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(54)

Method and apparatus for automatically booking and delivering tickets

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An automated method and apparatus for vending tickets comprising at least one card reader (17) designed to read data stored in a card, at least one printer (18), displaying means (19), and storage and communication means (16) connected to each card reader (17),

to each printer (18) and to the said displaying means (19) and designed to recognise the said card data whereby releasing a written statement to be displayed by said displaying means (19), and to control said printer (18) for printing out tickets

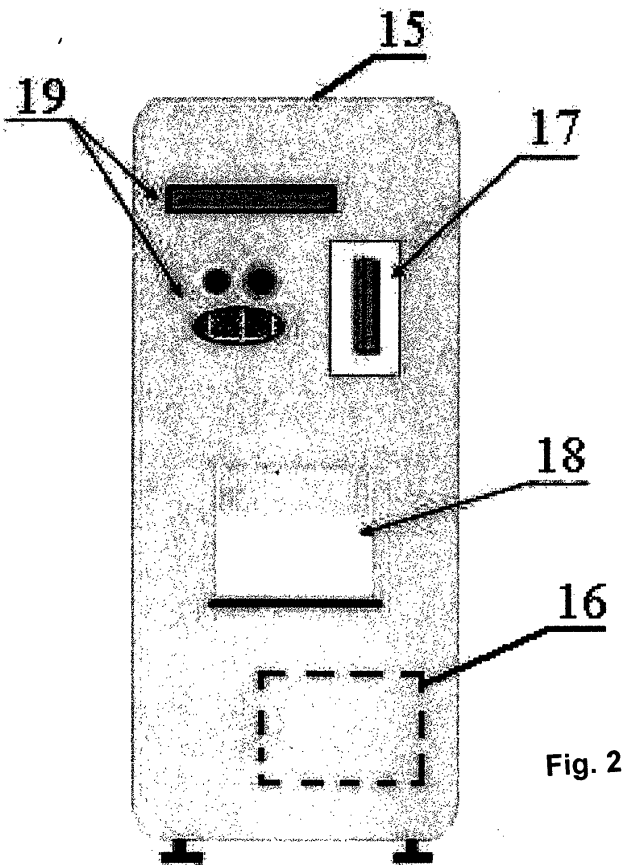


Fig. 2

## Description

[0001] The present invention relates to a method of, and apparatus for automatically delivering tickets.

[0002] As known, the most difficult problems faced with delivering any type of ticket, e.g. public transport, railway, airline tickets, or tickets for specific events such as fairs and exhibitions, or for cultural events such as art exhibitions, plays, movies, operas, or admittance tickets to museums or the like, arise at an early stage of actual ticket delivery to customers that have purchased them via a remote-negotiation system, e.g. through a telephone or internet ticket selling system. For the sake of clarity, in present specification "ticket" is herein meant to indicate any type of ticket, "organiser" the ticket sale provider, "event" a specific service or manifestation that a customer intends to use or attend to, the term "event" may also refer to a series of events coordinated by an organiser at one venue or at a number of venues.

[0003] Automated ticket sale equipment is currently available at conventional ticket offices or as a terminal of more recently developed remote-vending systems, such as ticket booking by telephone where virtual answering operators are provided by the organisers, that make it possible to book tickets and pay them via an electronic payment means such as bank debit-credit cards.

[0004] Systems are also used mainly at multi-projection room cinemas that provide a telephone number, usually a toll free telephone number, i.e. for which the organiser and not the customer will be billed, that the would-be customer can dial to be connected to artificial voice automatic answering systems and can select a number of shows and available seats by using his telephone keypad as a selection means. Payment is effected by means of a bank card, e.g. a credit-debit card, whose identification number is forwarded to the answering system by means of the telephone keypad.

[0005] Once these transactions on the phone have been completed, the customer can collect his ticket or tickets at the venue where the event is scheduled to take place by inserting the same credit card as that used for telephone negotiation in a suitable magnetic reader. Sometimes, payment is effected at ticket collection site and for that purpose the customer is requested to dial a code by tapping on an alphanumeric keypad arranged on a ticket delivering machine which may be also provided with displaying monitor. This operation is often time consuming and may result in long queuing since billing service may require relatively long time intervals.

[0006] A first drawback of such ticket delivery systems arises from the tickets booking itself. As a matter of fact, these ticket delivery systems take advantage of a communication means, i.e. the telephone set, that sets the user into communication with the organiser's system without assuring that any exchange of information is going to be kept fully confidential.

[0007] Another drawback of the above described sys-

tems is that takings generated by the ticket sale are cashed no sooner than when the payment is actually made and the ticket is issued. It is thus quite hard for the organiser, e.g. a theatre, a museum, that must also comply with the terms and conditions imposed by copyright rules in force, e.g. preparation of a daily takings records. It is also difficult for an organiser to provide updated records, e.g. on actual demand for an event or for transport means, such as a plane, before the tickets booked on the phone are actually paid and issued, and this for the obvious reason that the number of booked tickets is usually unlikely to match the number of seats that can actually be sold.

[0008] More particularly, bearing in mind that bank cards are provided with a PIN (univocal Personal Identification Number) and a PAN (univocal Card Identification Number), it ought to be emphasised that the above described ticket delivery systems directly store the PAN of each card, which means that third parties could have access to the organizer's archive, work out the PAN of bank cards, and credit cards in particular, and be able to manufacture and use counterfeited credit cards at low cost.

[0009] Another drawback is faced in the ticket issuing process. Tickets are in fact obtained starting from pre-printed forms that are per se easy to be counterfeited, as it is relatively simple to duplicate standard prints usually produced by needle matrix printers.

[0010] The main object of the present invention is to provide an automatic ticket vending system that makes it possible to eliminate or significantly limit the above described shortcomings faced with the prior art ticket delivery systems.

[0011] Another object of the present invention is to provide an automatic ticket vending system suitable for eliminating any risk of counterfeiting tickets and payment means, and for providing means for safe payment and issuing of tickets free from pre-printed information data.

[0012] Another object of the present invention is to provide an automatic ticket vending system that eliminates any chance of regenerating the PANs of any card used in the system by providing a transcoding suitable for PAN recognition but unsuitable for generating it anew.

[0013] A further object of the present invention is to provide an automatic ticket vending system arranged to eliminate at the source any chance of unlawful use of both card PANs and tickets deceitfully removed.

[0014] A further object of the present invention is to provide an automatic ticket vending system that drastically reduces the time spent by a customer, or user, while waiting for his ticket to be printed at the ticket delivery site.

[0015] A not last object of the present invention is to provide an automatic ticket vending system that is arranged to solve a number of major problems for an organiser by eliminating the need of carrying out a large

number of checks on the ticket sale operations already made.

**[0016]** According to a first aspect of the present invention there is provided an automated process for vending tickets, comprising the following steps:

- booking, wherein a user books tickets for a selected event through automatic booking means;
- paying, wherein a bank card is billed the cost of the booked tickets through an automated payment system;
- data storing, wherein automated data processing means processes the bank card identification code, thereby storing it in storage and communication means provided within a ticket vending apparatus;
- ticket delivering, wherein the same bank card as that used for ticket booking is inserted in said vending apparatus to print out said booked ticket or tickets;
- recording, wherein all undelivered tickets are printed in said vending apparatus on the day of the event and data relating to all printed tickets are entered in a registry.

**[0017]** The method according to the present invention by providing storing data designed to identify but not regenerate a card PAN, makes it possible to obtain a compact data base that can be easily unloaded on a ticket vending apparatus, e.g. located at a site or venue where an event is scheduled to take place, which is designed to directly print out and deliver the ticket or tickets to the customer or user once the said user inserts his bank card through a bank card reader provided in the ticket vending apparatus and the bank card PAN has been identified.

**[0018]** Moreover, as the payment was carried out before storing identification PAN data, the waiting time at the ticket vending apparatus is advantageously strictly dependent on the actual time the ticket vending apparatus takes to print out the tickets that had previously been booked and paid for by the user.

**[0019]** It will be noted that the ticket vending apparatus can be located anywhere within a convenient distance from access site to an area where an event is scheduled to take place, which makes it possible to significantly reduce queuing times and the risk of overcrowding the ticket delivery areas.

**[0020]** According to another aspect of the present invention, there is provided an automated ticket vending apparatus, characterised in that it comprises at least one card reader designed to read data stored in a card, at least one printer, displaying means, and storage and communication means connected to each card reader, each printer and said displaying means and designed to recognise the said bank card data whereby releasing a written statement to be displayed by said displaying means, and to control said printer for printing out tickets.

**[0021]** Further aspects and advantages of the present

invention will be better apparent from the following description of some currently preferred embodiments, given only by way of not limiting example with reference to the accompanying drawings, in which:

Figure 1 is a flow diagram illustrating an automated ticket vending method according to the present invention; and

Figure 2 is a preferred embodiment of an automated ticket vending apparatus according to the present invention.

**[0022]** With reference first to Figure 1, an automated method of vending tickets according to the present invention comprises the following steps:

- a booking step 1 wherein a customer or user books one or more tickets for a selected event through an automated booking means, e.g. via internet, payment being made by a credit or debit card. It should be noted that at this stage connection to an organizer is made possible through a server controlled by private and public key systems, so that any transaction is safely conducted in every respect;

billing 2 wherein automated payment systems, i. e. debit or credit bank card service providers charge the bank card used or indicated by the user for ticket booking;

storing 3 wherein automated data processing means, e.g. comprising dedicated electronic processing units, processes the bank card PAN and store the processing results in storage and communication means 16 provided in a ticket vending apparatus 15;

delivering 4 wherein by inserting the or debit card used for booking the tickets through a card reader in the vending apparatus 15, tickets are printed out in the vending apparatus and delivered to the user;

recording 5 wherein all undelivered tickets are printed in the said vending apparatus 15 and data relating to all issued tickets are billed and entered into a (fiscal) register on the day of the event.

**[0023]** More particularly, the storing 3 comprises the following sub-steps:

data processing 6 wherein the automated data processing means comprising one or more electronic control units usually located at the premises of the sale service provider or at automated ticket machines, receives the PAN associated with a specific card as input data and processes the same to provide univocal identification data of such PAN. PAN identification is "univocal" in that it is possible to effect identification or recognition of the card but it is impossible to reconstruct its magnetic band, thus eliminating the risk of unlawfully use, e.g. in case the card data are stolen from the organizer's system;

safety 7 wherein any records of the PAN used during processing step 3 struck out from any store, thereby physically eliminating them from the processing chain; and  
 storing 8, wherein the said identification data is stored in a storage and communication means 16.

**[0024]** In this way, information as to the amount of tickets sold for a given event is stored in the ticket vending apparatus 15 or in a server connected thereto in case a plurality of ticket vending apparatuses 15 are provided at the event site or venue.

**[0025]** Once the user stands in front of a ticket vending apparatus 15 and inserts his bank card into a credit or debit card reader 17 provided for in the ticket vending apparatus 15 a ticket delivery step starts. After the bank card has been read, the storage and communication means 16 compares the read bank card PAN with the PAN identification data stored in it. In case of successful matching with one stored identification PAN, the store and communication means 16 provide control output data for a printer 18 provided in the ticket vending apparatus 15 to print the booked tickets. Printing occurs virtually at once with no further transactions involving the bank card charging service and no further data processing. Thus, waiting time for the user is limited to a few moments needed for completing printing of the ticket or tickets.

**[0026]** Ticket vending apparatus 15 comprises the above mentioned storage and communication means 16 that includes a microcomputer 16 wired in ticket vending apparatus 15 and electrically connected to a bank card reader 17 through or into which a bank card is inserted for being read. Moreover, the microcomputer 16 is connected to a printer 18 and a display 19. The bank card reader 17 is designed to read data in a magnetic strip of a card, whilst the microprocessor 16 identifies said data and generates recognition data to be compared with information data stored in database for identification of matching stored data. If such a matching is successful, a written statement is displayed on the display 19 to provide written information to the user, and the printer 18 is controlled to print out the booked tickets to be directly delivered to the user.

**[0027]** At the end of each day in which the event takes place, e.g. a fair or exhibition, all undelivered tickets are manually or automatically printed and recorded.

**[0028]** It will be noted that the present invention offer a large range of advantages, the most important of which are:

- first of all the possibility of carrying out protected transactions between user and the ticket booking and selling service provider;
- elimination of any trace of the original code of the bank card used for paying for the booking and selling service;
- use of an identification data derived from the card

PAN through which it is impossible to identify the card associated with it;

- immediate payment for the transaction before the ticket is issued, which means a further warranty on the takings cashed by the service organiser;
- printing of undelivered tickets for the event to obtain a correct fiscal record to meet fiscal requirements.

**[0029]** The above described invention is susceptible to numerous modifications and variations within the scope as defined by the tenor of the claims.

## Claims

1. A method of automated vending tickets, comprising the following steps:

- booking , wherein a user books a ticket or tickets for a selected event through automatic booking means;
- billing , wherein a bank card with an identification code therein is debited for the cost of the booked tickets through an automated payment system and the organizer is credited for the same amount;
- data storing, wherein processes said bank card identification code is processed by an automated data processing means, thereby storing it in storage and communication means in a ticket delivery apparatus;
- ticket delivering , wherein when the bank card used for booking the ticket or tickets is inserted by the user in said ticket delivery apparatus, a ticket or tickets are issued and delivered; and
- recording, wherein all undelivered tickets are printed in said ticket delivery apparatus on the date of the event and data relating to all printed tickets are recorded in a register.

2. A method according to Claim 1, **characterised in that** the said data storing step comprises

- data processing wherein the said automated data processing means receives the said PAN as input data and processes it in order to provide univocal identification data of the said PAN,
- safety wherein the said PIN is struck out from any storage means; and
- storing wherein the said identification data is stored in the said storage and communication means.

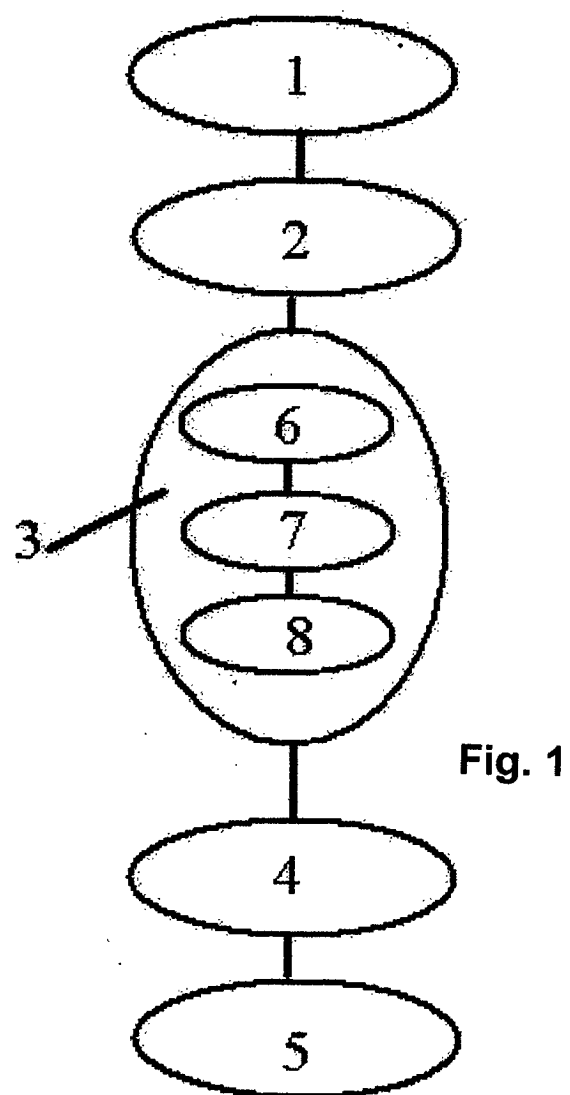
3. A method according to Claim 2 or 3, **characterised in that** said ticket delivery step comprises:

- inserting the said card through a bank card

reader provided in the said ticket vending apparatus;

- reading information data of said card by means of said storage and communication means and comparing them with the information stored therein, and 5
- in case of successful identification matching, sending control data to a printer for printing out tickets in ticket vending apparatus. 10

4. An automated ticket vending apparatus for carrying out the method according to any previous claim, **characterised in that** it comprises at least one card reader (17) designed to read data stored in a card, at least one printer (18), displaying means (19), and storage and communication means (16) connected to each card reader (17), to each printer (18) and to the said displaying means (19) and designed to recognise the said card data whereby releasing a written statement to be displayed by said displaying means (19), and to control said printer (18) for printing out tickets. 15 20 25 30 35 40 45 50 55



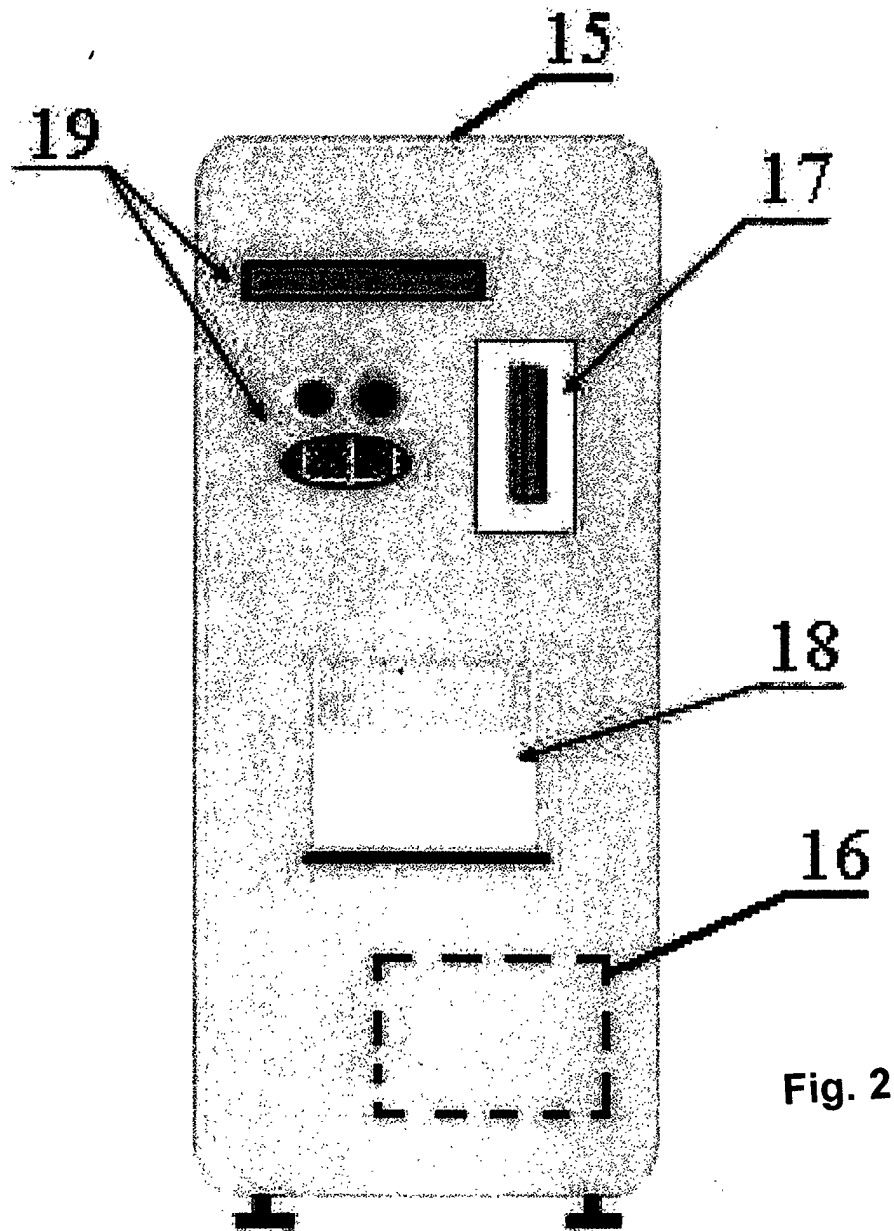


Fig. 2