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[Continued on next page]

(54) **Title:** A COMPUTER MOUSE FOR SECURE COMMUNICATION WITH A MOBILE COMMUNICATION DEVICE

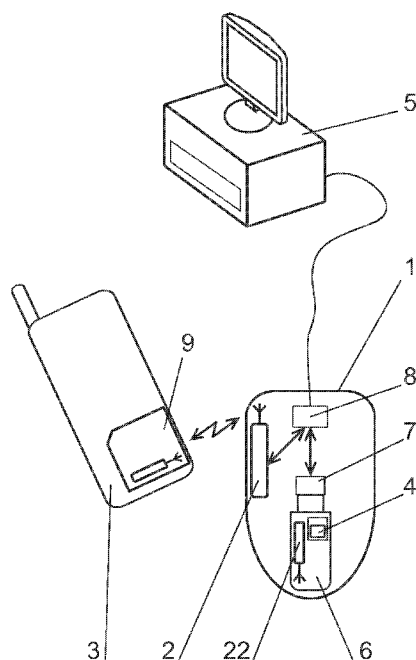


Fig. 4

(57) **Abstract:** As disclosed herein, a computer mouse (1) may include a contact-less communication element (2) for communication with a mobile communication device (3), such as a mobile phone. The communication element (2) may be a near-field communication (NFC) element, and may be adapted to establish a connection with a secure element (4) for processing data communicated between a computer (5) and the mobile communication device (3). The secure element (4) may be configured in a memory device, which may be located in the computer mouse (1) or on a separate carrier (6). The carrier (6) may be a removable memory card, the insertion of which into a corresponding connector (7) may establish a connection between the communication element (2) and the secure element (4). The communication element (2) may include an antenna, which may be formed on a printed circuit board in the computer mouse (1). A computer mouse (1) as described herein may enable a computer (5) to communicate with a mobile communication device (3) in a secure manner.

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *of inventorship (Rule 4.17(iv))*

— *with amended claims and statement (Art. 19(1))*

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- *with international search report (Art. 21(3))*

PATENT CLAIMS

1. A device for data transmission between the mobile communication device (3) and a computer (5) in electronic payments which are realized over a mobile communication device (3) containing transmitted data processing unit and an interface for the connection to the computer (5) *is characterized by the fact that* the device is formed by a computer mouse (1) connected to the computer (5), the computer mouse (1) is equipped with a NFC contactless communication element (2) for the communication with the mobile communication device (3), the communication element (2, 22) is connected with the secure element (4) for the processing of data that are sent from communication device (3) to the computer (5) and/or data that are sent from computer (5) into the mobile communication device (3), the transmitted data processing unit contains an encryption block, while the interface for the connection to the computer (5) is connected to the transmitted data processing unit and the encryption block is located in the secure element (4).
2. A device for data transmission according to the claim 1 *is characterized by the fact that* the communication element's (2) antenna is created on the printed circuit board of the computer mouse (1).
3. A device for data transmission according to any of the claims 1 or 2 *is characterized by the fact that* the secure element (4) is created in the memory located directly in the computer mouse (1) hardware.
4. A device for data transmission according to any of the claims 1 or 2 *is characterized by the fact that* the secure element (4) is located in a separate carrier (6) and is connected to a connection connector (7) with which the computer mouse (1) is equipped and the computer mouse (1) has a slot for the carrier (6) on the external surface of the computer mouse (1).

5. A device for data transmission according to the claim 4 *is characterized by the fact that* the separate carrier (6) is created by a removable memory card and the connection connector (7) is a part of the removable card reader, which is located in the computer mouse (1).
6. A device for data transmission according to the claim 4 *is characterized by the fact that* the connection connector (7) is of USB format and the carrier (6) is an USB memory key.
7. A device for data transmission according to any of the claims 4 to 6 *is characterized by the fact that* the carrier (6) is equipped with a communication element (22).
8. A device for data transmission according to any of the claims 1 to 7 *is characterized by the fact that* along with the SIM card which is to be used in the mobile communication device (3) and preferably also with a memory card or a memory key and software they form the computer (5) update set.
9. A device for data transmission according to any of the claims 1 to 8 *is characterized by the fact that* it is equipped with a reader of a fiscal module.
10. A data transmission method between the mobile communication device (3) and the computer (5) during electronic payments realized over a mobile communication device (3), where the POS payments terminal is virtual created in a computer (5) or in mobile communication device (3) *is characterized by the fact that* the computer mouse (1), which is used for the transmission path, is connected to the computer, the communication element (2,22) transfers data between the computer mouse (1) and the mobile communication device (3) and transmitted data are processed in the secure element (4) placed in the computer mouse (1) or in the carrier (6) which is connected to the computer mouse (1), while the data processing in the secure element (4) is based on the encryption and decryption of transmitted data.

11. A data transmission method according to the claims 10 *is characterized by the fact that* the communication element (2) is activated only after the carrier (6) and the connector (7) are connected.
12. A system for the data transmission between the mobile communication device (3) and a computer (5) during electronic payments realized over a mobile communication device (5) where the POS payments terminal is virtual created in a computer (5) or in mobile communication device (3) *is characterized by the fact that* it contains a mobile communication device (3) with a NFC contactless communication element, a computer mouse (1) connected to the computer (5), and also contains communication element (2 and/or 22) and secure element (4), while the mobile communication device (3) is equipped with a removable memory card (9) with a contactless communication element and antenna, on the side of the computer (5) is the hardware of the computer mouse (1) connected with a contactless communication element (2, 22) for the communication with the mobile communication device (3) and the communication element (2 and/or 22) is connected to the secure element (4).
13. A system for the data transmission according to the claim 12 *is characterized by the fact that* a mobile communication device (3) is mobile phone.

Statement under article 19(1)

We have replaced the claims 1 and 2 with a changed and merged claim 1, to which we have added the encryption feature on the secure element from the description and we have also changed the formulation in such a way, so it would be apparent that we request the protection exclusively for the usage of a computer mouse as a mediator in the transmission of sensitive financial information between the computer and the mobile communication device. By this, the first claim also differs from the documents cited in the research report. The purpose of these documents is to fulfill another goal and their configuration does not enable encryption of the communication going from the mobile communication device into the computer and vice versa.

The original claims 3, 7, 8, 9 and 10 are changed only in the introductory clause of the patent and their numbering is shifted. In the original claim no. 10 (now no. 9) we have retained the fiscal module term, since this fiscal module is a term for the point-of-sale systems defined by law in more countries.

The claims 4, 5 and 6 are adjusted even in the characteristic portion of the patent and they are renumbered. The original claim no. 11 (now no. 10) is completely reformulated grammatically and we have supplemented it with a feature from the description, by which we have narrowed the extent of the protection only to the

transmission method, when the POS payment terminal is created virtually in the computer or in the mobile communication device. By doing this, that claim is significantly different from the documents in the research report. The adjusted claim 10 also contains the features from the original claim 12 and 13. The original claim 15 is changed to claim 1, in which the extent of the protection is narrowed to the transmission of data in electronic payment managed from the mobile communication device. The documents cited in the research report contained the features, that personalized the computer mouse, ensured its unique identification or if pertinent they contained the devices for the evaluation of the access, however they were not dealing with the encryption of transmitted data, e.g. during the run of the payment application. Until now, this kind of task were not even part of the solution's subject matter, since the usage of the mobile communication device in the form of a carrier of the virtual POS terminal on the removable memory card is a new configuration. We consider the insertion of the computer mouse into the payment data transmission chain as a new solution that encompasses the inventing step. We have already adjusted the preamble part of the first claim in this sense, where we try to emphasize the new usage of the computer mouse itself.

After narrowing the extent of the protection of all three independent claims we consider that even the dependent claims fulfill the patentability criteria.