

Description

The present invention relates to a system for determining the queue sequence for serving customers at a plurality of service points, such as bank or post office service points.

US—A—3 641 553 discloses a system for determining the queue sequence according to the preamble of claim 1. The system includes a turn-number allocating unit for allocating a turn-number to every customer desiring to be served, a plurality of terminals, one for each service point, and an information unit comprising a plurality of number calling signs, a number calling sign being associated with each service point. Each terminal comprises a calling-number recorder which indicates the last turn-number that has been called. When a particular service point becomes free, a number-calling operation panel of the corresponding terminal is actuated to indicate the next turn-number to be served. This turn-number is displayed on the number calling sign associated with the free service point and also on the calling number recorders of all terminals, the turn-numbers displayed on the number calling signs associated with the other service points remaining unchanged.

US—A—3 803 578 discloses a system for indicating to queuing customers that a particular service point, among a plurality of service points, is free for serving a customer. The system comprises a plurality of terminals, one for each service point, which are used to produce signals indicating that a particular service point is free. An information unit receives the particular free service point indication for display to the queuing customers.

The object of the present invention is to provide a system of the above-mentioned kind which makes it possible for customers to choose a specific service point, at which they desire to be served, for example, in a bank or post office, despite the existence of a numerical sequence system of taking turns which is common to the plurality of service points.

This object is achieved with a system for determining the queue sequence for serving customers at a plurality of service points according to the preamble of claim 1, which is characterized in that the system comprises a selection unit associated with the turn-number allocating unit in a turn-number device, enabling customers to select a desired service point among said plurality of service points, computing means for memorising the sequence of allocated turn-numbers with the selected desired service points, for receiving from the plurality of terminals signals identifying a particular service point which is free for serving a customer, for deciding which particular turn-number is to be served at the particular free service point and for feeding-out signals identifying this particular turn-number and the particular free service point to the information unit, the particular turn-number to be served being the next in turn in the memorised sequence of allo-

cated turn-numbers for which no desired service point is selected or for which the selected desired service point is the particular free service point.

In the following an embodiment example of the subject of the invention is described with reference to the accompanying drawings, on which

Figure 1 shows the system schematically,

Figure 2 shows a turn-number device comprised in the arrangement, which is designed to feed out number slips in the form of a tape from a roll,

Figure 3 shows a pulled-out length of the said number slip tape which is made into a roll,

Figure 4 shows schematically a number slip feed-out unit appertaining to the device shown in Figure 2,

Figure 5 shows schematically the connection of the electronics comprised in the system,

Figure 6 shows schematically the movement sequence of the turn-numbers in the computer programme appertaining to the system, and

Figure 7 shows schematically how information is transmitted in the system.

The system according to the present invention comprises basically three different units, namely, a turn-number device 1, an information unit 2, and a plurality of terminals 3 which are connected to the turn-number device 1.

The linking of the units 1, 2 and 3 to each other is shown schematically in Figure 1, while the connection of the electronics is shown in Figure 5.

The turn-number device 1 which is designed to be installed in a bank or post office or in any other location where the system is to be used and where the customers can see all the service points, comprises a selection unit 5 which enables the customer to select a desired service point, at which he desires to be served, as well as a turn-number allocating unit 4. A computer 6 which enables the said selection to be put into effect is also expediently comprised in the said device 1.

The system which is preferably designed to be operated from the electrical mains via a connection 7, possibly with a current supply provided when the mains supply is interrupted, enables the customer to indicate the selection himself or herself via the said selection unit 5, preferably before he/she receives a turn-number, by manual operation of the selection controls in the form of push-buttons 8, for example, which indicate by means of a signal light, for example, if the service point to which the push-button 8 relates, for example, according to the numeral 9 on and/or adjacent to it, is free.

The information unit 2, which is connected to the computer 6 via a lead 10, for example, consists preferably of a display panel which is known per se and which is equipped with a digital display 11 for indicating which turn-number is to be served next and also a display arrangement 12 for indicating at which service point, etc. the customer is to be served. An audible device in the form of a bell 13, for example, may also be connected, for indicating that a new turn-number 11 is coming up. The said audible device 13 may also have

other functions such as, for example, indicating when there is a fault in the system, as will be described later.

The construction of the information unit 2, which can naturally also be other than as shown, for example, with the possibility of audible information of the turn-numbers and service point numbers, will now be described in more detail with regard to its electronics, with special reference to Figure 5 on the drawings. A shift register 14 with 16 bits is connected to the computer 6 via separate data transmission 15 and clock transmission 16 comprised in the lead 10. A so-called BCD seven-segment with a drive unit 17 is connected in between the shift register 14 and three or four seven-segment indicators 18.

In addition to the turn-number feed unit 4, the turn-number device 1 which is shown in Figure 1 and elsewhere, comprises a display panel 19 or the like on which the turn-number which is next in turn to be supplied by the device 1 is indicated, for example, in the form of an illuminated number.

The device 1 also has an aperture 20 through which turn-number slips 21 are fed out automatically. This automatic feed is made possible due to the feed unit 4 and monitoring and actuating devices. The turn-number slips 21, 21' and so on are joined together as shown in Figure 2 to form a tape 22 and are wound up in the form of a roll 23 which is supported on an axle 24 and is looped around and controlled by separate control rods 25 and 26 respectively, located at a mutual distance from each other along the feed-out from the roll 23. The tape 22 can be driven by means of a rubber roller 27 which transmits the drive movement from a motor 29, via a toothed belt 28, for example. A device in the form of a pressure roller 30 which is located counter to the drive roller 27 is mounted so that it can be pivoted in the direction from the tape 22 and the drive roller 27 in the direction of the arrow by a linked-arm device 31 which consists of four arm links 31A—31D. By rotating the link 31A in the clockwise direction, as shown on the drawing, the said pressure roller 30 is lifted from the tape 22, allowing a new ticket tape 22 to be inserted in the unit 4.

A switch 32 is connected to the drive arrangement 27—28 for the tape 22 so that, for example, when the switch is actuated in the direction towards the right or left respectively, the ticket tape 22 is continuously fed forwards or backwards, and when the switch 32 is set in a middle position one turn-number slip 21 is fed out when a preceding slip is obtained by a customer.

On the other hand, switches 33 and 34 respectively are connected to a display panel 19 of the device 1 in such a way that when the switch 33 is actuated the supply of numbers thereon increases by one number for each actuation, while actuation of the switch 34 feeds through more numbers at a time, for example, ten at a time. The said switching is necessary after a ticket roll 23 has been changed, so that the number on the display panel 19 will correspond to the turn-number which is due to be supplied by the device 1.

Figure 3 shows a preferred form of a ticket tape 22 which is suitable for use in a device 1 constructed according to the invention. The number slips 21, 21' located in sequence one after the other have a gap 21A, preferably in the centre of the tape 22, the function of which will be explained later. At the edges of the tape 22 weakened areas in the form of perforations 21B, for example, are provided with the aim of facilitating separation of the tickets 21, 21' from each other when they are fed out of the device 1.

As can be seen from Figure 4, two photocell units 35 and 36 respectively, located at a mutual distance from each other along the tape 22, are mounted on either side of the path along which the ticket tape 22 is designed to pass through the device 1. One part 35A of the rear photocell unit 35 is supported by the control rod 25, and its other part 35B is supported by the rod 4A of the unit 4, while the two parts 36A and 36B respectively of the front photocell unit 36 are supported by holders 37 and 38 respectively on either side of the ticket feed-out opening 20. The two photocell units 35, 36 are intended to monitor the position of the ticket tape 22 and transmit information to the drive arrangement 27—29 for the tape 22. The rear unit 35 is arranged so that it can shine through the gap 21A between the tickets 21, 21' when the tape 22 is fed out into the correct position, while the front unit is designed so that it is not able to shine through the ticket tape 22 in the said position. The drive unit 4 and the said control units 35, 36 which are connected to the computer unit 6 via a connection 37, are designed to give the alarm, for example, by signalling, when there is a long delay between indication of the gap 21A on the ticket tape 22 while it is being fed through. Each indication is also transmitted to the display panel 19 for giving out a new number i.e. the same number as is on the new ticket 21 which is about to be separated from the ticket tape 22.

The computer 6, which is shown schematically in Figure 5, preferably comprises a read-write memory 6A, a read only memory 6B, a central processor unit 6C and an input-output unit 6D, which can be connected in the way which is shown on the drawing. The bell 13 is connected to the said computer 6 via a bell connection 38.

A terminal 3¹, 3², 3³, 3⁴ etc. is intended to be installed so that it is easily accessible to the cashiers at the respective service points, and is connected to the computer 6 via leads 15A and 16A respectively, and 39, 40, as shown in Figure 5. Such a terminal 3 may consist of a terminal number generator 41 with two switches 42 and 43 respectively which are connected to push-buttons 44, 45 or similar controls, which signal to the device 1 to feed out a new turn-number or that the service point is closed. The number-indicating window 46 on the terminal 3 is of a similar type to the indicating arrangement 11 on the information unit 2, and is constructed in a similar way, but without the service point indication and the bell.

Figure 6 shows schematically the sequence of

events in the computer 6 when the turn-numbers move on in the computer programme. The left-hand column 47 relates to turn-numbers which have been fed in with any service point registrations, for example, turn-numbers 10, 11 and 13 with no service point selection, but number 12 with indication of the selection of service point 2. The right-hand column 48 relates to the feeding out of the turn-numbers with reference to the service points. For example, turn-number 3 is referred to service point 2, turn-number 4 is referred to service point 1, and so on. When a ticket 21 is taken out of the device 1 the said turn-number and any indication of service point are transmitted to the bottom of the left-hand column 47. The turn-number which is at the top of the said column, for example 10, is next in turn to be served when any service point whatsoever becomes free, while, for example, turn-number 12 with service point selection 2 is next in turn to be served when turn-number 12 reaches the right-hand column 48 and when service point 2 is free. If service point 2 is engaged at that time the customer is passed over and the next turn-number is fed out, for example, service point 13—4, since this customer has not indicated selection of any particular service point. Only when the service point 2 is free is the number 12—2 fed out onto the display panels 11 and 12. It is expedient if the turn-numbers are fed out to the information unit 2 with at least a 5 sec interval between them so that customers are able to absorb the turn-number and the service point information. When the column 47 is empty the terminal 3 is designed to prevent new ticket number being fed out.

The transfer of information between the computer 6 and the information unit 2 and the terminals 3 is effected in the following way (reference is made here to Figure 7): A transmission consists of, for example, 16 clock impulses 16 and a dead period T. Data information 15 which arrives first is clocked into the shift register 14 by the upwards moving part 16' of the clock signal 16. This is repeated 16 times, after which the dead period T is detected by a circuit 49 which produces strobe pulses which transmit the information to the drive units 17 for the seven-segment indicators 18.

The functioning of the system is as follows: When receiving a turn-number slip 21 the customer is requested by a notice on the device 1, for example, to indicate if a special service point is desired, by pressing the push-button 8, etc., for example, which corresponds to the designation 9 on the desired service point. The said push-button 8 is designed to flash, for example, for around 10 seconds, during which time the turn-number slip 21 must be taken out of the device for the indication of the service point to be registered. As stated, the said push-buttons 8 are designed to light up or to indicate in some other way if the relevant service point is free. The indication and the removal of a turn-number slip is recorded in the computer 6, whereupon a new ticket 21' with

the next turn-number is fed into the position for removal from the device in the way described above, by means of the feed unit 4, and the said turn-number is indicated on the panel 19 of the device 1. The information from the cashier on the terminal 3 at the respective service points is transmitted to the device 1 and the computer 6 so that the turn-number which is next in turn to be fed out of the column 47 in Figure 6, the top one, is indicated on the panels 11 and 12 respectively of the information unit 2. However, this does not occur if a particular service point has been indicated by the customer and the said indicated service point does not correspond with the free service point. If this is the case, the said customer is automatically held waiting until his indicated service point is free, and a new turn-number is fed out, and so on. If the service point at which the customer indicated he wishes to be served is closed, then if the terminal 3 does not indicate that the said service point has been selected the said customer is transferred to any other service point whatsoever when his allocated turn-number comes up. Each time a new number is fed out a time, such as 10 minutes, for example, can be set for the terminal 3 involved. The said time is reduced down towards nil when there are customers waiting to be served. When no more customers are waiting to be served, which is automatically detected through the left-hand column 47 in the computer 6, the count-down is halted and when the time has elapsed the terminal 3 and the service point are closed automatically.

The system can also be designed to indicate if there is too long a queue at every open terminal and service point, by monitoring automatically the number in the column 47 and dividing by a certain number and indicating if the queue for service points is too long, by ringing a bell a certain number of times, for example, and indicating that further service points should be opened.

When the column 47 with the turn-numbers has been empty for a certain predetermined period of time, such as 5 minutes, for example, the panels 11, 12 of the information unit 2 with the indication at the terminals can be taken out automatically, by switching them off, for example, and thereafter automatically switched on and illuminated again when a turn-number is once more removed from the device 1, or switched on for a shorter period, of around 10 seconds, for example, when a signal is generated from a service point terminal 3.

Preferably, it will be indicated, for example, by a flashing lamp clearly visible to the customer and located at the respective service points, which service point the customer is being referred to when the right turn-number is fed out.

The invention is not limited to the embodiment which is described above and shown on the drawings purely as an example, but its details can be modified within the frame of the following Patent Claims. The system is naturally not restricted to turn-numbers in the form of tickets, but other forms are of course also possible. Other

applications than service points in post offices and banks are naturally also suitable for the system. It is of course possible to connect a camera to the system to make it easier to catch any robbers, against whom the present system provides an important deterrent, since the end of the queue is preferably located some way away from the service points. It is also possible to make a button, etc. available on the device, for customers with urgent requirements to use, for example, at ticket sales offices and the like where it is important that a certain specific time should not be exceeded.

Claims

1. System for determining the queue sequence for serving customers at a plurality of service points, comprising a turn-number allocating unit (4) for allocating a turn-number to every customer desiring to be served, a plurality of terminals (3¹, 3², 3³, 3⁴), one for each service point, and an information unit (2) receiving signals identifying the particular turn-number to be served and the particular free service point for indicating them to the customers, characterised in that the system comprises a selection unit (5) associated with the turn-number allocating unit (4) in a turn-number device (1), enabling customers to select a desired service point among said plurality of service points, computing means (6) for memorising the sequence of allocated turn-numbers with the selected desired service points, for receiving from the plurality of terminals (3¹, 3², 3³, 3⁴) signals identifying a particular service point which is free for serving a customer, for deciding which particular turn-number is to be served at the particular free service point and for feeding-out signals identifying this particular turn-number and the particular free service point to the information unit (2), the particular turn-number to be served being the next in turn in the memorised sequence of allocated turn-numbers for which no desired service point is selected or for which the selected desired service point is the particular free service point.

2. A system according to Claim 1, characterised in that the computing means (6) is designed to control a selection and memory unit and the feeding out of turn-numbers, and comprises a read-write memory (6A), a read only memory (6B), a central processor unit (6C) and an input-output unit (6D).

3. A system according to Claim 1 or 2, characterised in that each of the terminals (3¹, 3², 3³, 3⁴) which are designed each to be arranged at its respective service point, have manually-operated controls (44, 45) for informing the said device (1) at least if the service point is free or if the service point is closed.

4. A system according to Claim 3, characterised in that terminals (3¹, 3², 3³, 3⁴) are designed to show which turn-number is being served on a digital display (46) appertaining to the terminals, the turn-number device (1) being designed in

such a way that the value of the said number which is shown is less than the turn-number which is next in turn to be fed out of the device.

5. A system according to any of Claims 1 to 4, characterised in that the turn-number device (1) is equipped with manually-operated selection controls (8) in the form of push-buttons, which designate various service points, these controls (8) being designed to indicate, by indicator lights, if the respective service points are free, and that the turn-number device (1) comprises an arrangement (19) which indicates which turn-number is next in turn to be fed out of the turn-number device (1).

6. A system according to any of Claims 1 to 5, characterised in that the turn-number device (1) comprises a number-slip feed unit (4) which is designed to feed out a turn-number slip (21') automatically into a position in which it can be grasped when the slip (21) supplied immediately before it into the grasping position is removed from the device (1).

7. A system according to Claim 6, characterised in that it comprises a number-slip tape (22) which is wound up in the form of a roll (23), and in that there is a gap (21A) between each two adjoining slips (21, 21') in the tape, which have weakened areas in the form of perforations (21B), the gap (21A) being designed so that it can be monitored by means of a photocell unit (35 or 36 respectively), which is connected to the feed-out unit (4).

8. A system according to Claim 6 or 7, characterised in that a monitoring device in the form of a photocell unit (36) is designed to monitor the position of a number slip (21) which has been fed into the grasping position, and to transmit information to the number slip feed unit (4) which is designed to feed out a new slip (21') automatically.

9. A system according to any of Claims 6 to 8, characterised in that the number slip feed unit (4) comprises a shift register (14) which comprises 16 bits with data transmission and clock transmission (15 and 16 respectively), one transmission (16) being designed to consist of 16 clock impulses and a dead period (T) and which is designed to clock the data information (15) which occurs first with 16 times repetition, into the shift register from the upwards moving part (16') of the clock signal (16), after which the dead period (T) is detected by a circuit (49) for giving out a strobe pulse to indicators (18) of drive units (17).

Patentansprüche

1. System zur Bestimmung der Reihenfolge der Bedienung von Kunden an einer Vielzahl von Servicepunkten, mit einer Reihenfolgennummer-Verteil-Einheit (4) zur Verteilung einer Reihenfolgennummer an jeden Kunden, der bedient zu werden wünscht, einer Vielzahl von Terminals (3¹, 3², 3³, 3⁴), von denen jedem Servicepunkt jeweils einer zugeordnet ist, und mit einer Informationseinheit (2), die Signale zur Identifizierung der bestimmten zu bedienenden Reihenfolgennummer



applications than service points in post offices and banks are naturally also suitable for the system. It is of course possible to connect a camera to the system to make it easier to catch any robbers, against whom the present system provides an important deterrent, since the end of the queue is preferably located some way away from the service points. It is also possible to make a button, etc. available on the device, for customers with urgent requirements to use, for example, at ticket sales offices and the like where it is important that a certain specific time should not be exceeded.

Claims

1. System for determining the queue sequence for serving customers at a plurality of service points, comprising a turn-number allocating unit (4) for allocating a turn-number to every customer desiring to be served, a plurality of terminals (3¹, 3², 3³, 3⁴), one for each service point, and an information unit (2) receiving signals identifying the particular turn-number to be served and the particular free service point for indicating them to the customers, characterised in that the system comprises a selection unit (5) associated with the turn-number allocating unit (4) in a turn-number device (1), enabling customers to select a desired service point among said plurality of service points, computing means (6) for memorising the sequence of allocated turn-numbers with the selected desired service points, for receiving from the plurality of terminals (3¹, 3², 3³, 3⁴) signals identifying a particular service point which is free for serving a customer, for deciding which particular turn-number is to be served at the particular free service point and for feeding-out signals identifying this particular turn-number and the particular free service point to the information unit (2), the particular turn-number to be served being the next in turn in the memorised sequence of allocated turn-numbers for which no desired service point is selected or for which the selected desired service point is the particular free service point.

2. A system according to Claim 1, characterised in that the computing means (6) is designed to control a selection and memory unit and the feeding out of turn-numbers, and comprises a read-write memory (6A), a read only memory (6B), a central processor unit (6C) and an input-output unit (6D).

3. A system according to Claim 1 or 2, characterised in that each of the terminals (3¹, 3², 3³, 3⁴) which are designed each to be arranged at its respective service point, have manually-operated controls (44, 45) for informing the said device (1) at least if the service point is free or if the service point is closed.

4. A system according to Claim 3, characterised in that terminals (3¹, 3², 3³, 3⁴) are designed to show which turn-number is being served on a digital display (46) appertaining to the terminals, the turn-number device (1) being designed in

such a way that the value of the said number which is shown is less than the turn-number which is next in turn to be fed out of the device.

5. A system according to any of Claims 1 to 4, characterised in that the turn-number device (1) is equipped with manually-operated selection controls (8) in the form of push-buttons, which designate various service points, these controls (8) being designed to indicate, by indicator lights, if the respective service points are free, and that the turn-number device (1) comprises an arrangement (19) which indicates which turn-number is next in turn to be fed out of the turn-number device (1).

6. A system according to any of Claims 1 to 5, characterised in that the turn-number device (1) comprises a number-slip feed unit (4) which is designed to feed out a turn-number slip (21') automatically into a position in which it can be grasped when the slip (21) supplied immediately before it into the grasping position is removed from the device (1).

7. A system according to Claim 6, characterised in that it comprises a number-slip tape (22) which is wound up in the form of a roll (23), and in that there is a gap (21A) between each two adjoining slips (21, 21') in the tape, which have weakened areas in the form of perforations (21B), the gap (21A) being designed so that it can be monitored by means of a photocell unit (35 or 36 respectively), which is connected to the feed-out unit (4).

8. A system according to Claim 6 or 7, characterised in that a monitoring device in the form of a photocell unit (36) is designed to monitor the position of a number slip (21) which has been fed into the grasping position, and to transmit information to the number slip feed unit (4) which is designed to feed out a new slip (21') automatically.

9. A system according to any of Claims 6 to 8, characterised in that the number slip feed unit (4) comprises a shift register (14) which comprises 16 bits with data transmission and clock transmission (15 and 16 respectively), one transmission (16) being designed to consist of 16 clock impulses and a dead period (T) and which is designed to clock the data information (15) which occurs first with 16 times repetition, into the shift register from the upwards moving part (16') of the clock signal (16), after which the dead period (T) is detected by a circuit (49) for giving out a strobe pulse to indicators (18) of drive units (17).

Patentansprüche

1. System zur Bestimmung der Reihenfolge der Bedienung von Kunden an einer Vielzahl von Servicepunkten, mit einer Reihenfolgennummer-Verteil-Einheit (4) zur Verteilung einer Reihenfolgennummer an jeden Kunden, der bedient zu werden wünscht, einer Vielzahl von Terminals (3¹, 3², 3³, 3⁴), von denen jedem Servicepunkt jeweils einer zugeordnet ist, und mit einer Informations-einheit (2), die Signale zur Identifizierung der bestimmten zu bedienenden Reihenfolgennummer



und des bestimmten freien Servicepunktes empfängt und diese für den Kunden anzeigt, dadurch gekennzeichnet, daß das System eine Wähleinheit (5), die mit der Reihenfolgennummer-Verteil-Einheit (4) in einer Reihenfolgennummer-Vorrichtung (1) zusammenwirkt und den Kunden ermöglicht, unter der Vielzahl von Servicepunkten einen gewünschten Servicepunkt auszuwählen, und eine Computer-Vorrichtung (6) aufweist, die die Folge der verteilten Reihenfolgennummern mit den gewählten, gewünschten Servicepunkten speichert, von der Vielzahl von Terminals (3¹, 3², 3³, 3⁴) Signale zur Identifizierung eines bestimmten Servicepunktes, der zur Bedienung eines Kunden frei ist, empfängt, entscheidet, welche bestimmte Reihenfolgennummer an dem bestimmten freien Servicepunkt zu bedienen ist und Signale abgibt, um diese bestimmte Reihenfolgennummer und den bestimmten freien Servicepunkt der Informationseinheit (2) zu übermitteln, wobei die bestimmte zu bedienende Reihenfolgennummer die Reihenfolgennummer ist, die in der gespeicherten Folge der verteilten Reihenfolgennummern, für die kein gewünschter Servicepunkt gewählt ist oder für die der gewählte, gewünschte Servicepunkt der bestimmte freie Servicepunkt ist, als nächster an der Reihe ist.

2. System nach Anspruch 1, dadurch gekennzeichnet, daß die Computer-Vorrichtung (6) so ausgebildet ist, daß sie eine Wahl- und Speichereinheit und die Ausgabe der Reihenfolgennummern steuert, und einen Lese- und Schreibspeicher (RAM) (6A), einen Nur-Lesespeicher (ROM) (6B), eine zentrale Recheneinheit (CPU) (6C) und eine Ein- und Ausgabe-Einheit (6D) aufweist.

3. System nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß jedes der Terminals (3¹, 3², 3³, 3⁴), die jeweils an ihrem jeweiligen Servicepunkt angeordnet sind, manuell betätigbare Steuerelemente (44, 45) aufweist, um der Vorrichtung (1) zumindest mitzuteilen, ob der Servicepunkt frei oder geschlossen ist.

4. System nach Anspruch 3, dadurch gekennzeichnet, daß die Terminals (3¹, 3², 3³, 3⁴) so ausgebildet sind, daß sie auf einer zu den Terminals gehörenden Digitalanzeige (46) anzeigen, welche Reihenfolgennummer bedient wird, wobei die Reihenfolgennummer-Vorrichtung (1) in der Weise ausgebildet ist, daß der Wert dieser angezeigten Nummer geringer als die Reihenfolgennummer ist, die als nächstes von der Vorrichtung ausgegeben wird.

5. System nach einem der Ansprüche 1 bis 4, dadurch gekennzeichnet, daß die Reihenfolgennummer-Vorrichtung (1) mit manuell betätigbaren Wahl-Steuerungselementen (8) in Form von Druckknöpfen ausgerüstet ist, die verschiedene Servicepunkte bezeichnen, wobei die Steuerungselemente (8) so ausgebildet sind, daß sie mittels Anzeigelichtern anzeigen, ob die entsprechenden Servicepunkte frei sind, und dadurch daß die Reihenfolgennummer-Vorrichtung (1) eine Anordnung (19) aufweist, die anzeigt, welche Reihenfolgennummer als nächste von der

Reihenfolgennummer-Vorrichtung (1) ausgegeben wird.

6. System nach einem der Ansprüche 1 bis 5, dadurch gekennzeichnet, daß die Reihenfolgennummer-Vorrichtung (1) eine Nummernstreifen-Vorschubeinheit (4) aufweist, die so ausgebildet ist, daß sie einen Reihenfolgennummern-Streifen (21') automatisch in eine Position bringt, in der er erfaßt werden kann, wenn der Streifen (21), der unmittelbar vor ihm dieser Erfassungsposition zugeführt worden ist, aus der Vorrichtung (1) entnommen worden ist.

7. System nach Anspruch 6, dadurch gekennzeichnet, daß es ein Nummernstreifenband (22), das in Form einer Rolle (23) aufgewickelt ist, aufweist und daß ein Spalt (21A) zwischen zwei angrenzenden Streifen (21, 21') im Band, das geschwächte Bereiche in Form von Perforationen (21B) aufweist, vorgesehen ist, wobei der Spalt (21A) so ausgebildet ist, daß er mittels einer Photozellen-Einheit (35 bzw. 36), die mit der Ausgabe-Einheit (4) verbunden ist, überwacht werden kann.

8. System nach Anspruch 6 oder 7, dadurch gekennzeichnet, daß die Überwachungsvorrichtung in Form der Photozellen-Einheit (36) so ausgebildet ist, daß sie die Position eines Nummernstreifens (21), der in die Erfassungsposition gebracht worden ist, überwacht und eine Information zur Nummernstreifen-Vorschubeinheit (4) überträgt, die so ausgebildet ist, daß sie einen neuen Streifen (21') automatisch ausgibt.

9. System nach einem der Ansprüche 6 bis 8, dadurch gekennzeichnet, daß die Nummernstreifen-Vorschubeinheit (4) ein Schieberegister (14) aufweist, das 16 Bits zur Datenübertragung und Taktübertragung (15 bzw. 16) aufweist, wobei eine Übertragung (16) so ausgelegt ist, daß sie aus sechzehn Taktimpulsen und einer Totperiode (T) besteht und die Dateninformation (15), die zuerst mit 16-facher Wiederholung auftritt, von der ansteigenden Flanke (16') des Taktsignals (16) in das Schieberegister schreibt, woraufhin die Totperiode (T) mittels einer Schaltung (49) festgestellt wird, um an Anzeigeelemente (18) von Ansteuereinheiten (17) einen Taktimpuls abzugeben.

Revendications

1. Système pour déterminer la séquence d'attente pour la délivrance de services à des clients en plusieurs points de délivrance de services, comportant une unité (4) d'affectation de numéros d'ordre servant à affecter un numéro d'ordre à chaque client désirant être servi, une série de terminaux (3¹, 3², 3³, 3⁴), un pour chaque point de délivrance de services, et une unité d'information (2) recevant des signaux identifiant le numéro d'ordre particulier, pour lequel le service doit être délivré, et le point particulier libre de délivrance de services, afin de les indiquer aux clients, caractérisé en ce que le système comporte une unité de sélection (5) qui est associée à l'unité (4) d'affectation des numéros d'ordre dans un dispositif (1)



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délivrant des numéros d'ordre, et qui permet aux clients de sélectionner un point désiré de délivrance de services parmi les différents points de délivrance de services, des moyens de calcul (6) pour mémoriser la séquence des numéros d'ordre affectés ainsi que des points sélectionnés désirés de délivrance de services, pour recevoir, à partir de la série de terminaux (3¹, 3², 3³, 3⁴), des signaux identifiant un point particulier de délivrance de services, qui est libre pour la délivrance de services à un client, pour déterminer le numéro d'ordre particulier pour lequel un service doit être délivré au point particulier libre de délivrance de services et pour délivrer des signaux identifiant ce numéro d'ordre particulier et le point particulier libre de délivrance de services à l'unité d'information (2), le numéro d'ordre particulier, pour lequel un service doit être délivré, étant le numéro d'ordre immédiatement suivant dans la séquence mémorisée des numéros d'ordre affectés, pour lequel aucun point désiré de délivrance de services n'est sélectionné ou pour lequel le point sélectionné désiré de délivrance de services est le point particulier libre de délivrance de services.

2. Système selon la revendication 1, caractérisé en ce que les moyens de calcul (6) sont conçus de manière à commander une unité de sélection et de mémoire et la délivrance de numéros d'ordre, et comporte une mémoire de lecture-enregistrement (6A), une mémoire morte (6B), une unité de traitement centrale (6C) et une unité d'entrée-sortie (6D).

3. Système selon la revendication 1 ou 2, caractérisé en ce que chacun des terminaux (3¹, 3², 3³, 3⁴), dont chacun est conçu pour être disposé à son point respectif de délivrance de services, comporte des organes de commande (44, 45) actionnés manuellement et servant à signaler audit dispositif (1) au moins que le point de délivrance de services est libre ou que le point de délivrance de services est fermé.

4. Système selon la revendication 3, caractérisé en ce que les terminaux (3¹, 3², 3³, 3⁴) sont conçus de manière à montrer quel numéro d'ordre est en train d'être servi, sur un dispositif d'affichage numérique (46) faisant partie des terminaux le dispositif (1) délivrant les numéros d'ordre étant conçu de telle façon que la valeur dudit numéro, qui est affichée, soit inférieure au numéro d'ordre qui va être délivré immédiatement après par le dispositif.

5. Système selon l'une quelconque des revendications 1 à 4, caractérisé en ce que le dispositif (1) délivrant les numéros d'ordre est équipé d'organes de commande de sélection (8), actionnés manuellement et réalisés sous la forme de bou-

tons-poussoirs, qui désignent différents points de délivrance de services, ces organes de commande (8) étant conçus de manière à indiquer, à l'aide de lampes témoins, si les points respectifs de délivrance de services sont libres, et en ce que le dispositif (1) délivrant les numéros d'ordre comporte un dispositif (19) qui indique le numéro d'ordre qui va être délivré immédiatement après par le dispositif (1) délivrant les numéros d'ordre.

6. Système selon l'une quelconque des revendications 1 à 5, caractérisé en ce que le dispositif (1) délivrant les numéros d'ordre comporte une unité (4) de délivrance de tickets numérotés, qui est conçue pour délivrer automatiquement un ticket (21') portant un numéro d'ordre, dans une position dans laquelle il peut être saisi lorsque le ticket (21) fourni immédiatement avant ce ticket dans la position de saisie, est extrait du dispositif (1).

7. Système selon la revendication 6, caractérisé en ce qu'il comporte une bande (22) de tickets numérotés, qui est enroulée sous la forme d'un rouleau (23), et en ce qu'il existe un interstice (21A) entre les tickets de chaque groupe de deux tickets adjacents (21, 21') de la bande, qui comportent des zones affaiblies réalisées sous la forme de perforations (21B), l'interstice (21A) étant formé de telle manière qu'il puisse être contrôlé au moyen d'une unité à cellule photo-électrique (35 ou 36 respectivement), qui est connectée à l'unité de délivrance (4).

8. Système selon la revendication 6 ou 7, caractérisé en ce qu'un dispositif de contrôle réalisé sous la forme d'une unité à cellule photo-électrique (36) est prévue pour contrôler la position d'un ticket numéroté (21), qui a été amené dans la position de saisie, et pour transmettre l'information à l'unité (4) de délivrance des tickets numérotés, laquelle est conçue de manière à délivrer automatiquement un nouveau ticket (21').

9. Système selon l'une quelconque des revendications 6 à 8, caractérisé en ce que l'unité (4) de délivrance des tickets numérotés comporte un registre à décalage (14) qui contient 16 bits, avec une transmission de données et une transmission de signaux d'horloge (15 et 16 respectivement), une transmission (16) étant agencée de manière à comprendre 16 impulsions d'horloge et une pause (T), et qui est conçu pour produire de façon cadencée l'information de données (15), qui apparaît en premier en étant répétée 16 fois, dans le registre à décalage à partir de la partie montante (16') du signal d'horloge (16), à la suite de quoi la pause (T) est détectée par un circuit (49) servant à envoyer une impulsion d'échantillonnage à des indicateurs (18) d'unités d'entraînement (17).