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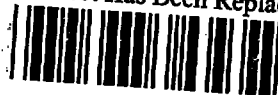
Method for the delivery of a commodity or for the performance of a service using a mobile-radio terminal; mobile-radio terminal for carrying out the method and device for the delivery of a commodity or for the performance of a service

Description

The present invention relates to a method for the delivery of a commodity or for the performance of a service using a mobile-radio terminal. The invention relates also to a mobile-radio terminal for use as means for the delivery of
5 a commodity or for the performance of a service. Finally, the present invention also relates to a device for the delivery of a commodity or for the performance of a service using a mobile-radio terminal.

10 Various methods of the type mentioned at the outset are known in the prior art. Recently, such methods are becoming increasingly widespread since, as a result of the use of a mobile-radio terminal, the commodity delivered or the service performed can be paid for without using cash or
15 without the use of special payment means, for example cheque cards or credit cards, via the mobile-radio telephone account of the user of the mobile-radio terminal.

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The journal entitled "Mobilfunk Inside", No. 40, August 1998, page 1, published by MobilCom GmbH, Schleswig, Germany, describes a method and a device for the delivery of a commodity using a mobile-radio terminal. An automatic
5 drinks dispenser is disclosed that is connected to a telecommunications network. In order to be able to remove a particular drink from the automatic drinks dispenser, a particular multidigit telephone number has to be dialled by means of a mobile telephone. The first digits in this
10 telephone number characterize the automatic drinks dispenser. The final digits in the telephone number are dialled as a function of the desired drink. The telephone call is conveyed via the telecommunications network to the automatic drinks dispenser, which issues the selected drink
15 as a function of the final digits in the telephone number. The sale amount payable for the selected drink is invoiced via the telephone account of the user of the mobile telephone.

20 In the same journal entitled "Mobilfunk Inside", loc. cit., a method and a device are also described for the performance of a service. A car wash for motor vehicles is disclosed that is likewise connected to a telecommunications network. A car driver who would like to
25 have his vehicle washed in the car wash only has to drive up to the car wash and select a multidigit telephone number via his mobile telephone. The first digits in the telephone number characterize the car wash, and the car driver chooses the wash program he desires by means of the final
30 digits of the telephone number. This service performed is likewise invoiced via the mobile-radio telephone account of the user of the mobile telephone.

Issue No. 35, March 1998 of the journal entitled "Mobilfunk
35 Inside", published by MobilCom GmbH, Schleswig, Germany, describes a method of paying the parking fee for a motor vehicle using a mobile telephone. If a car driver parks his

motor vehicle in a parking zone subject to fee, he calls a "phone parking centre" via his mobile telephone and enters an identification number of the parking zone in which he has parked his motor vehicle. The call activates a fee meter in the "phone parking centre". When the car driver returns to his motor vehicle, he is able to stop the fee meter by a fresh call to the "phone parking centre". The parking fee payable is invoiced via the mobile telephone account of the user of the mobile telephone.

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The known methods have, however, the disadvantage that the device for the delivery of a commodity or for the performance of a service, in the abovementioned examples the automatic drinks dispenser or the car wash, have to be equipped with a separate connection to a telecommunications network. To connect the device to the telecommunications network, either suitable telecommunications lines or radio links must be present. In addition to the required infrastructure, the device itself requires, in addition, suitable hardware, which sets up the link to the telecommunications network, monitors it then clears it again. The provision of the infrastructure necessary for the connection of the device to a telecommunications network can be very complicated and costly. The hardware in the devices for setting up, for monitoring and for clearing the link to the telecommunications network is relatively complicated, large in scale and costly. For the user of the mobile telephone, there is, in addition, the disadvantage that the selection of the device for the delivery of a commodity or for the performance of a service result, as a rule, in telephone charges that the user of the mobile telephone has to pay. These disadvantages have had the result that despite the basically extremely advantageous idea of the delivery of a commodity or the performance of a service using a mobile-radio terminal, the method of the type mentioned at the outset has hitherto not gained acceptance in practice and will also probably tend to

remain the exception in the future.

The abovementioned disadvantages of the prior art consequently result in one object of the present invention
5 to simplify a method of the type mentioned at the outset.

To achieve said object, the invention proposes a method of the type mentioned at the outset that is characterized by the following steps:

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- establishment of a first communications link between a device for the delivery of a commodity or for the performance of a service and the mobile-radio terminal via a spatially narrowly limited transmission path;

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- establishment of a second communications link between the mobile-radio terminal and a services computer of a mobile-radio telecommunications network via a mobile-radio transmission path;

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- selection of a desired commodity or service;
- delivery of the selected commodity or performance of the selected service by the device; and

25

- invoicing of the sale amount for the selected commodity or service between the device and the service computer via the communications links.

30 The invention advantageously utilizes, for the communications link between the device for the delivery of a commodity or for the performance of a service and the services computer of a telecommunications network, the ability of a mobile-radio terminal to set up on its part a
35 communications link to the services computer of the mobile-radio telecommunications network. To do this, it is only necessary to establish a further communications link

between the device for the delivery of a commodity or for the performance of a service and the mobile-radio terminal. The device itself consequently does not require a separate connection to a telecommunications network.

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Mobile telephones, in particular, are used as mobile-radio terminals. However, thought has been given also to using mobile-radio telephones of a different design, for example computers with an interface to a mobile-radio
10 telecommunications network.

The first communications link is established via a spatially narrowly limited transmission path. A point-to-point link is therefore set up between the device for the
15 delivery of a commodity or for the performance of a service and the mobile radio terminal within a so-called PICO network, that is to say in a spatially narrowly limited network. Data can be transmitted via the first communications link in virtually any manner. The data
20 transmission rate can also be relatively low since only very limited amounts of data have to be transmitted between the device for the delivery of a commodity or for the performance of a service and the mobile-radio terminal. In addition, it is conceivable to provide suitable memory
25 means in the mobile-radio terminal in order to store temporarily data transmitted at a low data transmission rate from the device to the mobile-radio terminal and then to pass on said data to the services computer at a higher data rate via the second communications link. Likewise,
30 data transmitted at a high data rate from the services computer to the mobile-radio terminal could be stored temporarily in the memory means of the mobile-radio terminal and gradually passed on to the device at a low data rate.

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The restriction of the first communications link to a spatially narrowly limited transmission path has the

advantage that the technical and, consequently, also the financial expenditure on such a communications link are very low. In addition, the pollution of the environment by so-called electrosmog, i.e. the pollution of the
5 environment, in particular, by electromagnetic waves, can be reduced to a minimum. The restriction of the transmission path to a spatially narrowly limited region is not a limitation of the functional capability of the method according to the invention since the user of the mobile-
10 radio terminal is in any case situated in the immediate vicinity of the device for the delivery of the commodity or for the performance of the service in order to receive the commodity delivered or the service performed.

15 The second communications link between the mobile-radio terminal and the services computer of a mobile-radio telecommunications network is established via a mobile-radio transmission path. For this purpose, the services computer is selected by the mobile-radio terminal in a
20 manner known per se. The call also transmits a user identification, for example the telephone number of the mobile-radio terminal, to the services computer. On the basis of the user identification, the services computer is capable of identifying the user of the mobile-radio
25 terminal. The sale amount for a commodity delivered or a service performed is invoiced via the services computer. The services computer has access to the personal data of the user of the mobile-radio terminal and to the data of the user's mobile telephone account. Prior to the delivery
30 of a commodity or prior to the performance of a service, items of information can be exchanged between the device and the services computer. Thus, for example, the creditworthiness of the user or the reaching of a particular credit limit can be checked.

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A desired commodity or service can be selected in various ways. It can take place either via the mobile-radio

terminal or directly at the device for the delivery of a commodity or for the performance of a service. It is furthermore conceivable that, prior to the performance of the method according to the invention, a preliminary
5 selection is made by the user of the mobile-radio terminal of particular commodities or services and stored in the services computer. Said preliminary selection may, for example, consist in that, whenever the user drives up to a device for the delivery of fuel for motor vehicles, the
10 same fuel type is always selected, in that, whenever the user approaches a device for the delivery of drinks in his local pub, the preferred drink is always delivered, or in that whenever the user goes to a device for the delivery of newspapers and magazines, the preferred papers and
15 magazines are always delivered. It goes without saying that it is possible to correct the proceedings in individual cases by deliberate selection of a commodity or service other than that previously selected. The selected commodity or service is then delivered or performed, respectively, by
20 the device and the corresponding sale price is invoiced between the device and the service computer via the communications links. It is conceivable that the commodity or service is delivered or performed, respectively, only if the sale amount has been successfully invoiced. The
25 successful invoicing of the sale amount can be confirmed to the device for the delivery of a commodity or for the performance of a service by the services computer. It is furthermore conceivable that the sale amount is indicated to the user, for example by display on a viewing screen of
30 the mobile-radio terminal. The sale amount is invoiced only after a confirmation of the sale amount by the user. The sale amount for the delivered commodity or the performed service is invoiced to the user of the mobile-radio terminal by means of the mobile-radio account.

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Since the user of a mobile-radio terminal is accepted as a subscriber in a mobile-radio telecommunications network

only if the identity of the user has been successfully checked, the method according to the invention has per se already a very high security standard. An additional check of the identity of the user of the mobile-radio terminal
5 can therefore be dispensed with within the framework of the method according to the invention, that is to say for the processing of an electronic payment operation. To increase the security in the case of electronic payment operations, however, it is conceivable that, within the framework of
10 the present method, the identity of the user of the mobile-radio terminal is additionally checked. The identity of the user can be checked, for example, by entering a so-called personal identification number (PIN) via the mobile-radio terminal and by verifying the PIN via the services
15 computer.

The method according to the invention is suitable for a multiplicity of different electronic payment operations. Thus, it is even conceivable to withdraw cash from
20 automatic telling machines by the method according to the invention. In that case, the automatic telling machine would set up the first communications link to the mobile-radio terminal via the spatially narrowly limited transmission path and then further set up from the latter
25 the second communications link to the services computer via the mobile-radio transmission path. The services computer is either designed as a central banking computer or it sets up a further communications link to a central banking computer in order thus to ascertain the identity of the
30 user of the mobile-radio terminal and to check his financial standing and in order to record the sum of money withdrawn.

For a user of a mobile-radio terminal, the method according
35 to the invention has, in particular, the advantage that, if the devices for the delivery of a commodity or for the performance of a service are suitably equipped, all the

payments accruing in daily life can be made by this method. Apart from the mobile-radio terminal, the user does not have to have any additional payment means on him. In addition, all the payments are made via a single account, 5 namely the mobile-radio account and are invoiced via a single account, namely the mobile-radio account. This makes it easier for the user to review his finances, in particular his outlays.

10 It is conceivable that the user of the mobile-radio terminal can enquire about the current state of his mobile-radio account and can have the individual bookings on his mobile-radio account either stated orally or sent in writing, for example as a short-message service (SMS) or as 15 an electronic message (E-mail).

The payments made by the method according to the invention have a very high security standard and, in this respect, are far superior to other cash-free types of payment, for 20 example credit card, EC card or rechargeable charge card. The method according to the invention works very efficiently and is consequently also suitable for the payment of small amounts of money that were hitherto made either with cash or with a charge card.

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For business, the advantages of the method according to the invention consist, in particular, in that its devices for the delivery of a commodity or for the performance of a service have no longer to be connected, as previously, to 30 the telecommunications network at its expense. On the basis of the method according to the invention, it is sufficient if, for example, cash points are equipped with a suitable interface for the establishment of the first communications link via a spatially narrowly limited transmission path. 35 The communication between the cash point and a services computer then takes place via the first communications link to the mobile-radio terminal and from the latter, via the

mobile-radio transmission path of the second communications link, to the services computer.

In accordance with an advantageous development of the present invention, it is proposed that the first communications link between the device and the mobile-radio terminal is established via an acoustic transmission path, for example via an ultrasonic transmission path.

10 In accordance with another advantageous development of the invention, it is proposed that the first communications link between the device and the mobile-radio terminal is established via an optical transmission path, in particular via an infrared (IR) transmission path.

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In accordance with yet another advantageous development of the invention, it is proposed that the first communications link between the device and the mobile-radio terminal is established via a high-frequency (HF) transmission path. An HF transmission path has the advantage that data can be transmitted via it even if no direct link (line-of-sight (LOS) link) exists between the device and the mobile-radio terminal. Although obstacles between the device and the mobile-radio terminal can result in an attenuation of the HF signal, data transmission via the HF transmission path is, as a rule, still possible.

In accordance with a preferred embodiment of the present invention, it is proposed that the HF transmission path operates according to the Bluetooth standard. The Bluetooth standard is a relatively new standard for the transmission of data over a spatially narrowly limited transmission path by means of HF signals. According to the present art of the Bluetooth standard, data are transmitted with a transmission energy of 1 mW and a frequency of 2.4 GHz. In order to set up the Bluetooth link as robustly as possible and to moderate interference and fading, a rapid frequency

hopping is performed. The data to be transmitted can be encrypted with code lengths of up to 64 bit. Further information about the Bluetooth standard can be found in the journal entitled "Funkschau", No. 9, 1999, pages 34 - 38, WEKA, Fachzeitschriften-Verlag, Poing, and also in the journal entitled "F & M", volume 107 (1999), 6, pages 22 - 24, Carl Hanser Verlag, Munich. Up-to-date items of information on the Bluetooth standard can be found on the Internet on the site <http://www.bluetooth.com>.

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Finally, in accordance with another advantageous development of the present invention, it is proposed that the first communications link between the device and the mobile-radio terminal is established via an inductive transmission path.

In accordance with a preferred embodiment of the present invention, it is proposed that the desired commodity or service is selected by means of input means of the mobile-radio terminal via the first communications link.

In accordance with another advantageous development of the invention, it is proposed that prior to the delivery of the selected commodity or prior to the performance of the selected service, an identification check of the user of the mobile telephone terminal is carried out via the mobile-radio terminal in a manner standard in the mobile telecommunications network. Thus, it is conceivable, for example, that, after the establishment of the first and second communications links, the device for the delivery of a commodity or the performance of a service generates a random number and transmits it to the mobile-radio terminal. The mobile-radio terminal passes on the random number to the services computer, which calculates a new digit sequence from the random number. To calculate the digit sequence from the received random number, the services computer uses a particular computation algorithm

that is dependent on a stored identification of the user of the mobile-radio terminal. The digit sequence is then transmitted again from the services computer back to the device via the mobile-radio terminal. In the meantime, the
5 device for the delivery of a commodity or for the performance of a service has also calculated a digit sequence from the generated random number by a computation algorithm that is dependent on an entered user identification. The device now compares the self-calculated
10 digit sequence with the received digit sequence. If the two digit sequences agree, it is assumed that the stored and the entered user identifications agree. The identity of the user has been successfully checked and the order of the user of the mobile-radio terminal is cleared, and the
15 selected commodity is delivered or the selected service is performed. The method described by way of example of an identity check of the user serves additionally to safeguard the payment operation. The identity check method operates similarly to the method of authentication of the user of a
20 mobile-radio terminal, which method is used in mobile radio telecommunications networks.

In accordance with another advantageous development of the present invention, it is proposed that to invoice the sale
25 amount for the commodity delivered or the service performed, further items of information relating to the selected commodity or service are transmitted by the device via the communications links to the services computer between the device and the services computer. These further
30 items of information comprise, for example, a product number, a product designation, a dealer number or a dealer name. The further items of information can be stored in the services computer and, if necessary, retrieved. Thus, for example, what, when and where a purchase was made can be
35 precisely listed on the mobile-radio account. The items of information stored in the services computer can be used for the purpose of statistical evaluations.

A further object of the present invention consists in designing and developing a mobile-radio terminal of the type mentioned at the outset so that it can be used within
5 the framework of the method according to the invention as a means for the delivery of a commodity or for the performance of a service.

To achieve this object, the invention proposes a mobile-
10 radio terminal of the type mentioned at the outset that is characterized by:

- first means for the establishment of a first communications link between a device for the delivery
15 of a commodity or for the performance of a service and the mobile-radio terminal via a spatially narrowly limited transmission path;
- second means for the establishment of a second
20 communications link between the mobile-radio terminal and a services computer of a mobile-radio telecommunications network via a mobile-radio transmission path; and
- 25 - third means for the reception of data via the spatially narrowly limited transmission path and for the passing-on of the received data via the mobile-radio transmission path or for the reception of data via the mobile-radio transmission path and for the
30 passing on of the received data via the spatially narrowly limited transmission path.

In accordance with an advantageous development of the present invention, the first means have an acoustic
35 interface. An acoustic transmission path is established with the aid of said acoustic interface between the mobile-radio terminal and the device.

In accordance with another advantageous development of the present invention, it is proposed that the first means have an optical interface, in particular an infrared (IR) interface. An optical transmission path can be established with the aid of the optical interface and an IR transmission path can be established with the aid of the IR interface. The IR transmission path may operate, for example, according to the Infrared Data Association (IrDA) standard. The IrDA standard is a specification for wireless IR links, in particular between PC and periphery. The IR transmission path may, however, also operate according to the expanded Advanced-Infrared (AIR) standard.

15 In accordance with yet another advantageous development of the present invention, the first means have a high-frequency (HF) interface that operates, in particular according to the Bluetooth standard.

20 Finally, in accordance with another advantageous development of the invention, it is proposed that the first means have an inductive interface.

In accordance with a preferred embodiment of the present invention, it is proposed that the mobile-radio terminal has fourth means for the selection of the commodity or the service via the first communications link. The desired commodity or service can be selected from the mobile-radio terminal via said fourth means. Corresponding selection means on the device for the delivery of a commodity or for the performance of a service can consequently be dispensed with. In accordance with this embodiment, the device uses the mobile-radio terminal, on the one hand, to establish a communications link to the services computer of a mobile-radio telecommunications network and, on the other hand, to make a selection in relation to the desired commodity or service. As a result, the devices for the delivery of a

commodity or for the performance of a service can be of particularly simple design, inexpensive and require little maintenance. On the other hand, it does not mean additional expenditure for the mobile-radio terminals since they
5 already have suitable means that can be used as selection means.

Advantageously, the fourth means are designed as a dialling/operating keyboard of the mobile-radio terminal.
10 Alternatively, it is proposed that the fourth means are designed as a touch-sensitive viewing screen of the mobile-radio terminal. In order to make it easier for the user of the mobile-radio terminal to select a particular commodity or service, it is conceivable that the device transmits via
15 the first communications link to the mobile-radio terminal items of information about the available commodities or services. Said items of information can then be displayed on the viewing screen of the mobile-radio terminal device. If the mobile-radio terminal device has a touch-sensitive
20 viewing screen, the user can select the desired commodities or services by simply touching the items of information displayed on the viewing screen. If not, the user can make his choice via the dialling/operating keyboard of the mobile-radio terminal.

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In accordance with a preferred development of the present invention, the mobile-radio terminal is designed as mobile telephone. It is, however, also conceivable that the mobile-radio terminal is designed as an organizer or as a
30 PC, preferably as a portable PC, that has an interface to a mobile-radio telecommunications network.

Finally, it is an object of the present invention to design and develop a device of the type mentioned at the outset so
35 that commodities can be delivered or services performed in as simple a manner as possible using a mobile-radio terminal.

To achieve said object, the invention proposes a device of the type mentioned at the outset that is characterized by

- 5 - fifth means for the establishment of a first communications link between the device and the mobile-radio terminal over a spatially narrowly limited transmission path;
- 10 - sixth means for the delivery of a selected commodity or for the performance of a selected service; and
- seventh means for the invoicing of the sale amount for the selected commodity or service via the mobile-radio terminal between the device and the services computer
15 of a mobile-radio telecommunications network.

In accordance with an advantageous development of the present invention, it is proposed that the fifth means have
20 an acoustic interface. In accordance with another advantageous development, the fifth means have an optical interface, preferably an infrared (IR) interface. Furthermore, it is proposed that the fifth means have a high-frequency (HF) interface that preferably operates
25 according to the Bluetooth standard. Finally, the invention proposes that the fifth means have an inductive interface.

In accordance with a preferred embodiment of the present invention, it is proposed that the device has eighth means
30 for the transmission of further items of information in relation to the selected commodity or service from the device to the services computer via the mobile-radio terminal.

35 Finally, it is proposed that the invention has ninth means for the control of the work cycle of the method according to one of Claims 1 to 10.

A preferred exemplary embodiment of the invention is explained in greater detail by reference to the drawings. In the drawings:

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Figure 1 shows a method according to the invention in accordance with a preferred embodiment in a diagrammatic view; and

10 Figure 2 shows the method according to the invention from Figure 1 in a flowchart.

Figure 1 shows diagrammatically a method according to the invention for the delivery of a commodity or for the
15 performance of a service in accordance with a preferred embodiment. To carry out the method, a device 1 is provided for the delivery of a commodity or for the performance of a service. The device 1 shown in Figure 1 is designed as an automatic drinks dispenser that has an ejection compartment
20 2 via which a selected drink is delivered. The device 1 has, in addition, an optical interface 3 that is designed as an infrared (IR) interface. The drinks offered or other items of information can be displayed on a viewing screen 4 of the device 1.

25

A services computer 5 is furthermore provided to carry out the method according to the invention. The services computer 5 is part of a mobile-radio telecommunications network and has access to items of information about
30 subscribers of the mobile-radio telecommunications network and to their mobile-radio accounts. The device 1 establishes a communications connection to the services computer 5 for invoicing the sale amount for a commodity delivered or a service performed. The sale amount is then
35 invoiced via the services computer 5 to a particular subscriber of the mobile-radio telecommunications network and appears on his mobile-radio invoice.

Finally, to carry out the method according to the invention, a mobile-radio terminal 6 is provided that is designed as a mobile-radio telephone. The communications link between the device 1 and the services computer 5 is established, in accordance with the present invention, via the mobile-radio terminal 6. The communications link is divided into two and comprises a first communications link 7 via a spatially narrowly limited transmission path 8 and a second communications link 9 via a mobile-radio transmission path 10. The spatially narrowly limited transmission path 8 is designed as an IR transmission path and ranges over distances of up to several tens of centimetres. The mobile-radio transmission path 10 ranges over distances of several hundred metres.

The mobile-radio terminal 6 has an optical interface 11 that is designed as an IR interface. The first communications link 7 is established between the IR interface 3 of the device 1 and the IR interface 11 of the mobile-radio terminal 6.

The first communications link 7 can take place not only via the IR transmission path 8, but also via an acoustic transmission path, an inductive transmission path or via a high-frequency (HF) transmission path. Thought is given, in particular, to those HF transmission paths that operate according to the Bluetooth standard.

The mobile-radio terminal 6 has a viewing screen 12 on which, for example, the drinks available in the device 1 or the sale amount to be paid can be displayed. The mobile-radio terminal has, in addition, a dialling keyboard 13 and an operating keyboard 14 in the form of function keys. The dialling keyboard 13 can likewise be used to operate the mobile-radio terminal 6. The desired drink can be selected via the dialling/operating keyboard 13, 14. The selection

made is then transmitted via the first communications link 7 from the mobile-radio terminal 6 to the device 1.

The second communications link 9 is established in a manner known per se via the mobile-radio transmission path 10 by the mobile-radio terminal 6 dialling a telephone number of the services computer 5 and a communications link being set up.

10 The method according to the invention is now explained in greater detail by reference to the flowchart from Figure 2. The method begins at function block 20 either automatically, as soon as the mobile-radio terminal 6 comes into the vicinity of the device 1 for the delivery of a
15 commodity or for the performance of a service, or manually, by operating a key of the dialling/operating keyboard 13, 14 or a specially provided key of the mobile-radio terminal 6 or a specially provided key of the device 1. Next, the first communications link 7 is established between the
20 device 1 and the mobile-radio terminal 6 in function block 21. The second communications link 9 is then established in function block 22 between the mobile-radio terminal and the services computer 5 of the mobile-radio telecommunications network. The first and second communications links 7, 9 can
25 also be set up in the reverse sequence or even simultaneously.

In an adjoining function block 23, the supply of commodities or services is transmitted by the device 1 to
30 the mobile-radio terminal 6 via the first communications link 7. In a function block 24, the supply of the device 1 is displayed on the viewing screen 12 of the mobile-radio terminal 6. In function block 25, the user of the mobile-radio terminal 6 then makes a selection of the desired
35 commodity or service. In the present exemplary embodiment, the user selects a desired drink. The selection takes place either via the dialling/operating keyboard 13, 14 or via

the viewing screen 12 of the mobile-radio terminal 6 if the latter is designed as a touch-sensitive viewing screen. It is also conceivable that the selection of the desired drink is made via a suitable keyboard (not shown) directly at the device 1.

If the desired drink is selected at the mobile-radio terminal 6, the selection made is transmitted in a function block 26 from the mobile-radio terminal 6 to the device 1 via the first communications link 7.

In an adjoining function block 27, the device 1 carries out a comparison of the personal data of the user of the mobile-radio terminal 6. For this purpose, the telephone number of the mobile-radio terminal 6 is transmitted to the services computer 5. On the basis of the telephone number, the services computer 5 can determine the identity of the user of the mobile-radio terminal 6 and check his creditworthiness and/or other parameters. Within the framework of the function block 27, an additional check can also be made on the identity of the user. For this purpose, identity check methods can be used that operate like the methods used in mobile radio telecommunications networks for identifying the user of a mobile-radio terminal 6. The result of the comparison of the personal data is transmitted by the services computer 5 to the device 1 via the second communications link 9, the mobile-radio terminal 6 and the first communications link 7.

In an adjoining enquiry block 28, whether the comparison of the personal data of the user has been carried out successfully is checked. If that is the case, the device 1 effects, in an adjoining function block 29, the invoicing of the sale amount that is payable for the commodity selected or the service performed. The sale amount is then invoiced in turn via the first communications link 7 and the second communications link 9 in the services computer

5. The successful invoicing of the sale amount is communicated to the device 1 in function block 30 as an acknowledgement from the services computer 5 via the second communications link 9 and the first communications link 7.

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In an adjoining enquiry block 31, whether the sale amount has been successfully invoiced is checked. If that is the case, the selected commodity or service is delivered or performed, respectively, in adjoining function block 32. In 10 the present exemplary embodiment, the selected drink is delivered via the ejection compartment 2 of the device 1. Consequently, the end of the method according to the invention is reached in function block 33.

15 During the working cycle of the method according to the invention, a branch is also made to the end of the method at function block 33 if the enquiry in the enquiry block 28 reveals that the comparison of the personal data of the user of the mobile-radio terminal 6 has not been carried 20 out successfully or if the enquiry in the enquiry block 31 reveals that the sale amount has not been successfully invoiced.

Patent Claims

1. Method for the delivery of a commodity or for the performance of a service using a mobile-radio terminal (6), characterized by the following steps:
 - 5 - establishment of a first communications link (7) between a device (1) for the delivery of a commodity or for the performance of a service and the mobile-radio terminal (6) via a spatially narrowly limited transmission path (8);
 - 10 - establishment of a second communications link (9) between the mobile-radio terminal (5) and a services computer (5) of a mobile-radio telecommunications network via a mobile-radio transmission path (10);
 - 15 - selection of a desired commodity or service;
 - 20 - delivery of the selected commodity or performance of the selected service by the device (1); and
 - 25 - invoicing of the sale amount for the selected commodity or service between the device (1) and the service computer (5) via the communications links (7, 9).
2. Method according to Claim 1, characterized in that the first communications link (7) between the device (1) and the mobile-radio terminal (6) is established via
30 an acoustic transmission path.
3. Method according to Claim 1, characterized in that the first communications link (7) between the device (1)



and the mobile-radio terminal (6) is established via an optical transmission path.

4. Method according to Claim 3, characterized in that the first communications link (7) between the device (1) and the mobile-radio terminal (5) is established via an infrared (IR) transmission path.
5. Method according to Claim 1, characterized in that the first communications link (7) between the device (1) and the mobile-radio terminal (6) is established via a high-frequency (HF) transmission path.
6. Method according to Claim 5, characterized in that the HF transmission path operates according to the Bluetooth standard.
7. Method according to Claim 1, characterized in that the first communications link (7) between the device (1) and the mobile-radio terminal (6) is established via an inductive transmission path.
8. Method according to one of Claims 1 to 7, characterized in that the desired commodity or service is selected by means of input means of the mobile-radio terminal (6) via the first communications link (7).
9. Method according to one of Claims 1 to 8, characterized in that, prior to the delivery of the selected commodity or prior to the performance of the selected service, an identification check of the user of the mobile telephone terminal (6) is carried out via the mobile-radio terminal (6) in a manner standard in the mobile telecommunications network.
10. Method according to one of Claims 1 to 9,



characterized in that, to invoice the sale amount for the commodity delivered or the service performed, further items of information in relation to the selected commodity or service are transmitted between the device (1) and the services computer (5) by the device (1) to the services computer (5) via the communications links (7, 9).

11. Mobile-radio terminal (6) for use as a means for the delivery of a commodity or for the performance of a service within the scope of the method according to one of Claims 1 to 10, characterized by

- first means for the establishment of a first communications link (7) between a device (1) for the delivery of a commodity or for the performance of a service and the mobile-radio terminal (6) via a spatially narrowly limited transmission path (8);

- second means for the establishment of a second communications link (9) between the mobile-radio terminal (6) and a services computer (5) of a mobile-radio telecommunications network via a mobile-radio transmission path (10); and

- third means for the reception of data via the spatially narrowly limited transmission path (8) and for the passing-on of the received data via the mobile-radio transmission path (10) or for the reception of data via the mobile-radio transmission path (10) and for the passing on of the received data via the spatially narrowly limited transmission path (8).

12. Mobile-radio terminal (6) according to Claim 11, characterized in that the first means have an acoustic



interface.

13. Mobile-radio terminal (6) according to Claim 11,
characterized in that the first means have an optical
5 interface (11).
14. Mobile-radio terminal (6) according to Claim 13,
characterized in that the optical interface (11) is
designed as an infrared (IR) interface.
10
15. Mobile-radio terminal (6) according to Claim 11,
characterized in that the first means have a high-
frequency (HF) interface.
- 15 16. Mobile-radio terminal (6) according to Claim 15,
characterized in that the HF interface operates
according to a Bluetooth standard.
17. Mobile-radio terminal (6) according to Claim 11,
20 characterized in that the first means have an
inductive interface.
18. Mobile-radio terminal (6) according to one of Claims
11 to 17, characterized in that the mobile-radio terminal
25 (6) has fourth means for the selection of the commodity or
the service via the first communications link (7).
19. Mobile-radio terminal (6) according to Claim 18,
characterized in that the fourth means are designed as
30 a dialling/operating keyboard (13, 14) of the mobile-
radio terminal (6).
20. Mobile-radio terminal (6) according to Claim 18,
characterized in that the fourth means are designed as
35 a touch-sensitive viewing screen (12) of the mobile-
radio terminal (6).



21. Mobile-radio terminal (6) according to one of Claims 11 to 20, characterized in that the mobile-radio terminal (6) is designed as a mobile telephone.

5 22. Device (1) for the delivery of a commodity or for the performance of a service using a mobile-radio terminal (6), characterized by

- 10 - fifth means for the establishment of a first communications link (7) between the device (1) and the mobile-radio terminal (6) over a spatially narrowly limited transmission path (8);
- 15 - sixth means for the delivery of a selected commodity or for the performance of a selected service; and
- 20 - seventh means for the invoicing of the sale amount for the selected commodity or service via the mobile-radio terminal (6) between the device (1) and the services computer (5) of a mobile-radio telecommunications network.

23. Device (1) according to Claim 22, characterized in
25 that the fifth means have an acoustic interface.

24. Device (1) according to Claim 22, characterized in that the fifth means have an optical interface (3).

30 25. Device (1) according to Claim 24, characterized in that the optical interface (3) is designed as an infrared (IR) interface.

26. Device (1) according to Claim 22, characterized in
35 that the fifth means have a high-frequency (HF) interface.

27. Device (1) according to Claim 26, characterized in



that the HF interface operates according to the Bluetooth standard.

28. Device (1) according to Claim 22, characterized in
5 that the fifth means have an inductive interface.

29. Device (1) according to Claims 22 to 28, characterized
in that the device (1) has eighth means for the
transmission of further items of information in
10 relation to the selected commodity or service from the
device (1) to the services computer (5) via the
mobile-radio terminal (6).

30. Device (1) according to one of Claims 22 to 29,
15 characterized in that the device (1) has ninth means
for the control of the work cycle of the method
according to one of Claims 1 to 10.

