United States Patent

Quinn

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[45] **Aug. 29, 1972**

[54] **COMPUTER CONTROLLED VENDING SYSTEM**

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[73] Assignee: **Ticket Reservation Systems, Inc.,** New York, N.Y.

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[21] Appl. No.: **56,214**

Related U.S. Application Data

[63] Continuation of Ser. No. 679,835, Nov. 1, 1967, abandoned.

[52] **U.S. Cl.**.....**340/172.5**

[51] **Int. Cl.**.....**G06f 11/70,** G06f 3/12

[58] **Field of Search**.....340/172.5, 152, 153, 149; 149/DIG. 1, DIG. 8

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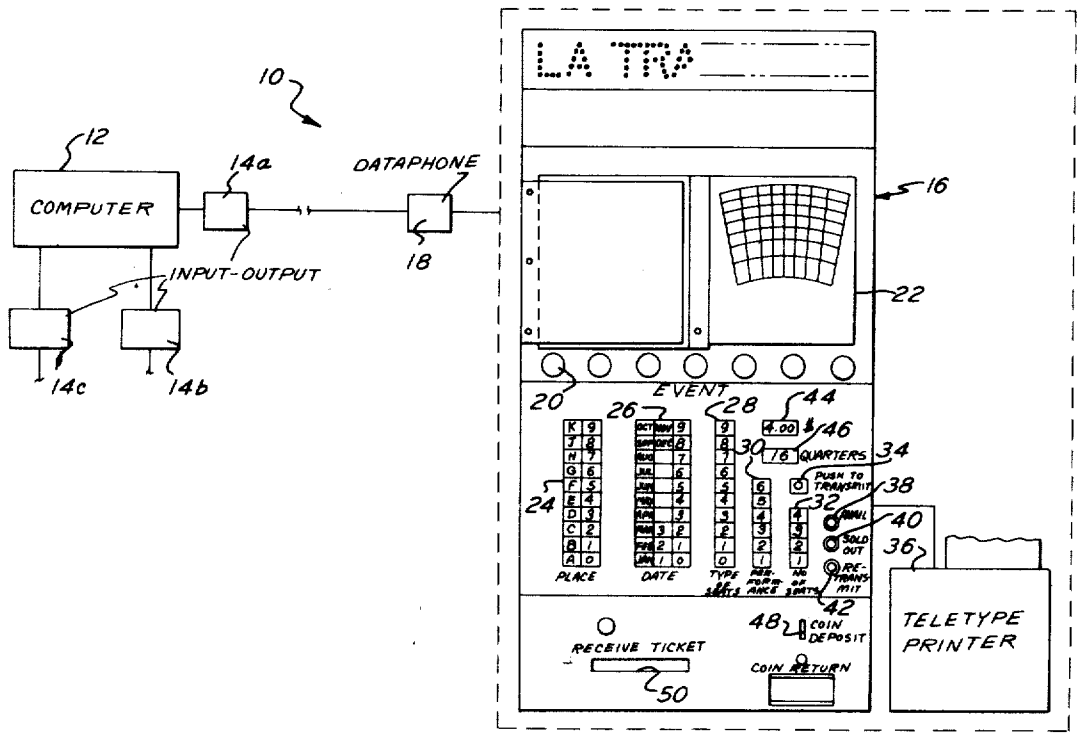
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[57] **ABSTRACT**

A central computer controls remote vending machines through long distance communication lines wherein the vending machine, in response to instructions from the computer, prints and issues valuable documents such as entertainment tickets, lottery tickets, race tickets and the like. The computer acts as a memory storage for keeping inventory and accounts. In a second embodiment an attendant sales terminal may be used with a split platen printer wherein a single mechanism provides two sets of information, the first set being the answer to inquiries and the second set the desired output.

6 Claims, 2 Drawing Figures



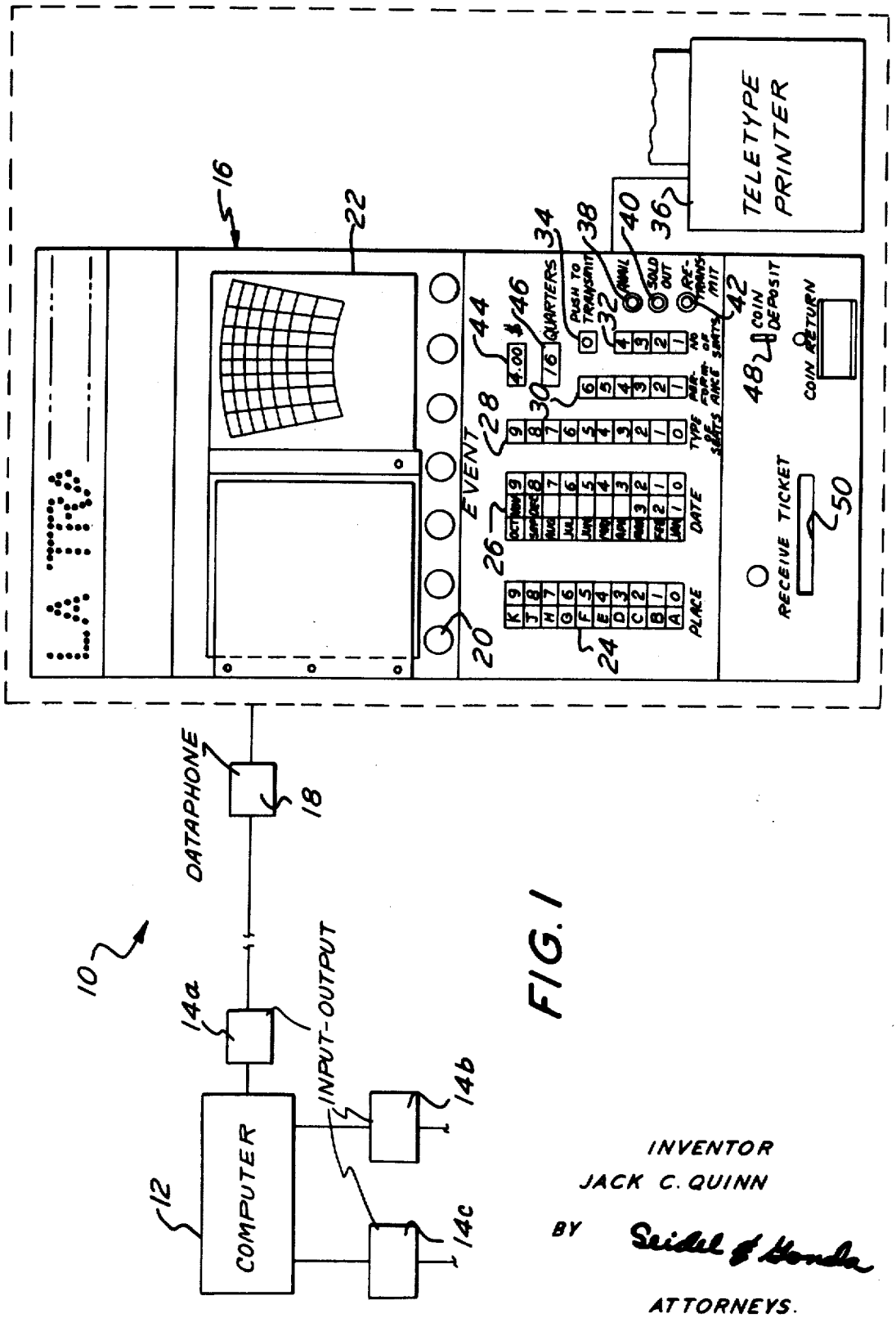


FIG. 1

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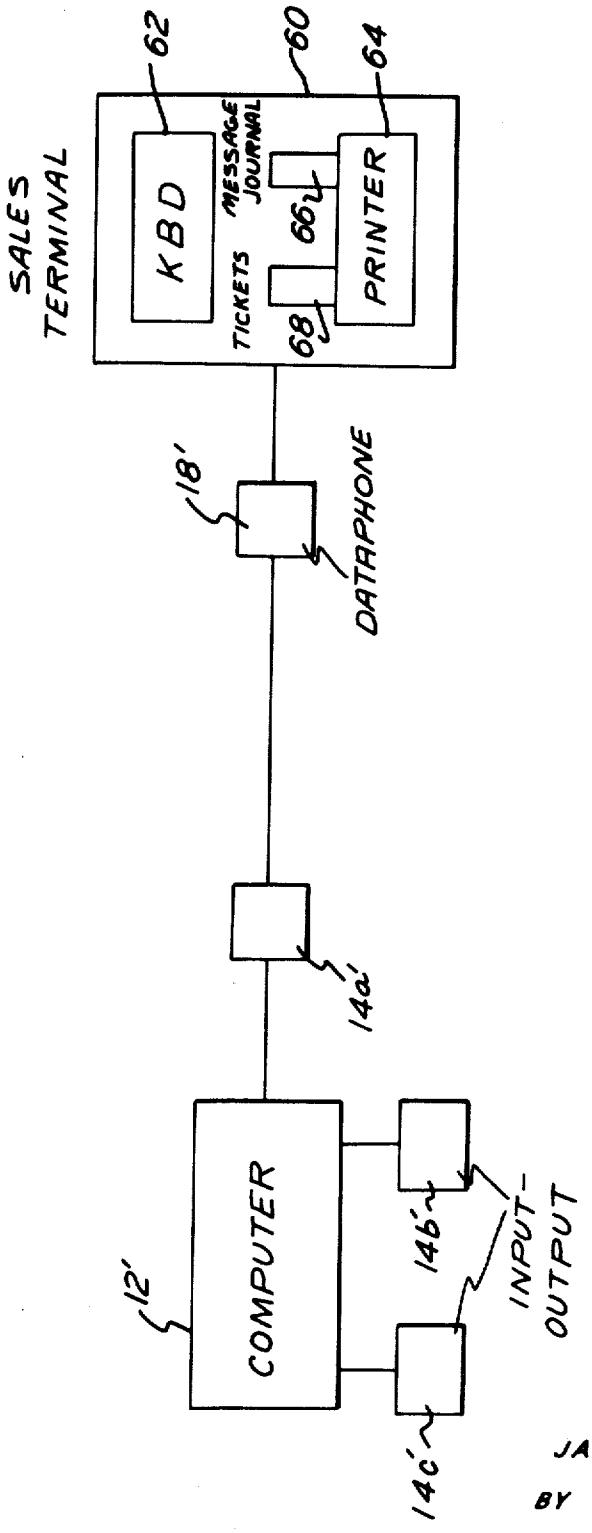


FIG. 2

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COMPUTER CONTROLLED VENDING SYSTEM

This application is a continuation of application Ser. No. 679,835, filed 11/1/67, and which is now abandoned.

This invention relates to a computer controlled vending system. More particularly, this invention relates to a computer controlled system for vending valuable documents and maintaining an inventory and accounting of the same.

There are many instances where valuable printed documents having similar but variable printed script are sold. Among these is the sale of tickets of all types which may be defined as a slip of paper containing a certificate that the person to whom it is issued, or the holder, is entitled to some right or privilege therein mentioned or described; such, for example, are railroad and airline tickets, theater tickets, lottery tickets, tickets to sports events, racing tickets, and the like. Tickets of this nature as issued by a particular enterprise are normally similar in the sense that they contain basic units of information such as the name of the theater or the like, but they also differ in the sense that the dates, seats and performances may alter from ticket to ticket. The issuance of such tickets at the present time normally comprises a rudimentary division and distribution of preprinted tickets to various sales centers. For example, theater and other entertainment tickets may be sold not only where the event is to take place, but also at various sales centers located in department stores, hotel lobbies and ticket agencies.

The difficulties inherent in such a system of distributing tickets are obvious. First, all of the tickets for every event must be printed in advance regardless of whether all of them will be sold or not. Calculated guesses must be made as to how many tickets will be sold at any particular sales center and what type of tickets will be most in demand. The tickets must be physically distributed to the sales center and then physically returned in the event that they are not sold prior to the performance. In the event that a miscalculation takes place and one sales center sells out, there is no means for informing that sales center that others have tickets available, other than time-consuming telephone calls. Accounting for the sales is delayed so that there is no real indication as to the number and dollar value of the tickets sold for several hours which may in some instances be too late to provide the required information.

There has in recent years been some attempt to overcome these defects, particularly where the need for instantaneous information is acute. These newer systems have been developed for use by railroads, airlines, car rental agencies, and hotels in making reservations. Such systems usually include a computer acting as a memory bank and a plurality of remote devices tied into the computer by a communication systems. The remote devices permit an attendant to make inquiry of the computer concerning availability of space or other information which is relayed back to him. In each instance, however, the remote station is attended and the attendant must issue the ticket, confirmation or another script by filling out a form after receiving the answer to his inquiry.

The present invention is a further improvement upon past and existing methods of distributing tickets and other forms of variable script in that it provides a centralized computer controlling remote variable script

vending machine over communication systems where the consumer can make a selection, the computer will instruct the consumer whether its selection is available or another selection must be made. If available, the computer will instruct the consumer on how much currency must be inserted into the vending machine. The computer will recognize the correct currency inserted (coins, bills or combination of both), and if correct, the computer will instruct the vending machine to follow its additional instructions to print out a ticket or other form of script. The variables controlled by the computer in printing out the ticket or script may be date, time, selection, consecutive number, seat number, performance, location or any of the other variables that go into making up tickets such as described above. It should be pointed out that it is the purpose of this invention to provide a system for printing out active script, that is the actual ticket to be used by the purchaser. This is in contradistinction to the printing of a paper which is merely good for exchange, although this latter concept is included within the invention.

The second embodiment of the present invention is a modification of the existing space reservation system described above. The second embodiment of the invention includes the features of the first embodiment with the exception of the currency accepting feature and therefore must be attended by an operator who accepts money in exchange for the printed ticket. A further feature of the second embodiment is that it includes a single printing apparatus with a split platen. In this way the first platen can be used as a message journal to answer inquiries and the second platen used to print out the ticket once the decision has been made.

For the purpose of illustrating the invention, there are shown in the drawings forms which are presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIG. **1** is a block diagram showing the venting machine, communication system and computer making up the first embodiment of the present invention.

FIG. **2** is a block diagram showing a sales terminal, communication system and computer making up the second embodiment of the present invention.

Referring now to the drawings in detail, wherein like numerals indicate like elements, there is shown in FIG. **1** a computer controlled vending system designated generally as **10**. As shown, the system includes a central computer **12** which has a mass memory and a complete system for doing data retrieval. The computer may be any one of a number of well known types of computers which are capable of being programmed to maintain an inventory of available seats, purchase receipts, monies received. Such computers are well known and usually include input devices, a control element or section, a storage or memory, an arithmetic element, and an output device. One such computer which may be used in accordance with the present invention is manufactured by Control Data Corporation and sold as the 160A Computer. This computer is available from this corporation and its function and operation are well known to those skilled in the art.

The computer is shown with a number of input-output devices **14*a***, **14*b*** and **14*c*** which in actual practice would be a single device with a number of channels.

The input-output devices **14** are connected by a communication system, preferably a telephone communication system, to a remote vending terminal designated generally as **16**. At present only input-output device **14*a*** is shown connected to a terminal **16**. Input-output devices **14*b*** and **14*c*** would also be connected to such terminals. But since the terminals are all identical, only one such device is shown in detail. The input-output devices **14** include encode and decode logic circuitry for converting the computer output into electronic pulses suitable for transmission of telephone communication systems. Such input-output devices **14** are well known for use in connection with teletype equipment and are available from the Teletype Corporation. One such device is known as the Dataphone and is connected at the remote end of the communication system as part of the terminal **16**. The dataphone **18** is shown as a separate piece of equipment in FIG. **1** but in fact it would be mounted within the chassis of the terminal **16**.

The vending terminal **16** is mounted in a chassis of which only the front panel is illustrated. The entire terminal is shown within a dotted line so that certain elements such as the printer can be illustrated although the printer would not normally be observable to the user. The use of a terminal **16** will be described in conjunction with a reference to its various elements.

The customer desiring to purchase a ticket approaches the machine and observes the event push buttons **20** which each may be individually marked with the event that is available through the use of the vending machine **16**.

By way of example, the buttons may be marked New York Yankees, New York Jets, Metropolitan Opera, and the names of many reserve seat theatrical events, assuming the machine is selling tickets for places located in New York City. Of course, it is not necessary that the machine be in New York City or that it be limited to sell tickets for events in only one city. Thus, a machine located in Philadelphia could sell tickets for reserved seat events in that city as well as New York.

By depressing the event button **20**, the user automatically presets the vending terminal **16** and causes a card or an image thereof to be presented in the window **22**. The card or image presented in the window **22** contains a layout of the seating arrangement at the place of the event. It may also contain additional information which should be related to the customer such as the location of the theater, stadium or the like. Most importantly, the card or image states the key number for the place and instructs the customer to push that particular key or keys **24** as designated by the name "Place." For example, Shea Stadium in New York could be designated in the system by the keys **F–5**. Thus, the customer would depress those particular keys.

Having selected the event and keyed the machine into the place, the customer next depresses keys **26** which sets the machine for the particular date desired. Next, the customer selects the type of seats by depressing one of the keys **28**. The particular type of key to depress is obtained by viewing the seating layout on the image shown in window **22**. It has been determined that most customers for events are not concerned about the particular seat which they get but only about the price and the area in which the seat is located. These areas are delineated on the card or image shown in window **22** and keyed to the particular key **28**. If desired, special requirement key **28** may also be provided such as for persons desiring to sit on the aisle only.

To complete the first sequence of operations for the vending machine terminal **16**, the customer depresses one of the keys **30** which selects a particular performance if there is more than one performance on the date selected. Finally, the customer depresses a key **32** which tells the machine how many seats are desired. At this point the machine is ready to be operated. Each of the keys **24, 26, 28, 30** and **32** is in reality a switch connected to appropriate circuitry for making the selection as described above. If desired, the keys **20** for selecting the event can also be used to simultaneously present the card or image in window **22** as well as select the place, thus eliminating the necessity for keys **24**.

When the selection operation has been completed as described above, the customer pushes button **34** which causes the teletype printer **36** to send the information registered on the keys **24-32**. During this operation, the teletype printer does not print, but only sends. The output of the teletype printer **36** is transmitted through dataphone **18** to input-output device **14*a*** and into computer **12**. Computer **12** scans memory and determines whether or not the particular selection is available, not available, or if the entire performance is sold out. This information is transmitted back to the vending terminal **16** and indicated to the customer or illuminating one of the lights **38, 40** and **42**. Light **40** indicates that the entire performance is sold out. Light **42** indicates that the particular seating selection is not available and that the customer should make another selection.

If light **38** is illuminated, this indicates to the customer that his selection is available. To complete the transaction, the customer deposits in coin the amount of money necessary to make the purchase. The amount is shown automatically in window **44**. In the present embodiment of the invention, it is intended that the amount of purchase be made in coin. Accordingly, the number of quarters necessary to complete the purchase is shown in window **46**. These quarters may be obtained by providing appropriate change making machines adjacent the vending machine. As each quarter is placed in the coin deposit slot **48** and accepted by the machine, the counter visible through window **46** increases one unit until it reaches zero. Although the present invention is described in connection with a vending machine capable of accepting coin only, those skilled in the art will readily recognize that it can be modified to accept paper money using the optical scanning devices now available on the open market.

As soon as the machine indicates that the correct amount of coin has been deposited, this is signaled to the computer **12** which then performs the accounting operations by debiting the inventory of seats available for that particular day and the event and also registering the amount of money received. Simultaneously, the computer transmits and instructs the printer for teletype **36** to print out a ticket. The printer follows these instructions and delivers the thus printed ticket or tickets through the slot **50**. The teletype system and teletype printer used and described in this invention are

well known and available. One such teletype machine is the Model TT35 manufactured by Teletype Corporation.

The foregoing describes how one vending terminal **16** may operate. Those skilled in the art will recognize that a multiplicity of vending terminals may be used at any number of remote places and all tied into a central computer. The advantages of such a system in solving the problems outlined above should be obvious. Moreover, those skilled in the art will readily recognize that the vending terminal is not limited to the sale of reserve seat tickets. It may, if desired, be modified to sell lottery or racing tickets. In the case of lottery, the purchaser would select the desired number, the computer would scan its memory to determine whether or not this number has already been purchased and indicate the result to the prospective customer. The customer would then either make the purchase or another selection as required. The machine can also be modified for use in off-track betting by selling race tickets up to the time of the race. In this system, the computer could be used to compute the odds and also control the tote board at the particular race track.

Referring now to FIG. **2**, there is shown a second embodiment of the present invention. Since this embodiment includes a number of devices that are the same as those described in conjunction with the embodiment illustrated in FIG. **1**, identity will be identified by using the same but primed number.

As shown, the system includes a computer **12'** having a number of input-output devices **14***a'*, **14***b'* and **14***c'* all connected through a communication systems, such as a telephone system, to remote sales terminals **60**. Only one such sales terminal is shown since the rest are similar.

The embodiment of the present invention shown in FIG. **2** is similar to that of FIG. **1** except that the sales terminals **60** must be operated by an attendant who accepts the money for the tickets and gives change.

As shown, sales terminals **60** include a keyboard **62** which may consist of a plurality of rows of push buttons having functions similar to that described and shown in conjunction with the keys **24–32** in FIG. **1**. Since this sales terminal **60** is to be attended, a key lock which will enable "on" and "off" may be provided. Also a "-clear" button to release data in the event of error can be provided. Furthermore, the lights **38**, **40** and **42** would be replaced with inquiry, buy and buy alternate buttons which function in a manner to be described below.

In general, the keyboard for the sales terminals **60** would include a plurality of buttons for selecting the event in accordance with a predetermined code, buttons for selecting the date, and still other buttons for selecting the seat area, number of seats, and special requirements. The operation of these buttons should be obvious from the foregoing description of the embodiment illustrated in FIG. **1**.

The aforementioned inquiry, buy and buy alternate buttons are tied into the self-contained Teletype Corporation Model TT35AU output writer mechanism which performs both the inquiry and ticket printing function. The sales terminals **60** also include appropriate encode/decode logic circuitry for the teletypewriter.

In accordance with the present invention, the typewriter is modified to provide a dual printing function by utilizing sprocket-fed plain paper on one side of a split platen for inquiry typing and special preprinted heavy stock ticket form paper on the other side of the split platen. Only after initiation of the "buy" function is the ticket sprocket-advanced and printed. The advantages of such a split platen should be apparent from the operation of the system. The U.S. Pat. to Sherman, No. 2,047,233, shows such a feature.

It is assumed that a customer has approached the attendant at a particular sales terminal with an inquiry concerning the purchase of a specified number of tickets for a designated event and date. The attendant thereafter prepares the system for inquiry by depressing the required "event," "date," "seat type" and "numbers of seats" push buttons. Thereafter, the attendant depresses the inquiry button which causes the teletype system **64** and dataphone **18'** to transmit to the computer **12'**. The computer searches its memory and responds by indicating whether tickets corresponding to the inquiry are available. If the event is sold out, an appropriate not available signal will be retransmitted and light an appropriate signal light. If seats are available for the performance, but not in the selected section, the computer will print out an alternative selection on the inquiry tape **66**. In a like manner, the fact that the tickets are available is printed out on the inquiry tape. If the selected tickets are available, the customer will pay for them and the attendant will press a "buy" push button on the keyboard. This signals the computer to instruct the teletype printer to print out the tickets. If, on the other hand, the original selection is not available but the customer is willing to accept the machined selected alternative, he makes his payment and the attendant presses a "buy alternative" push button on the keyboard and the machine selected alternative tickets are printed out by printer **64** on the ticket **68**.

By appropriate use of a proper keyboard for the system illustrated in either FIG. **1** or FIG. **2**, it will be possible for a customer to buy a ticket for a performance up to one year in advance of the date of the inquiry. Moreover, properly selected push buttons enable identification of any one of up to 100,000 specific events. The number of seat types to be made available to the customer is unlimited.

From the foregoing, it should be apparent that applicant has invented a computer controlled vending system which accepts money and issues variable script on a real time basis through consumer operated vending machines.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.

I claim:

1. A computer controlled vending system, comprising: a computer having a memory storage for maintaining an inventory of items; a plurality of vending terminals remote from said computer; a communication system for transferring information between said computer and each of said remote vending terminals; said

computer including means for controlling said remote vending terminals; said remote terminals including keyboard means for selecting one of a varied number of items and means to indicate the availability of said selected item; said remote terminal including structural means for accepting payment for said item, means for ascertaining when said payment has been satisfied, and means responsive to instructions from said computer to print out and dispense a document corresponding to the selected item when said payment ascertaining means has been satisfied.

2. A system in accordance with claim 1 wherein said remote terminal is a vending machine which includes means responsive to instructions from the computer for indicating the amount of money that must be inserted.

3. A computer controlled vending system, comprising: a computer having a memory storage and control for maintaining an inventory of available items; communication means for transferring information between said memory storage and a plurality of sales terminals, each of said sales terminals being remote from said computer, each of said sales terminals including a keyboard control device for sending information to said memory storage and a printer responsive to information from said computer for relating information to an attendant at said terminal, said printer including a first means for printing preliminary information on inquiry, and a second means for printing a document corresponding to an item sought to be purchased.

4. A system in accordance with claim 3 wherein said system is a ticket reservation system and said memory includes an inventory of available seats at a plurality of events, said printer being adapted to print tickets for said events.

5. A computer controlled vending system according to claim 3 including means to accept payment for the purchase of the desired item and to detect when payment is satisfied, said manually operable purchase means being operable only upon detection of the satisfaction of said payment.

6. A computer controlled vending system according to claim 3 wherein the available items are divided by events, and wherein said terminal includes means to manually select the event of interest, and means responsive to selection of a particular event for displaying the location of accommodations associated with the selected event to provide a visual indication thereof.

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