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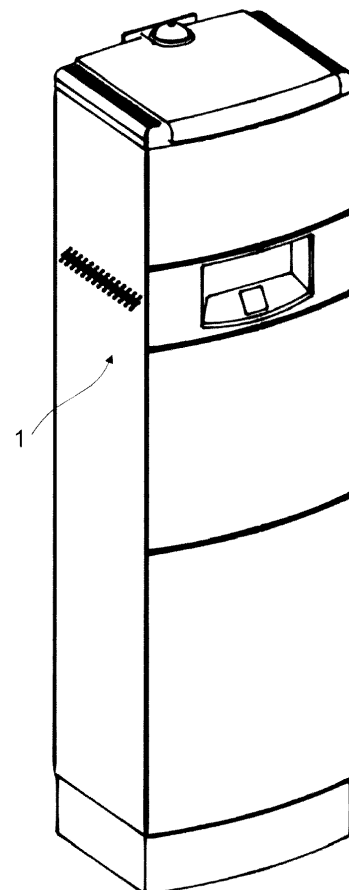
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(54) **MULTIFUNCTIONAL PERIPHERAL DEVICE AND METHOD FOR DELIVERING OBJECTS**

(57) Described is a multifunction peripheral device (1), equipped with a plurality of closed compartments of different sizes, with electronic locks and accessory sensors, wherein the device (1) is provided with at least one control board for controlling electronic locks.

FIG. 1



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Description

[0001] This invention relates to multifunction peripheral device. The invention also relates to an integrated system for delivering objects and a method for delivering objects.

[0002] More specifically, the invention relates to an electronic and telematic device with relative system and method for managing the logistics, security and automation services of residential buildings.

[0003] Over the years the duties for managing buildings have been carried out by caretakers, but in recent years they have gradually disappeared in order to reduce costs and due to the lack of staff with suitable skills. The main responsibilities of this person have always been handling the mail, controlling people who access the building and intervening in the case of problems such as blocking of the lift or faults to the lighting, gas or water systems.

[0004] Patent document WO2008105991A1 describes a prior art solution wherein an identification code, stably associated with a user, makes it possible to open a compartment to which an object has been dispatched.

[0005] The web page of the same Applicant, at <https://web.archive.org/web/20171115213357/https://www.poste.it/applicazione-posteid.html>, describes the use of a QR Code as a personal ID code of a user, which is a function similar to an identity card; this identification code also being permanently associated with the user.

[0006] However, the need remains unsatisfied of a system for delivering objects (such as, for example, mail packages) which is dynamically flexible, for bringing the delivery point to the condition most convenient for the recipient, as a function of the availability of the recipient to receive the delivery.

[0007] The aim of this invention is to provide a device which overcomes the limits of the prior art mentioned above; this aim is achieved by the device according to one or more of the following claims.

[0008] The device according to the invention (as well as the integrated system and the method for delivering objects) allows an operator (for example, a postman) to deliver to a compartment of the device an object which a sender had directed to a recipient, if the operator has verified that the recipient cannot be reached at his apartment at the time of delivery; moreover, the device allows the recipient to pick up the object in a simple and convenient manner, picking it up securely from the device, which is located in the condominium wherein the recipient lives.

[0009] The proposed integrated system, not currently available in the prior art, addresses all these requirements by using a home automation device connected and controlled by means of a remote central platform. The device is equipped with remote sensors and apparatuses, such as security cameras which allow monitoring and alarm services to be provided.

[0010] The device makes it possible to perform the functions described below: a) delivery and dispatch of letters and packages, enabling a new process for acceptance of registered mail by remote digital signature, which makes it possible to avoid being physically present in front of the postman, but merely using an App which requests identification by means of SPID (Public Digital Identification System) or other certified identification system, b) signalling of unauthorised persons in the building by detecting and identifying faces using security cameras, c) sending alarm signals in the case of blocking of the lift, d) notification of faulty lights, e) signalling gas leaks in the boiler rooms, f) signalling water leaks in meter rooms, g) displaying on the screen the advertising communications of the local tradespeople according to a defined publication plan.

[0011] According to an aspect of the invention, the device comprises a user interface. According to an embodiment, the device comprises a display. According to an embodiment, the user interface is configured to receive identification data, representing a unique code available to a user. In this case, for example, the display of the device is configured for allowing the insertion of a numeric code or a password which represent the ID data. According to an embodiment, the user interface is configured for detecting ID data. According to an embodiment, the user interface comprises an optical device (sensor). The optical device (sensor) is configured for scanning an image. The optical device (sensor) is configured for deriving corresponding image data from the scanned image, representing the ID data.

[0012] According to an embodiment, the device comprises a connecting module, configured to allow the connection of the device with a remote platform. According to an embodiment, the device comprises a processor of the control board. According to an embodiment, the processor is programmed to receive the ID data from the user interface.

[0013] According to an embodiment, the processor is programmed to enable or inhibit the opening of the electronic locks as a function of the correspondence between the ID data received from the user interface and that contained in the remote platform. According to an embodiment, the processor is programmed to receive from the remote platform the ID data stored on a database of the remote platform. According to an embodiment, the processor is programmed to compare the ID data received from the user interface with that received from the remote platform.

[0014] This and other features will become more apparent from the following description of a preferred embodiment of the invention, illustrated by way of non-limiting example in the accompanying tables of drawings, wherein:

- Figure 1 illustrates a perspective view of a device according to the invention;
- Figure 2 illustrates a perspective view of a detail of

the device of Figure 1;

- Figure 3 illustrates the device of Figure 1 together with some relative accessories;
- Figure 4a illustrates a perspective view of a portion of the device of Figure 1 with some parts removed;
- Figure 4b illustrates an enlarged detail of Figure 4a;
- Figure 5 illustrates a detail of Figure 1;
- Figure 6 illustrates an integrated system according to the invention.

[0015] The invention is based on a device installed at the home of the user which for the sake of clarity may be called "Building Box Master", connected to a central control and management platform, which allows coordination of the new mail delivery and building control processes, which is shown in Figure 1 with the reference numeral (1).

[0016] The device is equipped with compartments of different sizes for depositing received packages and mail, as well as packages to be dispatched. Moreover, it is equipped with security cameras shown in Figure 3 with reference numeral 3, sensors for signalling gas leaks, shown with reference numeral 4, water leaks, shown with reference numeral 5, faulty lights, shown with reference numeral 6, and apparatuses for sending the alarm signal of a blocked lift, shown with reference numeral 7.

[0017] In order to use the functionalities of the system it is necessary to register on the central platform choosing the delivery modes in the mail and registered mail device and the necessary data (name, address, e-mail, telephone number) for sending SMS communications or App notifications aimed at the interaction with the users.

[0018] The Building Box Master device is equipped with a central compartment, shown in Figure 4a with reference numeral 8, in which the electronic components necessary for operation of the applications for management of the provided services are positioned. More specifically, the electronic components of the Master module are the following: a) 10" LCD touch screen display, shown in Figure 4b with reference numeral 9, b) central processing unit equipped with a processor of at least 2Ghz, RAM of at least 2MB and solid state disc of at least 32 GB, shown in Figure 4b with reference numeral 10, c) two-dimensional bar code reader, shown in Figure 4 with reference numeral 11, d) modem for 4G mobile network, shown in Figure 4 with reference numeral 12, e) control board for electronic locks of the compartments used for housing mail, shown in Figure 3 with reference numeral 13, f) electronic locks for remotely opening compartments, shown in Figure 4b with reference numeral 14.

[0019] The device allows accessing the services by authenticating users through the SPID credentials, by means of the touch screen display 15 or by means of a suitable App on the smartphone, as shown in Figure 5, with reference numeral 15. Lastly, the device is fitted with a bell-type lock at the top of the highest compartment, which, by specially designed metal coupling plate, has the twofold function of attaching the device to the wall,

by means of four screws inserted into holes, and also allowing the locking and the removal of the rear panel of the device for emergency opening requirements. Once attached to the wall, it is possible to fix the device by means of four snap-fit pins, and insert the bell-type lock.

[0020] The electronic components are not present in the devices called Building Box Slaves, which have the sole purpose of extending the mail management capacity with further compartments again controlled by a single Master module.

[0021] For the management of the processes and provision of the planned services, as well as for monitoring of the territorial peripheral devices, a remote central platform is necessary, which is in turn integrated with external systems, such as, for example that of the couriers, used for tracking and managing the telematic mail delivery activities.

[0022] The system described also allows implementation of a new method for the notification and acceptance of registered mail delivered by the Italian postal service without the user being physically present before the postman. The proposed method provides that the user registered for the service receives a notification on the App when the delivery must be made; in this way, if it is possible, the Building Box device is used. The user only needs to use the planned App and, by means of the identification process planned by the SPID system (Public Digital Identification System) or other equivalent identification system, can be recognised and authorised for accepting the delivery by digitally signing the notification transaction with a private digital key initialised at the moment of configuring the application. In this way, it is possible to consider the delivery of the registered mail as accepted by means of a digital signature.

[0023] The components of the integrated system are described in detail below.

Building Box Master

[0024] It is positioned at the entrance to the building and is the main module, containing the electronic control components which allow management of all the functions of the device. In particular, it consists of a technical processing unit, a board for controlling the electronic locks, an LCD display with 10.1" capacitive touch screen and a two-dimensional barcode reader located in a specific compartment, and three or more other empty compartments to be used for logistic purposes, of different sizes and equipped with electronic locks controlled by the control board. The technical processing unit is based on a mini computer with a processor of at least 2Ghz with 2 GB RAM memory and a solid-state drive (SSD) of at least 32 GB. Moreover, the card has a USB 2.0 port for connection of the two-dimensional barcode reader of the capacitive touch screen and at least one RS232/485 serial port for connection of the control board of the electronic locks, video outlet for connection of the LCD display. The Building Box Master device interacts with the

various accessory devices and sensors: cameras, push-button lift block indicator, light detector sensor, gas leak detector sensor and water leak detector sensor.

[0025] The board can in turn be connected to another analogue board positioned in another Building Box module, called Slave, making use of the same technical processing unit present in the Master module. The technical processing unit makes it possible to execute the software control application of the device for interacting with users and communicating with external systems. More specifically, the device is connected to the central remote management platform, which coordinates and manages the processes and the functions performed by means of a 4G modem and accessory devices and sensors by using local Wi-Fi connectivity; it is also connected to the control board of the locks by internal connectivity based on serial protocol RS232/485. The software also implements an administration console which, through a suitable profiling of the users, allows the various functions of the system to be configured and to handle the information collected by the devices and accessory sensors. The software of the device, interacting with the remote central platform, also allows displaying the advertising communications of the local tradespeople who have digitised the paper flyers displayed at the buildings.

Building Box Slave

[0026] This represents an alternative embodiment of the Master module and it is equipped only with a control board for the electronic locks and compartments equipped with electronic locks. The Slave module allows increasing the number of compartments available, reducing to a minimum the management hardware, thus allowing a reduction in the number of mail containers to be used simultaneously, as a function of the number of users of the device. It is possible to add multiple Slave modules in cascade by connecting in series the control boards of the electronic locks, all controlled by the same Master module.

Camera for Access Recognition

[0027] In addition to the functions for managing the mail logistics, the proposed system also performs the recognition of the persons who access the building or the floors of the building by using Wi-Fi cameras. The cameras, equipped with "motion detection" sensors, take pictures when they detect a movement and send them by Wi-Fi to the technical processing unit; one or more faces extracted from the pictures by the technical processing unit, by using Cloud services, are compared with the list of faces authorised for the access and configured by the users. In this way, if there are unrecognised faces, the technical processing unit sends a message by means of the 4G communication module to the central platform which, in turn notifies the users who administrate the area controlled by the camera. Various Wi-Fi cameras, which

cover the various areas of the building, are connected to the master module for this purpose.

Pushbutton indicator of lift blocking

[0028] In order to allow the sending of an alarm for a person who remains closed in the lift a pushbutton is positioned in the lift and is used to send a suitable message by Wi-Fi network to the technical processing unit of the Building Box Master device. The Master module, once received the alarm, notifies the event in real-time to the central platform which activates an SMS message or e-mail towards the lift maintenance service managers. The pushbutton in the lift informs the user of the successful notification to the technical processing unit by means of a light signal.

Lights, water and gas sensors

[0029] Further functions of the Building Box Master are those of signalling alarms and notifying lighting faults in common areas, gas leaks in the boiler rooms and water leaks in the meter rooms. Three types of sensors connected by Wi-Fi to the Building Box Master device are used for this purpose: sensor for detecting lighting faults, sensor for detecting gas leaks and sensor for detecting water leaks. After the alarm signals are received by the Building Box Master, they are sent to the central platform which in turn will send a notification via SMS to the administrators of the service for the opportune investigations. All the alarm signals are stored on the Building Box Master device and on the central platform for backup purposes and can also be displayed by the console of the Building Box Master device.

Remote central platform

[0030] The central platform manages the processes for providing the described functions and the technical management of the operation of the Building Box devices, as well as distribution of software updates of the devices. The functions for managing the processes require integration with external systems for coordinating operating activities for logistics management and security management. In particular, the device interfaces with the systems of couriers including the Italian postal service platform to allow integration of their logistics processes for delivery and booking of spaces in the compartments of peripheral Building Boxes. It manages the activities of the peripheral Building Box devices, monitoring the processes for verification of the two-dimensional barcodes for access to the compartments by the users. The remote central platform is also the centre of communication and sorting of the communications, in particular of the notification messages of the mail to be delivered and of the alarm messages received from the Building Box devices present in the territory.

[0031] The central platform allows coordination of the

system for displaying the advertising communications of the local tradespeople, allowing the selection and distribution of digitalised flyers on the Building Box devices selected by the tradespeople, sending on the display of the selected devices the advertising pages uploaded by means of the platform. In fact, by using this function each tradesperson can prepare his relative digital flyer, selecting the time and the methods for displaying on the peripheral devices.

[0032] The platform also supports the process for notification and digital acceptance of the registered mail by integrating with the smartphone App available to the users registered with the service and with the platforms of the SPID service for identifying the user and subsequently for collecting the entered remote digital signature to confirm the remote acceptance of the registered mail. The user may subsequently go to the Building Box device to physically pick up and, if necessary, provide the electronic signature on the touch screen to also archive the graphical signature.

[0033] The remote central platform also allows monitoring and verification of operation of the peripheral Building Box Master devices, as well as updating the software of the devices.

[0034] According to an aspect of the invention, a method is provided for delivering an object to a recipient user. More specifically, the method comprises a step of depositing an object into a closed compartment of a peripheral device. According to an aspect of the invention, the depositing step may comprise one or more of the following steps:

- authenticating a depositing user, in a portable device, by inserting a personal ID, associated with the user, which may be a user name and a password or a graphic code such as a QR code or a barcode;
- verifying the registration of the recipient user in a remote platform 30;
- sending a depositing request D from the portable device of the depositing user to the remote platform 30;
- generating second identification data 103', uniquely associated with the depositing request D; the second identification data 103' can be numerical codes or, preferably, QR code or barcode. It should be noted that the QR code or barcode are different from those which are uniquely associated with a user for the authentication. In fact, they have a limited time validity.
- sending second identification data 103' to the portable device of the depositing user;
- transmission of the first identification data to the peripheral device;
- manual insertion of second identification data 103' into the peripheral device, for example by means of a touch screen display 15 or a keyboard of the peripheral device;
- automatic reading of the second identification data

- 103' by an optical sensor of the peripheral device, for example a QR code reader or a barcode reader;
- checking a correspondence between the second identification data 103' detected or received by the portable device and the second identification data 103' saved in the remote platform 30; according to an embodiment, the checking step may be performed by sending the second identification data 103' detected or received by the portable device to the remote platform 30, which sends an outcome of the correspondence with the second identification data 103' saved in a relative database; according to an embodiment, the checking step may be performed by sending the second identification data 103' saved in the database of the remote platform 30 to the peripheral device which checks the correspondence with the second identification data 103' detected or received by the portable device 40;
- opening or closing the closed compartment as a function of an outcome of the checking step.

[0035] The depositing step allows a depositing user to decide at the time, depending on the presence or absence of the recipient user, to depositing the package into a peripheral device. This feature allows obtaining a considerable flexibility in the operations.

[0036] According to an embodiment, the method comprises a step for sending notification data to the recipient user. According to an embodiment, the notification data can include a depositing notice and/or an address of the remote platform 30 to which a picking up request P is sent. According to an aspect of the method, the notification data can include the second identification data 103'.

[0037] According to an embodiment, the method comprises a step for authentication of the recipient user, by inserting a personal ID, uniquely associated with the recipient user, which may be a user name and a password or a graphic code such as a QR code or a barcode.

[0038] According to an embodiment, the method comprises a step of sending the picking up request P, by the recipient user, using a portable device 40, to the remote platform 30. According to an embodiment, the method comprises a step of generating first identification data 103, uniquely associated with the picking up request P, in the remote platform 30. According to an embodiment, the method comprises a step for sending the first identification data 103 to the portable device 40. According to an embodiment, the first identification data 103 coincides with the second identification data 103'. According to an embodiment, the second identification data 103' is valid until the recipient user picks up the package. According to other embodiments, the first identification data 103 is, on the other hand, valid only for a time interval such as to allow the depositing user to deposit the object.

[0039] According to an embodiment, the method comprises a step for manual insertion of the first identification data 103 into the peripheral device

[0040] According to an embodiment, the method com-

prises a step of automatic reading of the first identification data 103 by means of an optical sensor of the peripheral device, for example a barcode or QR Code reader. According to an embodiment, the method comprises a step of checking a correspondence between the first identification data 103 detected or received by the portable device 40 and the first identification data 103 saved in the remote platform 30. According to an embodiment, the checking step may be performed by sending the first identification data 103 detected or received by the portable device 40 to the remote platform 30, which sends an outcome of the correspondence with the first identification data 103 saved in a relative database; according to an embodiment, the checking step may be performed sending the first identification data 103 saved in the database of the remote platform 30 to the peripheral device which checks the correspondence with the first identification data 103 detected or received by the portable device 40.

[0041] According to an embodiment, the method comprises a step of opening or closing the closed compartment as a function of an outcome of the checking step. More specifically, if the first identification data 103 saved in the database of the remote platform 30 corresponds to the first identification data 103 detected or received by the portable device 40, the peripheral device opens the corresponding closed compartment.

[0042] According to embodiment, the method comprises a step for the digital signature of the recipient user on a display 15 of the peripheral device.

[0043] According to an embodiment, the method comprises a step of sending the digital signature from the peripheral device to the remote platform 30. The method comprises a step of checking the correspondence between the digital signature and a reference digital signature, contained in a database of the remote platform 30. According to an embodiment, the method comprises a step of sending an outcome of the check, as a function of which the peripheral device enables or inhibits the opening of the closed compartment.

[0044] According an aspect of the invention, this invention also provides a method for performing a depositing request D of an object by a depositing user. This method comprises one or more of the following steps:

- receiving authentication data 106, representing a personnel identifier of the depositing user;
- checking authentication data 106 with respect to reference authentication data 106 and authentication of the depositing user;
- receiving reference data 101, including information on the recipient user and/or a type of the object and/or dimensions of the object;
- sending reference data 101 to the remote platform 30;
- sending a depositing request D to the remote platform 30;
- receiving a confirmation on a registration of the recipient user on the remote platform 30;

- receiving identification data, uniquely associated with the depositing request D;
- converting identification data into image data and displaying an image code.

[0045] According to an aspect of the invention, the invention intends also to protect a computer program running on a processor of a portable device 40 and including one or more steps of the method for performing a depositing request D of an object by a depositing user.

[0046] According an aspect of the invention, this invention also provides a method for performing a picking up request P of an object by a recipient user.

[0047] This method comprises one or more of the following steps:

- receiving notification data, including a depositing notice and a remote address of the remote platform 30 to which a picking up request P is sent;
- receiving authentication data 106, representing a personnel identifier of the recipient user;
- checking authentication data 106 with respect to reference authentication data 106 and authentication of the recipient user;
- sending a picking up request P to the remote platform 30, on the basis of the notification data;
- receiving identification data, uniquely associated with the picking up request D;
- converting identification data into image data and displaying an image code.

[0048] According to an aspect of the invention, the invention intends also to protect a computer program running on a processor of a portable device 40 and including one or more steps of the method for performing a picking up request D of an object by a recipient user.

[0049] The paragraphs listed below, labelled with alphanumeric references, are non-limiting examples for describing this invention.

A00. Peripheral device comprising:

- a plurality of compartments, configured to house an object to be deposited;
- a plurality of electronic locks, movable between a closed position, wherein a corresponding compartment is closed, and an open position, wherein the corresponding compartment is open;
- a user interface, including a display 15 and configured to receive or detect identification data representing a unique code available to a user;
- a connecting module, configured to allow the connection of the device with a remote platform 30,

characterised in that it comprises a control board, including a processor programmed for:

- receiving identification data,
- generating control signals, as a function of the identification data;
- sending the control signals to the plurality of electronic locks, for varying the position between the open position and the closed position.

A0. The device according to paragraph A00 wherein the computer is programmed for:

- receiving the identification data from the user interface;
- receiving identification data from the remote platform 30;
- generating the control signals as a function of the correspondence between the identification data received from the user interface and that received from the remote platform 30;
- varying the position of the plurality of electronic locks as a function of the control signals.

A. The device according to paragraph A00 or paragraph A0, wherein the user interface comprises an optical device, configured for scanning an image and for deriving corresponding image data, representing identification data.

A1. The device according to paragraph A (or A00 or A0), comprising one or more of the following components:

- a memory;
- a network connection;
- communication capacity via mobile network;
- payment capacity via mobile POS;
- local Wi-Fi connectivity;
- electronic connection ports;
- a display 15;
- a barcode scanner (one-dimensional or two-dimensional);
- an anchoring system, configured to allow the anchoring of the device to a fixed external support;
- an inspection hatch, which can be removed from the device for accessing internal compartments in the case of an emergency.

A2. The device according to any one of paragraphs A00 to A1, comprising accessory devices and connected to the control board.

A2.1. The device according to paragraph A2, wherein the accessory devices include one or more of the following elements: cameras, alarm signalling button, lift block, sensor for detecting faulty lights, sensor for detecting gas leaks and sensor for detecting water leaks.

A3. The device according to any one of paragraphs A00 to A2.1, comprising one or more of the features included in the following list:

- an LCD touch screen display 15;
- a barcode reader, placed below a display 15 with an inclination with respect thereto;
- electronic devices placed behind an LCD display;
- compartments of variable sizes, to contain the mail;
- a plurality of support feet covered by a front baseboard;
- a plurality of height-adjustable support feet to stabilize the device.

A4. The device according to any one of paragraphs A00 to A3, wherein the control board is configured to also manage the opening of doors of the compartments.

A5. The device according to any one of paragraphs A00 to A4, comprising a processor, a touch screen display 15 and wireless data communication modules.

B00. An integrated system, comprising:

- a peripheral device according to any one of paragraphs A00 to A5;
- a remote platform 30, connected to the peripheral device to send control signals.
- a portable device 40, associated with a user, connected to the remote platform 30 for receiving control signals.

B0. The system according to paragraph B00, wherein the remote platform 30 comprises a computer programmed for:

- receiving from the portable device 40 a request for depositing D or picking up P an object, the request for depositing D or picking up P including reference data 101, uniquely correlated to the object and/or to a recipient user;
- generating identification data, uniquely associated with the depositing request D or picking up P request, and sending the identification data to the portable device 40.

B. The system according to paragraph B0, wherein the peripheral device is configured to automatically receive or detect the identification data of the portable device 40 and to check the correspondence with the identification data generated by the remote platform 30, for enabling or inhibiting an opening of a closed compartment of the peripheral device.

B1. The system according to paragraph B00 or B0 or B, wherein the portable device 40 is configured to receive notification data, including a depositing notice and an address of the remote platform 30 to which the pickup request P is sent.

B2. The system according to any of the paragraphs B00 to B1, wherein the portable device 40 is config-

ured for:

- receiving an identification code from the user;
- controlling a presence of the identification code in a database of the remote platform 30; 5
- authenticating the user and enabling a plurality of functions of the system.

B3. The system according to any one of paragraphs B00 to B2, wherein the portable device is configured for checking a presence of the identification code of the recipient user in a database of the remote platform 30. 10

B4. The system according to any one of paragraphs B00 to B3, wherein the peripheral device is programmed for: 15

- receiving a digital signature of a recipient user;
- sending a request for saving the digital signature into a database of the remote platform 30; 20
- checking a correspondence between the digital signature and a reference digital signature, saved in the database of the remote platform 30.

C00. A method for delivering an object comprising the following steps: 25

- depositing an object into a closed compartment of a peripheral device;
- sending notification data to a recipient user, including a depositing notice and an address of a remote platform 30 to which a pickup request P is sent; 30
- sending the picking up request P, by the recipient user, using a portable device 40, to the remote platform 30; 35
- generating first identification data 103, uniquely associated with the picking up request P, in the remote platform 30 and sending the first identification data 103 to the portable device 40; 40
- manual insertion of the first identification data 103 into the peripheral device or automatic reading of the first identification data 103 by means of an optical sensor of the peripheral device;
- checking a correspondence between the first identification data 103 detected or received by the portable device 40 and the first identification data 103 saved in the remote platform 30; 45
- opening or closing the closed compartment as a function of an outcome of the checking step; 50

C0. The method according to paragraph C00, including an additional checking step comprising the following steps: 55

- digital signature of the recipient user on a display 15 of the peripheral device;
- sending the digital signature from the peripheral

device to the remote platform 30;

- checking the correspondence between the digital signature and a reference digital signature, contained in a database of the remote platform 30;
- sending an outcome of the check, as a function of which the peripheral device enables or inhibits the opening of the closed compartment.

C. The method according to paragraphs C00 or C0, wherein the step of depositing an object comprises the following steps:

- verifying the registration of the recipient user into the remote platform 30;
- sending a depositing request D from a portable device 40 of a depositing user to the remote platform 30;
- generating second identification data 103', uniquely associated with the depositing request D, and sending second identification data 103' to the portable device 40 of the depositing user;
- manually inserting the second identification data 103' into the peripheral device or automatically reading the second identification data 103' by means of an optical sensor of the peripheral device;
- checking a correspondence between the second identification data 103' detected or received by the portable device 40 and the second identification data 103 saved in the remote platform 30;
- opening or closing the closed compartment as a function of an outcome of the checking step.

C1. The method according to paragraph C, wherein the first identification data 103 and the second identification data 103' is valid for a single opening of the compartment or for a predetermined time.

C2. The method according to paragraph C, wherein the first identification data 103 and the second identification data 103' is the same identification data, sent from the portable device 40 of a depositing user to a portable device 40 of a recipient user and wherein the identification data is valid until the pickup of the object from the corresponding compartment.

D. A method for executing a depositing request D of an object by a depositing user, comprising any one of the following steps:

- receiving authentication data 106, representing an identification code of the depositing user;
- checking authentication data 106 with respect to reference authentication data 106
- conditional authentication of the depositing user;
- receiving reference data 101, including information on the recipient user and/or a type of the

- object and/or dimensions of the object;
- sending reference data to the remote platform 30;
- sending a depositing request D to the remote platform 30;
- receiving a confirmation on a registration of the recipient user to the remote platform 30;
- receiving identification data, uniquely associated with the depositing request D;
- converting identification data into image data and displaying an image code.

D1. A computer program comprising instructions configured for executing the step of the method of paragraph D, when launched on a processor of a portable electronic device 40 (for example a smart-phone or a tablet).

E. A method for executing a picking up request D of an object by a recipient user, comprising any one of the following steps:

- receiving notification data 105, including a depositing notice and a remote address of the remote platform 30 to which a picking up request P is sent;
- receiving authentication data 106, representing an identification code of the recipient user;
- checking authentication data 106 with respect to reference authentication data 106 included in a remote platform 30;
- conditional authentication of the recipient user;
- sending a pickup request P to the remote platform 30, on the basis of the notification data 105;
- receiving identification data, uniquely associated with the picking up request D;
- converting identification data into image data and displaying an image code.

E1. A computer program comprising instructions configured for executing the step of the method of paragraph E, when launched on a processor of a portable electronic device 40 (for example a smart-phone or a tablet).

F. A method for the remote acceptance of registered mail delivered by a postal service, based on a user identification system and on the use of a Digital Identity system that can be implemented in an application installed in a user's smartphone, the method comprising the following steps:

- recognising a user;
- signing, by the recognized user, of the notification of the registered mail, through an Electronic Signature enabled by the generation of one or more digital keys within the application;
- after signature, receiving a barcode;
- providing of an autograph signature, through the barcode, by interacting with a display of a de-

vice.

F1. The method according to paragraph F, wherein the device is a device according to any one of paragraphs A00 to A5.

Claims

1. A multifunction peripheral device (1), equipped with a plurality of closed compartments of different sizes, with electronic locks and accessory sensors, wherein the device (1) is provided with at least one control board for controlling electronic locks.

2. The device (1) according to claim 1, comprising:

- a user interface, including a display (15) and configured to receive identification data (103, 103') representing a unique code available to a user;
- a connecting module, configured to allow the connection of the device (1) with a remote platform (30);
- a processor included in the control board (13), programmed to receive the identification data (103, 103') from the user interface and to enable or inhibit the opening of the electronic locks (14), as a function of the correspondence between the identification data (103, 103') received from the user interface and corresponding data contained in the remote platform (30).

3. The device (1) according to claim 2, wherein the user interface comprises an optical device, configured for scanning an image and for deriving thereof corresponding image data, which are representative of the identification data (103, 103').

4. The device (1) according to any one of the preceding claims, comprising one or more of the following features:

- RAM memory and internal SSD disc;
- 3G/4G communication capacity;
- communication capacity via mobile network;
- payment capacity via mobile POS;
- local WiFi connectivity;
- RS485 and RS232 serial ports and USB ports
- LCD display (15) with touch screen;
- barcode scanner;
- a security lock through a padlock, allowing the locking and anchoring to a wall and at the same time allowing a rear panel to be removed to access the compartments in the event of an emergency.

5. The device (1) according to any one of the preceding

claims, comprising accessory devices integrated and connected via wireless connection to the control board (13).

6. The device (1) according to claim 5, wherein the accessory devices comprise one or more of the elements included in the following list: cameras (3), alarm signalling button (7), elevator block, sensor for detecting faulty lights, sensor for detecting gas leaks (4) and sensor for detecting water leaks (5).

7. The device (1) according to any one of the preceding claims, comprising one or more of the features included in the following list:

- LCD display with touch screen;
- barcode reader, placed below a display unit with an inclination with respect thereto;
- electronic devices placed behind an LCD display;
- compartments of variable sizes, to contain the mail;
- a locking mechanism, configured to removably fix a rear panel to a wall;
- a plurality of support feet covered by a front baseboard;
- a plurality of height-adjustable support feet to stabilize the device.

8. An integrated system (100), comprising:

- a device (1) according to any one of the preceding claims;
- a remote platform (30), connected to the device (1) to control it.

9. The system (100) according to claim 8, comprising at least one portable device (40), associated with a user, and wherein the remote platform (30) comprises a processor programmed for:

- receiving from the portable device (40) a request for depositing (D) or picking up (P) an object, the request for depositing (D) or picking up (P) including reference data (101), uniquely correlated to the object;
- generating identification data (103, 103'), uniquely associated with the request for depositing (D) or picking up (P) the object,
- sending the identification data (103, 103') to the portable device (40);
- saving the identification data (103, 103') into a database of the remote platform (30),

and wherein the peripheral device (1) is configured to automatically receive the identification data (103, 103') and to check a correspondence with the identification data (103, 103') generated by the re-

mote platform (30), for enabling and inhibiting an opening of a closed compartment (2) of the peripheral device (1).

10. The system (100) according to claim 9, wherein the portable device (40) is configured to receive notification data (105), including a depositing notice and a connection to the remote platform, by which the user can send the picking up request (P).

11. The system (100) according to claim 9 or 10, wherein the identification data (103, 103') is image data, representing a QR code, and wherein the image data (103, 103') is volatile and is configured to be valid for a predetermined period of time.

12. A method for delivering an object, comprising the following steps:

- depositing an object into a closed compartment (2) of a peripheral device (1);
- sending notification data (105) to a recipient user, including a depositing notice and a connection to the remote platform, by which the user can send a picking up request (P);
- sending the picking up request (P), by the recipient user, using a portable device (40), to the remote platform (30);
- generating first identification data (103'), uniquely associated with the picking up request (P), in the remote platform (30);
- sending the first identification data (103') to the portable device (40) of the recipient user;
- saving the first identification data (103') into a database of the remote platform (30);
- transmitting first identification data (103') from the portable device (40) to the peripheral device (1), by manual insertion of the first identification data (103') into the peripheral device (1) or by automatic reading of the first identification data (103') by means of an optical sensor of the peripheral device (1);
- checking a correspondence between the first identification data (103') received from the portable device (40) and the first identification data (103') saved in the remote platform (30);
- opening the closed compartment (2) as a function of an outcome of the checking step.

13. The method according to claim 12, including an additional checking step comprising the following steps:

- digital signature by the recipient user on a display (15) of the peripheral device (1);
- sending the digital signature from the peripheral device (1) to the remote platform (30);
- checking the correspondence between the dig-

ital signature and a reference digital signature,
contained in a database of the remote platform
(30);

- sending an outcome of the check, as a function
of which the peripheral device (1) enables or in- 5
hibits the opening of the closed compartment
(2).

14. The method according to claim 12 or 13, wherein the
step of depositing an object comprises the following 10
steps:

- verifying the registration of the recipient user
in the remote platform (30);
- sending a depositing request (D) from a port- 15
able device (40) of a depositing user to the re-
mote platform (30);
- generating second identification data (103),
uniquely associated with the depositing request
(D); 20
- sending second identification data (103) to the
portable device (40) of the depositing user;
- saving second identification data (103) into the
database of the remote platform (30);
- transmitting second identification data (103) 25
from the portable device (40) to the peripheral
device (1), by manual insertion of the second
identification data (103') into the peripheral de-
vice (1) or by automatic reading of the second
identification data (103') by means of an optical 30
sensor of the peripheral device (1);
- checking a correspondence between the sec-
ond identification data (103) detected or re-
ceived by the portable device (40) and the sec-
ond identification data (103) saved in the remote 35
platform (30);
- opening the closed compartment (2) as a func-
tion of an outcome of the checking step.

15. The method according to any of the claims 12 to 14, 40
wherein, in the step of saving the first identification
data (103'), the first identification data (103') is image
data, representing a QR code, valid for a predeter-
mined period of time.

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FIG. 1

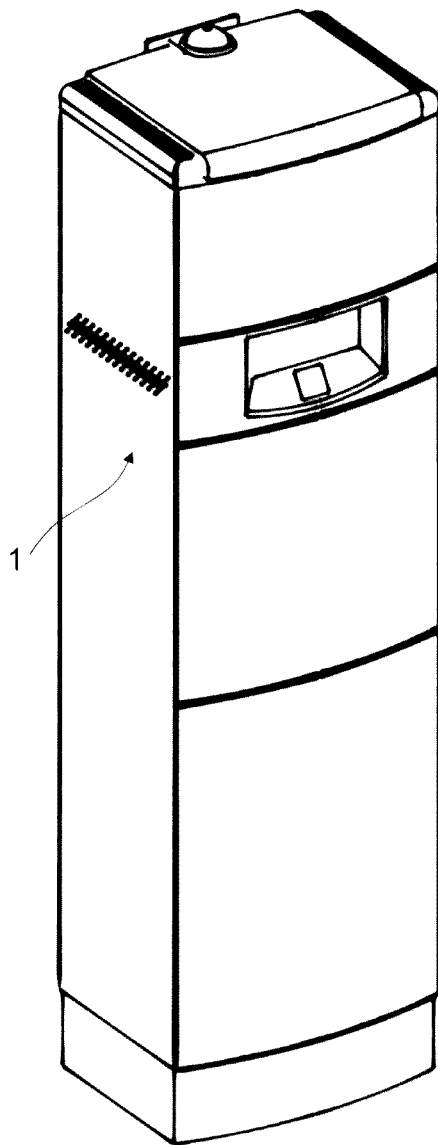


FIG. 2

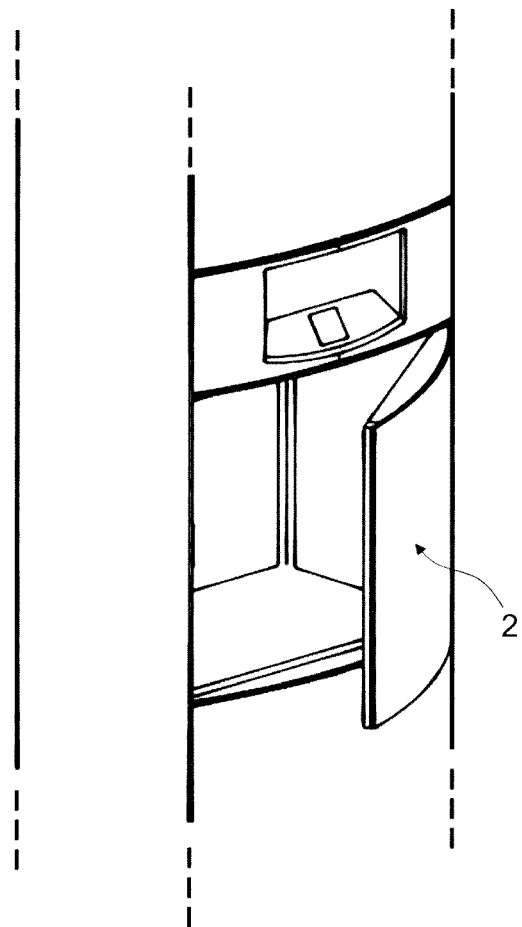
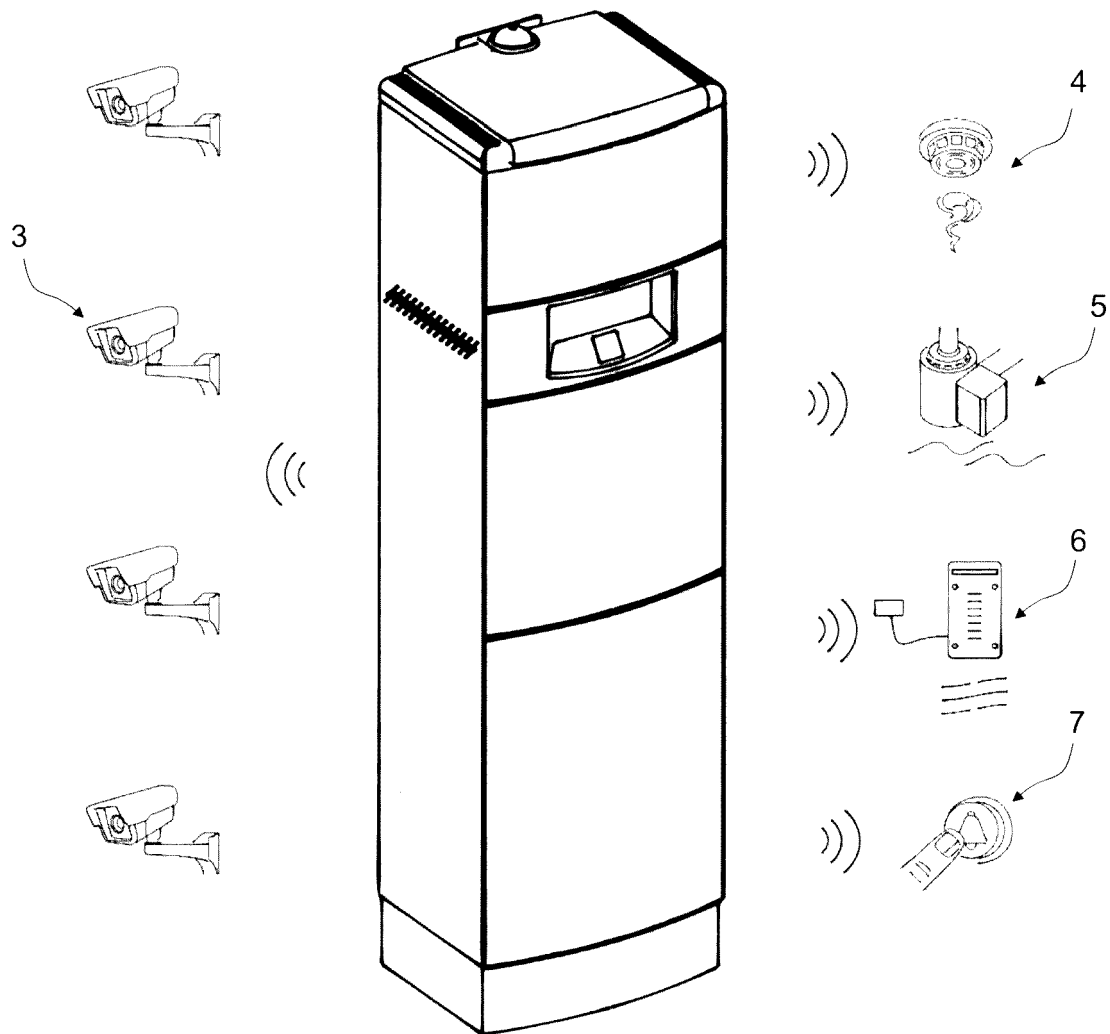


FIG. 3



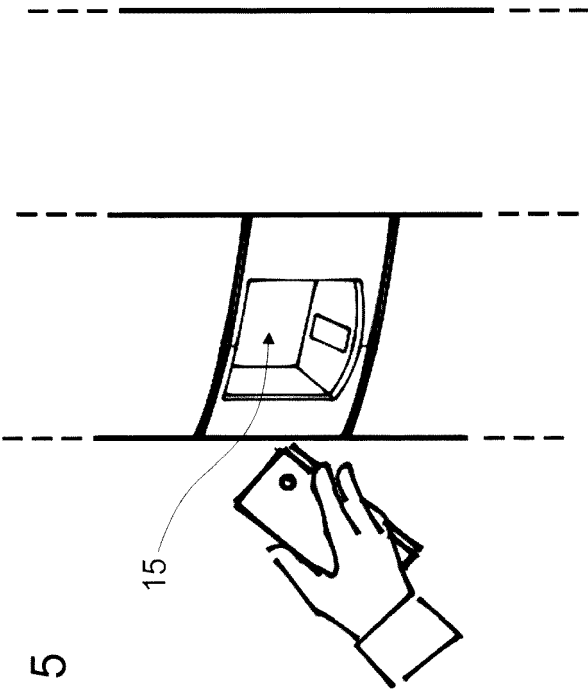


FIG. 5

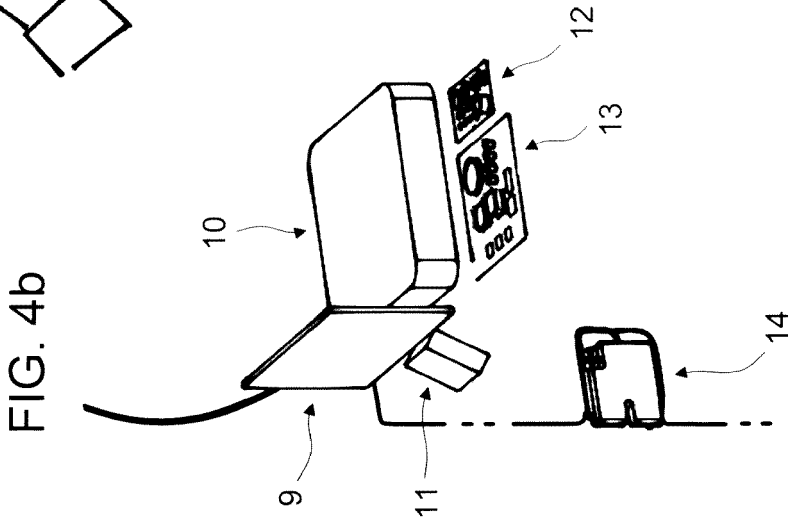


FIG. 4b

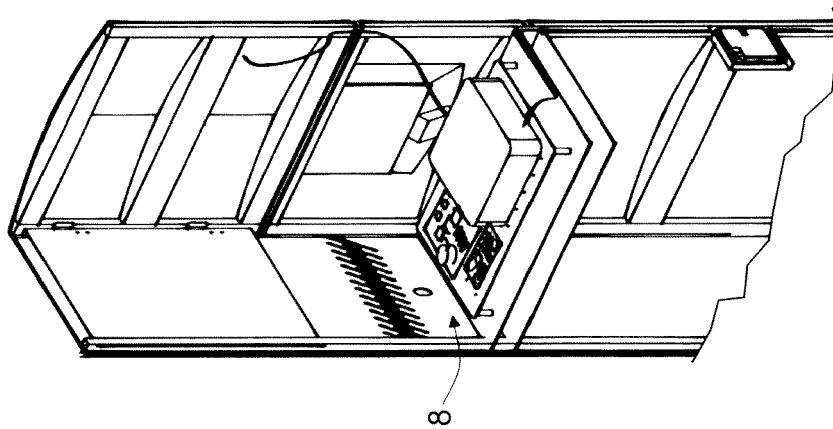
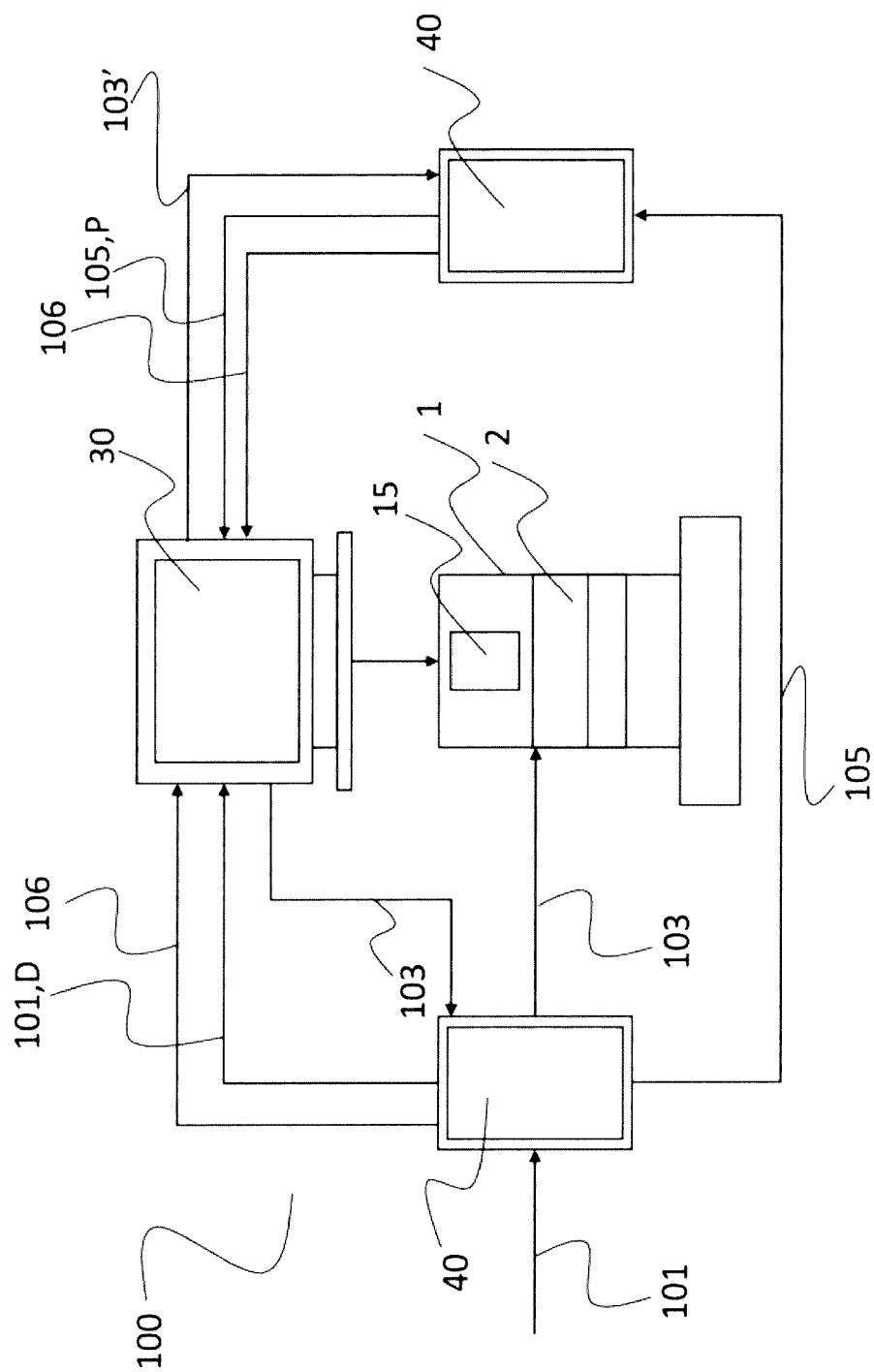


FIG. 4a

FIG. 6





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