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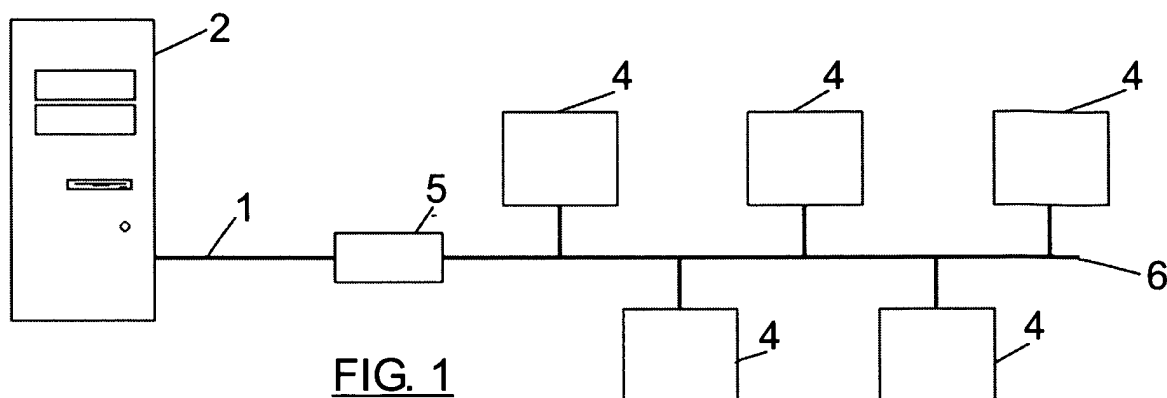
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(54) **Payment means device for automatic machines with a dual communication system**

(57) The invention relates to a payment means device for automatic machines with a dual communication system having a first connection (8) for a first communication system (1), normally USB, with the automatic machine (2) in which said device (3) is installed; a second connection (9) for a second communication system (6), preferably CCTALK, to which the peripherals (4) of the machine (2) having the same second communication system (6) are connected; and control electronics (7). If

the device (3) is connected with the machine (2) through the first connection (8), the electronics (7) communicate the device (3) and the peripherals (4) connected to the second connection (9) with the machine (2) using the first communication system (1); whereas if the device (3) is connected with the machine (2) through the second connection (9), the electronics (7) communicate the device (3) with the machine (2) using the second communication system (6).



Description

Field of the Invention

[0001] The present invention relates to devices of the type called "Payment means", which can consist of coin selectors, banknote readers, coin return devices (hoppers), card readers and generally any device related to the control or handling of a value support. These devices are incorporated in entertainment machines, automatic vending machines, public telephones, change machines and ticket machines, among others.

Background of the Invention

[0002] A coin return mechanism is described for example in European patent application EP-1020818-A1, which relates to a return device able to supply the coins corresponding to the amount which is to be returned. The connection of this device to the controller of the machine in which it is assembled is carried out by means of a parallel or series connection. This latter case uses different known systems among which RS232, RS422/485, I²C and CCTALK can be emphasized as the most used. The machine has the necessary connections to communicate with each of the different devices, either with an individual (parallel) connection or by means of a bus covering all compatible devices, as is the case of the I²C or CCTALK. Recently, the USB is starting to be used as a series connection between the control system of the machine and the different devices, in this case it is necessary to use an individual connection of the device with the electronic card of the machine, or use an external adaptor converting the USB connection to the selected bus format.

[0003] Examples of different types of connections between the control of the machine and its peripherals can be found in the following documents:

Patent document US 20060123174 A1 proposes a communication interface card incorporating all the communication types that the machine can use. Patent document US 20060205481 A1, uses a card (160) with different communication port standards, such as parallel, series, LAN and USB. In order to connect peripherals with other communication types to this card, as is the case of CCTALK, it uses an adaptor (Figure 8, Module 560).

[0004] The interconnection systems mentioned in these documents technically solve the connection problem between the central unit of the machine and the different devices, but in contrast it complicates the wiring and required hardware, with the increase in cost that this implies. The technical drawback which the invention intends to solve consists of how to obtain in an automatic machine with at least one payment means device (entertainment machines, automatic vending machines,

etc.) a flexible and versatile connection system which can use either a first communication system (e.g., USB) or a second communication system (e.g., CCTALK bus) for communicating with the different peripherals of the machine without needing to use a specific adaptor (such as that used in Figure 8 of patent document US 20060205481 A1 for example). A payment means device which allows connecting the machine with the rest of its peripherals either through a first communication system or through a second communication system without needing to use a specific adaptor for said machine and said peripherals has been designed in order to solve this technical drawback. The mass production of payment means devices according to the present invention from now on will allow adding greater versatility to the machine-peripherals communications system and a greater simplicity, since it will not be necessary to use a specific adaptor, with the consequent cost reduction. The device proposed in the present invention solves the mentioned problems and drawbacks. The device basically contemplates the USB connection to the control of the machine at the same time that it has a second bus type connection (for example CCTALK) such that this second connection can be used to communicate the machine with other devices compatible with the selected bus. Thus, for example, one or more devices can be connected to the device of the invention, such as return devices, coin selectors, banknote or card readers, all of them with the advantage that they will be controlled from the machine through the USB connection of the device of the invention.

[0005] Another feature of the proposed device is that it can also be directly connected from the machine through the bus, behaving like a standard peripheral.

Description of the Invention

[0006] The invention relates to a payment means device for automatic machines with a dual communication system according to claim 1. Preferred embodiments of the system and of the method are defined in the dependent claims.

[0007] The payment means device object of the invention, in addition to having the typical elements of the payment means in question, has:

- a first connection configured to act as a first communication system with the automatic machine in which said device is installed;
- a second connection configured to act as a second communication system, to which the peripherals of the automatic machine having the same second communication system are connected;- control electronics configured to:
 - in the event that the device is connected with the automatic machine through the first connection, communicate the actual device and the peripherals connected to the second connection

with the automatic machine using the first communication system;

- in the event that the device is connected with the automatic machine through the second connection, communicate the actual device with the automatic machine using the second communication system.

[0008] The first communication system is preferably of the USB type. The second communication system is preferably of the CCTALK type.

Brief Description of the Drawings

[0009] A series of drawings will be very briefly described below which aid in better understanding the invention and which are specifically related to an embodiment of said invention, set forth as a non-limiting example thereof.

[0010] Figure 1 schematically shows a known way of connecting the USB to a bus by means of an adaptor.

[0011] Figure 2 schematically shows the device object of the invention when it is connected to the automatic machine through the first connection.

[0012] Figure 3 schematically shows the device object of the invention when it is connected to the automatic machine through the second connection.

Description of a Preferred Embodiment of the Invention

[0013] The object of the present invention consists of the incorporation in payment means devices of a dual communication system, together with an interface between them. This system can be applied to peripheral devices for automatic machines, as can be the case of vending machines, entertainment machines, ticket machines, etc. The devices to which it is applied preferably consist of coin return devices in charge of supplying change after making a purchase or for paying the prize in an entertainment machine. It can also be useful to incorporate it into a coin or banknote recognition system, classifiers, storage and return systems and generally any control or management device working with a payment means.

[0014] In Figure 1, showing the prior art, the peripherals (4) of the automatic machine (2) are connected to the bus (6) coming from a specific adaptor (5), which in turn is connected to the automatic machine (2) by means of a USB connection (1).

[0015] In the proposed system, as shown in Figure 2, the device (3) object of the invention uses a first connection (8) which is of the USB (1) type, by means of which it communicates directly with the central unit of the automatic machine (2), which can consist of a conventional computer for example. The device (3) further has a second connection (9) consisting of a bus (6) to which other compatible peripherals (4) can be connected. The device (3) incorporates control electronics (7) based on a micro-

controller in which the operational program of the device (3) is incorporated. In said control electronics (7) a connection for generating the bus (6) to which other compatible peripherals (4) can be connected has additionally been enabled. The bus (6) can be generated directly from the actual microcontroller or by means of an additional circuit, not shown, which would form part of the control electronics 7. In either of the two cases it may be necessary to incorporate several electronic components in order to adapt the operational voltage levels of the control electronics (7) and of the bus (6). An additional feature of the proposed device (3) is that the generated bus (6) has the feature of behaving in a completely compatible manner for the purpose of the connection with an automatic machine (2), such that if the device (3) is connected to the machine by means of the bus (6) it behaves in the same manner as a compatible peripheral device (4).

Claims

1. A payment means device for automatic machines with a dual communication system, **characterized in that** said device (3) has:

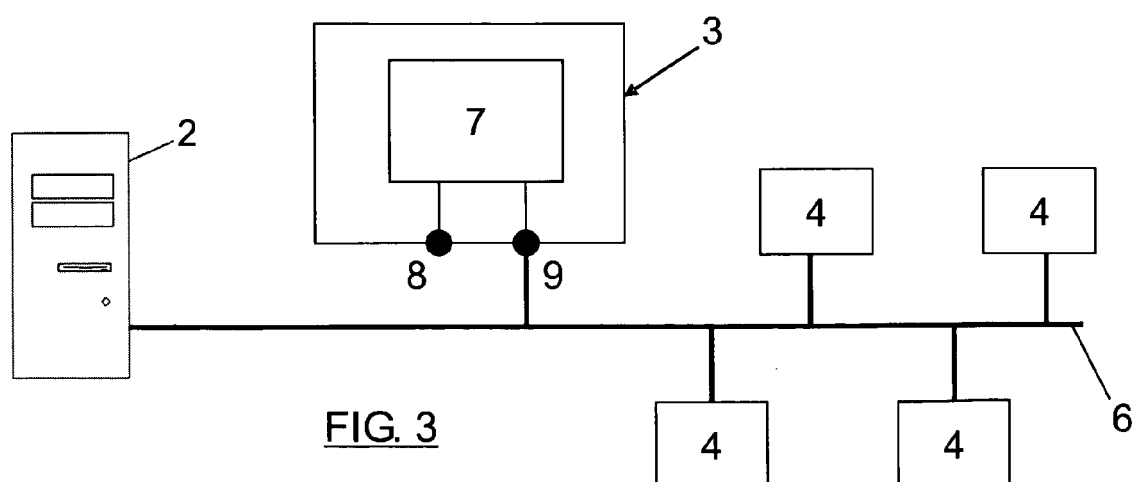
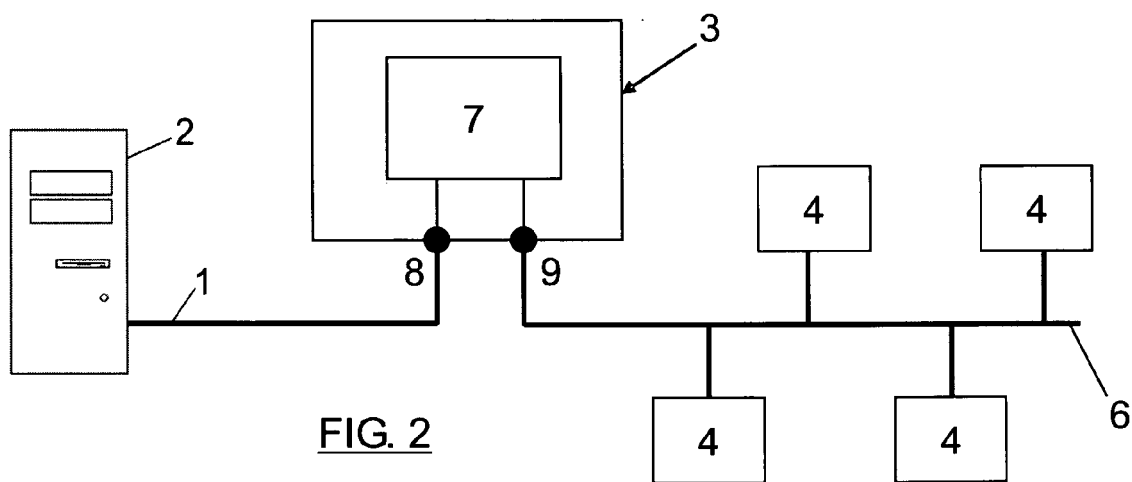
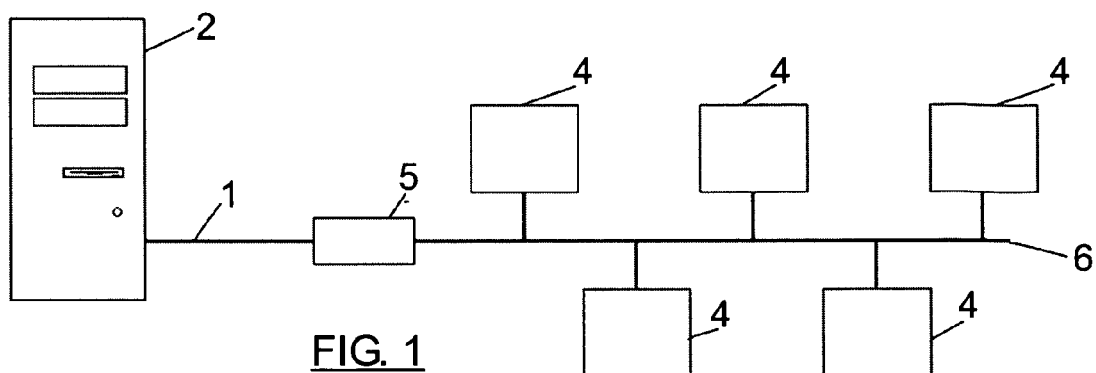
- a first connection (8) configured to act as a first communication system (1) with the automatic machine (2) in which said device (3) is installed;
- a second connection (9) configured to act as a second communication system (6), to which the peripherals (4) of the automatic machine (2) having the same second communication system (6) are connected;
- control electronics (7) configured to:

- in the event that the device (3) is connected with the automatic machine (2) through the first connection (8), communicate the actual device (3) and the peripherals (4) connected to the second connection (9) with the automatic machine (2) using the first communication system (1);

- in the event that the device (3) is connected with the automatic machine (2) through the second connection (9), communicate the actual device (3) with the automatic machine (2) using the second communication system (6).

2. A device according to claim 1, **characterized in that** the first communication system (1) is of the USB type.

3. A device according to any of the previous claims, **characterized in that** the second communication system is of the CCTALK type.





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 08 38 0085

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 1 045 351 A (MARS INC [US]) 18 October 2000 (2000-10-18) * the whole document *	1-3	INV. G07F9/00
X	US 6 505 095 B1 (KOLLS H BROCK [US]) 7 January 2003 (2003-01-07) * the whole document *	1-3	
			TECHNICAL FIELDS SEARCHED (IPC)
			G07F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 23 June 2008	Examiner Guenov, Mihail
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3

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 38 0085

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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23-06-2008

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			US 6390269 B1	21-05-2002

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1020818 A1 [0002]
- US 20060123174 A1 [0003]
- US 20060205481 A1 [0003] [0004]