuse of data, such as information about goods purchased by a specific customer.

Brief description of the drawing

[0019]

Figure 1 shows diagrammatic representation of separate components of the system for issuing, management and accessing of electronic simplified VAT invoices.

Detailed description of a preferential embodiment

[0020] It must be mentioned that the currently valid legislation allows storing simplified VAT invoices in electronic format. The electronic format of the data content of the VAT invoice is identical with its paper equivalent.

[0021] According to the present solution, simplified VAT invoices are stored in the so called central store 1 of simplified VAT invoices which is part of the system for issuing, management and accessing of simplified VAT invoices.

[0022] Specifically, the present system comprises the central store 1 of simplified VAT invoices which gathers simplified VAT invoices sent electronically by merchants and with customers' identifiers affixed to them. The central store 1 is connected with the access and authentication server 2 which provides access and authentication to the central store 1 of simplified VAT invoices both for the merchant and the customer, the merchant logs in to the central store by disclosing the merchant's full identity, i.e. both identification and authentication data of the merchant, and the customer logs in to the central store 1 only on the level of the anonymous identifier 8. The Server 2 is further connected with the electronic data network 3. Such electronic data network is connected with the device 4 for issuing simplified VAT invoices and affixing the customer's identifier to them at the merchant's end. Such device 4 is connected with the device 5 for reading the customer's identifier 8.

[0023] The device 4 for issuing simplified VAT invoices and affixing the customer's identifier 8 to them and sending created simplified VAT invoices to the central store 1 is for example the merchant's cash register, i.e. the merchant's computer or another device which is able to create an electronic VAT invoice, affix the customer's identifier 8 to it and send the simplified VAT invoice through the access and authentication server 2 to the central store 1.

[0024] The device 5 for reading the customer's identifier 8 can be a number of common devices, depending on the type of the carrier of the customer's identifier 8. Such devices can be barcode readers, smart card readers, both contact and contactless, chip scanners and other carriers of the customer's identifiers. The technical device for reading customers' identifiers does not have to be specified in detail, as these devices are known to experts in the given field of technology.

[0025] The customer is connected to the central store 1 through the access and authentication server 2 using the electronic data network 3 and the client access point 6. The client access point 6 can be for instance a computer, mobile telephone, PDA or another device which is able to connect to the central store 1. The client access point 6 can be connected to the output device 7 at the customer's end, which can be a device able to display the simplified VAT invoice, or to print or store it. Such device can be for example a printer, monitor, mobile telephone display, PDA display and other devices known to experts in the given field of technology.

[0026] The central store 1 of simplified VAT invoices comprises the database of simplified VAT invoices which are stored in such database by points of sales connected with the database through the electronic data network 3 and the access and authentication server 2.

[0027] The electronic data network 3 can be for instance the internet network, GSM network and other data networks known to experts in the given field of technology.

[0028] The access and authentication server 2 of the system for processing of simplified VAT invoices is connected with the central store 1 of simplified VAT invoices and it provides authorized access to the central store 1 for merchants and customers. The merchant must register through the server 2, and in every case of sending an electronic simplified VAT invoice with the customer's identifier affixed to it to the central database, the merchant must identify himself/herself and authenticate. If authentication is successful, the merchant is enabled to store the electronic simplified VAT invoice. The merchant provides his/her full identity to the access and authentication server 2 every time the merchant accesses the central store, it is thus secured that the electronic simplified VAT invoice sent by such merchant has its integrity, incl. non-repudiation of such merchant for the invoice issued and sent by such merchant. If no identifier is affixed to the electronic VAT invoice or if the authentication of the merchant fails or if the electronic VAT invoice is damaged on the way to the central store, such simplified VAT invoice is rejected by the access and authentication server, it is not stored in the central store 1.

[0029] The customer registers in the central store 1 using the electronic data network 3 through the access and authentication server 2. During the registration process the customer fills in the identification code in the access form to the application and the system server 2 verifies the uniqueness of the code filled in (no one else can

register with the same code) and creates a link between the customer's identifier 8 and authentication data defined by the customer, which can be for instance login name and password combination. Such authentication data remains the confidential information of the customer as the holder and they are used to access electronic VAT invoices stored in the central store 1. When accessing the central store, the customer enters the login name and password, and the server 2 checks the uniqueness of the authentication data. In case of positive verification the server 2 allows the customer to access electronic simplified VAT invoices with the customer's identifier affixed to them. In case of negative verification the access is denied by the server 2. From now on the customer will log in using the selected login name and password. The identifier, or other identifiers, if applicable, registered by the customer, will be linked with such login name in the system.

[0030] The customer's identifier 8 is anonymous in relation to the customer's identity in the present system, which means that no direct link to the customer's identity is established internally in the system. The identifier 8 must only fulfil the uniqueness requirement. The identifier 8 can be various carriers, for instance identification cards, issued by other issuers than the system provider, which can include smart cards, contactless cards, barcode cards, or directly devices (e.g. mobile telephones). The point of sale must be able to read the identifier 8 from its carrier (e.g. a smart card, device).

[0031] An example of embodiment of the identifier 8 can be the use of barcode-based customer's identifier. Barcodes can be easily read at the majority of points of sale, as they are usually equipped with barcode readers. Another example of embodiment of the identifier can be for instance a payment card which at the same time enables also other methods of identifier reading, such as using a contactless chip. The method of identifier producing and distribution among customers is not important, as the identifier does not require confidentiality. Using a duplicate identifier is not useful for the holder, however, it is not in conflict with the original identifier holder's interests.

[0032] The system for issuing, management and accessing of electronic simplified VAT invoices functions in the following manner. After either cash or cashless payment is made at the point of sale issuing an electronic simplified VAT invoice, the customer produces the carrier of his/her identifier 8. After that, the merchant, using the device 5 for reading identifiers, e.g. smart card reader, scans the customer's identifier 8 from his/her identifier carrier. Then, the merchant, using the device 4 for issuing simplified VAT invoices, such as a cash register or a computer with necessary software, creates an electronic simplified VAT invoice and affixes the customer's identifier 8 read from the identifier carrier to such invoice. Then, the merchant connects to the central store 1 through the access and authentication server 2. After entering the merchant's full identity and successful access verifica-

tion, the merchant sends the electronic simplified VAT invoice to the central store 1, where such invoice is stored. The central store 1 of simplified VAT invoices affix an electronic label to all stored data, and such electronic label guarantees invoice integrity and non-repudiation of the origin of the data.

[0033] The customer can any time log in remotely to the central store 1 of simplified VAT invoices through the electronic data network, e.g. the internet, and the client access point 6 which can be e.g. a computer, mobile telephone, PDA, etc. The customer registers using the login form of the application where the customer enters the identifier code and authentication data which usually comprise the login name and password. The access and authentication server 2 links the identifier code entered by the customer with the customer authentication data and starting from this point the customer logs in using the selected login name and password. After successful verification of the customer's identity, the customer can access the data linked with the customer's identifier or identifiers (if the customer has registered multiple identifiers). From now on the customer will log in using the login name and password selected by him/her. The identifier, or other identifiers, if applicable, registered by the customer, will be linked with such login name in the system.

[0034] The customer can access the central store 1 of simplified VAT invoices not only through the internet, but also using software supporting communication with the central database 1 of simplified VAT invoices (e.g. driving logs, accounting books, etc.). Such software is equipped with data connectivity, and after entering the login name and password, it connects to such interface (through the internet) and provides the customer access to the stored invoices and downloads them to the software automatically for further data processing purposes, depending on the customer's requirements. Further processing of data can include e.g. data archiving in PC, storing on memory media, or printing VAT invoices to keep them in usual paper format.

[0035] Data stored in the central store 1 of simplified VAT invoices can be additionally used for various loyalty programs, however, only with the customer's previous approval. Such loyalty programs are based on the principle that the loyalty system provider knows the link between the anonymous identifier of the system for issuing, management and accessing electronic simplified VAT invoices and the physical member of the loyalty program. This enables to obtain information about the purchases linked with the identifier and use such information as input data for awarding loyalty points, rewards or other methods of loyalty program linked to the specific customer.

Industrial applicability

[0036] The present technical solution for issuing and storing of electronic VAT invoices is an industrially applicable solution which can be initially used for purchases

of specific commodities which require specific further processing, such as fuel and driving logs, and can gradually be extended with other items, or can be launched in various chain stores.

Claims

1. System for issuing, management and accessing of electronic simplified VAT invoices providing remote access to them, **characterized in that** it comprises the central store (1) of simplified VAT invoices which is through the access and authentication server (2) of processing simplified VAT invoices and using the electronic data network (3) connected to the device (4) for issuing simplified VAT invoices and affixing the customer's identifier (8) to them, where the device (4) is connected to the device (5) for reading customers' identifiers (8), and the central store (1) of simplified VAT invoices is connected with the customer's client access point (6) through the server (2) for processing and the electronic data network (3), and the access to the central store (1) of simplified VAT invoices is provided for the merchant after the merchant registers and discloses the merchant's full identity, i.e. both identification and authentication data of the merchant, and access to the central store (1) of simplified VAT invoices is provided for the customer on the level of the anonymous identifier (8) which is the unique code on the identifier (8) data carrier and the customer's identifier (8) is readable at the merchant's end by the device (5) for reading the customer's identifier (8), and the integrity and non-repudiation of the data content of VAT invoices is ensured in the central store (1) of simplified VAT invoices.
2. System according to claim 1, **characterized in that** the data carrier of the identifier (8) is a carrier with the identifier graphically printed on it or with barcode, a smart card, both contact and contactless, or any other device/interface, such as mobile telephone, PDA, various personal objects with contactless chip or other objects which the device (5) for reading the customer's identifier can read.
3. System according to claims 1 and 2, **characterized in that** that the central store (1) of simplified VAT invoices is through the electronic data network (3) connected with applications linked with simplified VAT invoices, both in web applications, such as gateways, data browsing, management of simplified VAT invoices, and distributed applications, such as accounting systems, driving logs, accounting and registrations systems, etc.
4. System according to claims 1 and 2, **characterized in that** that the central store (1) is intended for loyalty

programs where central data about purchases are linked to the customer's anonymous identifier and the merchant who offers the loyalty scheme knows, after the customer's registration for the loyalty program, the link between the anonymous identifier and its specific holder and the data are used for loyalty purposes. 5

5. System according to claim 1, **characterized in that** the device (4) for issuing simplified VAT invoices and affixing the customer's identifier (8) to them and sending the simplified VAT invoices to the central store (1) is for instance the merchant's cash register, computer or similar device. 10

6. System according to claim 1, **characterized in that** the customer's client access point (6) is also connected with the customer's output device (7). 15

7. System according to the aforementioned claims, **characterized in that** the client access point (6) is a computer, mobile telephone, PDA, etc. 20

8. System according to afore-said claims, **characterized in that** the output device (7) is e.g. a printer, monitor, display, etc. 25

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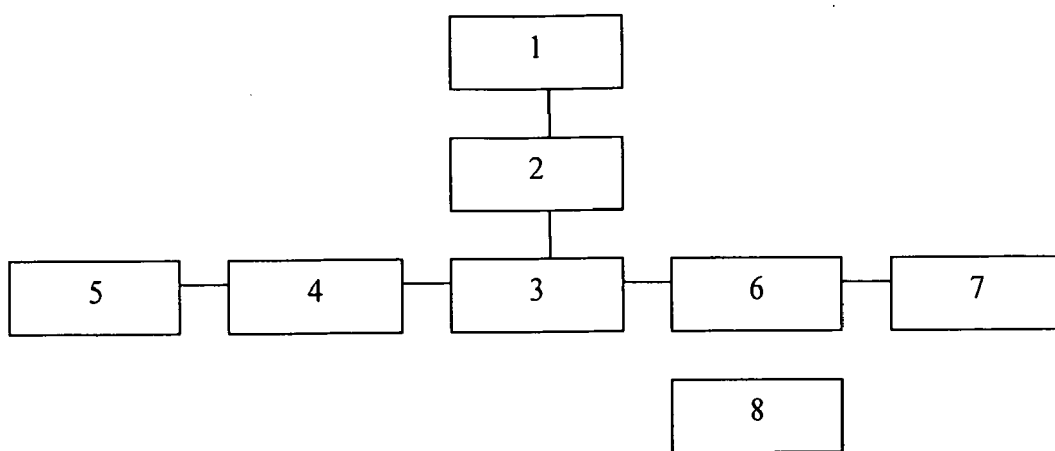


Fig 1



EUROPEAN SEARCH REPORT

Application Number
EP 09 01 0752

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
L	The claimed subject matter, with due regard to the description and drawings, relates to processes comprised in the list of subject matter and activities excluded from patentability under Art.52(2) and (3) EPC. The applicant is advised that in accordance with the established practice of the EPO, no search need be performed in respect of those aspects of the claimed invention. The only identifiable technical aspects of the claimed invention relate to the use of conventional, general-purpose data processing technology for processing data of an inherently non-technical nature. The information technology employed is considered to have been generally known as it was widely available to everyone at the date of filing/priority of the present application. The notoriety of such prior art cannot reasonably be contested. No documentary evidence was therefore considered required. For further details see the Notice from the European Patent Office dated 1 October 2007 (OJ 11/ 2007, p. 592 f) and the accompanying Opinion. -----	1-8	INV. G06Q30/00
			TECHNICAL FIELDS SEARCHED (IPC) G06Q
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 4 January 2010	Examiner Hopper, Eva
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