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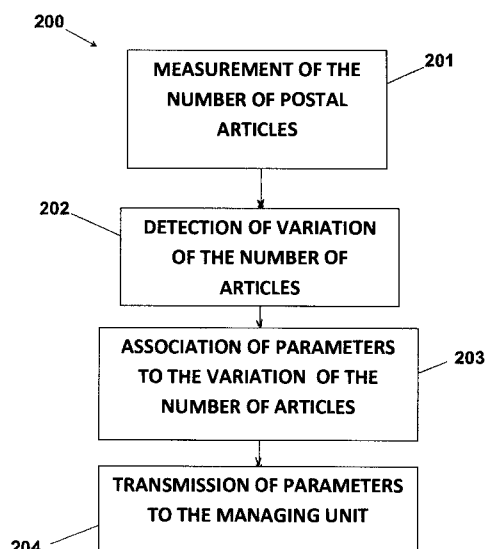
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(54) Title: METHOD AND APPARATUS FOR TRACKING POSTAL ARTICLES DELIVERED THROUGH A "DOOR TO DOOR" POSTAL DISTRIBUTION

Fig. 6

(57) Abstract: The invention concerns a method and apparatus for tracking postal articles (100) delivered through a "door to door" postal distribution, said method characterized in that it comprises the steps of: arranging a hollow container body (101) arranged to contain a stack (130) of postal articles (100) which comprises a predetermined number of postal articles (100); - handling said hollow container body (101) along a predetermined delivery path of said postal articles (100); measuring the number of postal articles (100) which are present in said hollow container body obtaining a amount data, said measuring step carried out at predetermined intervals of time and/or at predetermined operating conditions associated with the geographic position in respect of the time of said container; detecting at least one change in the number of postal articles (100), i.e. of said amount data, between two different measuring steps obtaining a variation signal; - associating a plurality of spatial-temporal data of localization to each amount data and/or to each variation signal detected, said plurality of spatial-temporal data of localization comprising at least one among: date, time and geographic coordinates of the place where said measuring step has been carried out and/or said change has been occurred in the number of postal articles; and wherein at least one step is also provided selected from the group comprising of: - electronic transmission via GPRS/UMTS of said amount data and/or variation signals and of said spatial-temporal data of localization to which said amount data and/or variation signals are associated, said transmission being carried out towards a central elaboration unit that is arranged to process said data and to track in real time the number of articles delivered in a predetermined place and in a predetermined date and time; - local memorization of the amount data and/or variation signals and of the spatial-temporal data of localization to which said amount data and/or variation signals are associated.

TITLE: METHOD AND APPARATUS FOR TRACKING POSTAL ARTICLES DELIVERED
THROUGH A "DOOR TO DOOR" POSTAL DISTRIBUTION

DESCRIPTION

Field of the invention

5 The present invention relates to the field of delivery "door to door" of postal articles, such as leaflets and advertising brochures, through a distribution not addressed realized by a messenger that follows a given delivery path and in particular relates to a method for tracing in respect to time and to the space of the postal articles themselves. The invention also relates to an apparatus that carries out this method.

10 **Description of the prior art**

As is known, there are several methods and apparatuses to track the delivery of objects, based on both optical devices, barcode scanners and two-dimensional codes, both based on radio frequency devices, generically RFID (Radio Frequency Identification) readers. According to a known method for tracking of postal items "door to door" delivered the item is
15 provided with an identification code. For example, the identification code can be a bar code printed directly on the item, or a label attached to the article itself, or a RFID-type tag that is incorporated, or applied to the article.

The methods of the known type realize, therefore, a tracing of the delivery of items through the unique identification of the distributed items. In particular, for the identification is provided a step of
20 acquiring data such as the date and time of delivery and possibly the geographical coordinates of the place of delivery.

The messenger responsible for the delivery of postal articles may be provided with a reading device, for example of optical type. Upon delivery, the operator must perform a series of operations including the "pointing" with the head of the optical code reading device for pointing and reading the
25 code.

In case of RFID-type readers, the postal article to be tracked has, incorporated, or applied externally on itself, an RFID tag capable of interacting with a reader for the acquisition of the identifying code. The label can be a label equipped with a chip and an internal power supply, or a label with a chip but no internal power supply, or without chip and no internal power supply.
30 In various types of use, the reading of the code identified by the label does not require specific operations except the respect of a maximum distance, which is predetermined and dependent on the technology and the reading device, between the device itself and the "tagged" article to be read. There are also environmental conditions that limit the reading in terms of the presence of reflective /

absorbent materials which may shield the reading and in terms of collision / interference due to the presence of multiple tags, i.e. more information, within the detection range of the reading device.

Both in the case of scanners that RFID readers the reading devices can be integrated or coupled wirelessly to GPS devices to acquire the geographical coordinates of the place where the identification of the article has been made and about the date and time of the identification.

Both in the case of scanners that of RFID readers, the reading devices may contain storage media in which to keep the data acquired on the occurred identifications and accompanied, if necessary, by their geographical coordinates and by the date and time, said media being downloadable using cable or wireless technology.

Both in the case of the optical reader that RFID reader, the reading devices may contain chip for transmission GPRS / UMTS to relay in real time to a central management system of the acquired data on the identifications occurred and accompanied, if necessary, by their geographical coordinates and date and time.

Finally, there are specific techniques for tracing the delivery of postal articles not individually identifiable and, therefore, for which are not applicable the known techniques described previously, since the articles are not provided with barcode nor RFID tags. These techniques involve the tracking of delivery in terms of detection of the amount released during the delivery location, but these techniques rely solely and exclusively to the operation of the human messenger which via mobile devices such as PDAs or smartphones advantageously equipped with GPS functionality and GPRS / UMTS imputes manually in every place of delivery the amount released through input device such as keyboard, buttons, etc..

Summary of the invention

Therefore, aim of the present invention is to provide a method for tracking postal items, in particular not uniquely identifiable, delivered through the so-called not addressed distribution, or "door to door", which is highly precise and allows to obtain a spatio-temporal "tracking" of the distribution of postal items in real time.

It is also an object of the present invention to provide a method for tracking postal items delivered through "door to door" distribution that does not require any intervention by the operator assigned to the delivery, namely that it is completely "hand-free".

It is also an object of the present invention to provide a method for tracking postal items delivered through "door to door" distribution that does not require the marking, or "tagging" of the same postal articles, whether printing or affixing a bar code or two-dimensional code, or the tagging by means of an RFID tag.

It is another object of the present invention to provide such a method that allows to store a variety of information related to the tracking and / or to transmit the same information in real time, or delayed, to a system of remote management and storage.

It is a further object of the present invention to provide such a method that is able to report events that are symptomatic of detections not correctly given or worthy of attention.

It is also object of the present invention to provide an apparatus for tracking of postal items delivered through a "door to door" postal distribution that has the same advantages.

These and other objects are achieved by the method according to the present invention, for tracking of postal items delivered through a postal distribution not addressed, said method comprising the steps of:

- arranging a hollow container body arranged to contain a stack of postal articles which comprises a predetermined number of postal articles;
 - handling said hollow container body along a predetermined delivery path of said postal articles;
 - measuring the number of postal articles which are present in said hollow container body obtaining a amount data, said measuring step carried out at predetermined intervals of time and/or at predetermined operating conditions associated with the geographic position in respect of the time of said container;
 - detecting at least one change in the number of postal articles, i.e. of said amount data, between two different measuring steps obtaining a variation signal;
 - associating a plurality of spatial-temporal data of localization to each amount data and/or to each variation signal detected, said plurality of spatial-temporal data of localization comprising at least one among: date, time and geographic coordinates of the place where said measuring step has been carried out and/or said change has been occurred in the number of postal articles;
- and wherein at least one step is also provided selected from the group comprising of:
- electronic transmission via GPRS/UMTS of said amount data and/or variation signals and of said spatial-temporal data of localization to which said amount data and/or variation signals are associated, said transmission being carried out towards a central elaboration unit that is arranged to process said data and to track in real time the number of articles delivered in a predetermined place and in a predetermined date and time;
 - local memorization of the amount data and/or variation signals and of the spatial-temporal data of localization to which said amount data and/or variation signals are associated.

In particular, the above mentioned predetermined operating conditions associated with the geographic location in respect to the time of said container can be chosen between at least one of the following conditions:

- arrival at a predetermined position of a predetermined delivery path for the distribution of postal articles;

- stop, i.e. staying for a predetermined minimum time, in a not specified location during the itinerary for the distribution of postal items;

5 - starting from a predetermined position of a predetermined itinerary for the distribution of postal items;

- starting from a position of rest during the itinerary for the distribution of postal items.

10 In particular, the terms postal articles is used for flyers, such as advertising flyers, handbill, or leaflets of various nature, or any other type of paper-based communication "not addressed" normally delivered through a door to door distribution.

In particular, can be provided at least a step of charging the said container body. During the recharging phase is introduced a certain number of postal items in the container body.

15 Advantageously, the step of electronic storage of said plurality of data quantity and / or variation signals and of the space-time localization data associated therewith is adapted to store said data in a local memory, that is mounted on board of the container body.

In particular, the variation in the number of postal articles can be caused by a withdrawal of at least one postal article from the container body, for example to deliver it at a given point in the delivery path. In this case, the change corresponds to a decrease in the number of articles in respect to the number of items measured in a measurement step prior to said withdrawal.

20 Alternatively, the variation in the number of postal items can be caused by an introduction, or charging, of at least one postal article in the container body. In this case, the variation corresponds to an increase in the number of articles in respect to the number of items measured in the measuring step prior to the introduction, or charging of said, or each, postal article in the container body.

25 In particular, the step of storing can be a storing of said variation data on a non-volatile memory provided in a detection device, for example mounted on the container body.

30 In particular, the phase of measurement of the number of said postal articles present in the container body can be achieved through at least a phase of telemetric detection of a minimum distance (d) between the stack, i.e. the nearest postal article (for example, in case of vertical growth of the stack, this is the highest one of the stack), and a predetermined position detection, in particular in correspondence of which is arranged a detection sensor, obtaining a given distance.

Advantageously, the step of detection of the data of distance can be performed through at least one of the following technologies: - telemetric infrared light detection carried out by means of at least one infrared light detection sensor arranged in said detection position; - telemetric laser detection carried out by means of at least one laser light distance detection sensor arranged in said detection position; -

telemetric ultrasonic detection carried out by means of at least one ultrasonic detection sensor, or sonar, arranged in said detection position, obtaining a data relevant to the distance.

In alternative, or in addition, the step of measuring the number of postal articles present in the container body can be a step of detecting the weight of said plurality of postal articles present in said container body with the achievement of a given weight.

There is also the case in which these technologies are used in combination, so as to obtain a redundant measurement and a higher precision of detection.

Advantageously, the detection of weight is achieved by at least one load cell disposed in the measuring compartment of the container, in particular below the stack of postal articles.

Advantageously, once acquired a data of distance and / or a data of weight through at least one of said phases of detection, there is a step of conversion of said distance data and / or said weight data in a data relevant to the quantity of the postal items.

In particular, in the case of a detection of a distance data, the conversion phase is obtained from the knowledge of a known value among the size of the container body, of the measuring compartment and of the thickness of a single postal article of the stack present in the container body and / or on the basis of the number of items initially loaded in the measurement compartment.

In case of use of infrared sensors, or laser, i.e. sensors of optical type is advantageously provided a reference element, such as a tab in material having a known reflective / absorbent capacity, said reference element being adapted to be disposed adjacent to the first postal article of said stack of postal articles and being free to slide along a direction of growth, or decrease, of the stack of postal articles contained within the measurement compartment, for example along a vertical direction.

In particular the, or each, sensor for detecting the distance is adapted to detect a given distance corresponding to the distance of the sensor from the element reference. Therefore, the variation in quantity of articles stacked in the container is obtained by monitoring the distance between the sensor for detecting the distance and the reference element. In this way, it is possible to neglect the different reflective / absorbent properties of the various possible types of postal articles, and in particular of the printed colors, or the material in which they are made. Consequently, the measurement of the number of postal items is uniform and independent of the specific reflective / absorbent properties of postal articles, so minimizing measurement errors.

Preferably, and in particular in the case of use of said "optical" sensors, the measuring compartment within which are contained the postal articles can be closed by a series of walls, so as to achieve standard operating conditions, i.e. independent in respect to the conditions of light and sun present in the external environment.

In particular, the step of measuring the number of postal articles comprises a step of detecting the weight of the stack obtaining a given weight and is provided a step of converting the weight data in a value of the quantity of articles of said stack.

Advantageously, said conversion is made on the basis of a value notes comprising at least one of: - a known value of the weight of a single item stacked in said container body; - a known value of the number of items initially present in said container body.

In case of detection telemetric ultrasonic the sensor is advantageously positioned at a predetermined height from the bottom and from the side walls of the compartment of measurement, for example in correspondence with an axial position of the compartment containing the postal items stacked in such a way as to avoid echoes side that could distort the measurement.

In particular, can be provided a step of correcting the detected weight data using at least an inclination sensor, or "inclinometer", adapted to provide the necessary corrections of the measurement of the weight data.

Advantageously, the measurements obtained by said sensors of distance and / or weight, used individually or in combination, are subjected to software filters for the elimination of noise.

According to another aspect of the invention, an apparatus for tracking postal articles delivered through a "door to door" postal distribution comprises:

- a hollow container body arranged to contain, in use, a plurality of postal articles, said hollow container body having at least one measuring space and being moved along a predetermined delivery path;

- a measuring means for measuring acting in said, or each, measuring space, said measuring means arranged to measure the number of postal articles present in said hollow container body obtaining an amount data, said measuring means arranged to measure said number of postal articles at predetermined time ranges and/or at predetermined operating conditions, in particular said operating conditions associated to the geographic position in the time of said container;

- a GPS device arranged to detect the geographic coordinates of said hollow container body during said delivery path, said detection of said geographic coordinates occurring in association to data and/or time of the delivery;

and wherein at least one of the following devices is provided:

- a memorizing device for memorizing the data measured by said measuring means and by said GPS device;

- a GPRS/UMTS transmission device arranged to transmit in real time said data that are obtained by said measuring means and by said GPS device to a central elaboration unit;

- a rechargeable supply device for supplying said memorizing device and/or said transmission device and/or said measuring means and/or said GPS device.

Advantageously, the central unit, which receives the data of the measuring devices related to the data of date / time detection and of geographical coordinates, acts on the same data using specific filters that can isolate and eliminate the noise component present in the measures and introduce any correction and calibration parameter.

Advantageously, the obtained data of the delivery, which consist of the amount of postal items delivered in the different places of delivery in a certain date and time, may be used for purposes of control and management and can be made available to customers as evidence of the activity in the delivering of their articles.

Advantageously, the measuring means comprise at least one of the following sensors: an infrared distance sensor; a laser light distance sensor; an ultrasonic distance sensor; a force sensor for measuring the weight; or a combination thereof.

In particular, said sensors, used individually or in combination, can be applied to a container equipped with wheels for manual transport of postal items during delivery path.

Advantageously, there is provided an electronic device provided with a GPS (Global Position System) chip adapted to acquire at least one data among: date, time, and geographical coordinates associated with the time and the geographical position in which said, or each, sensor acquires a data.

In particular, said electronic device which controls said sensors and said GPS chip uses a GPRS / UMTS chip for transmitting said data acquired by said sensors and by said GPS chip to a central system.

Advantageously, the electronic device that controls said sensors and said GPS chip is adapted to use a non-volatile memory in which to save said acquired data by said sensors and by said GPS chip and / or at predetermined time intervals.

In particular, means may be provided to send signals of different nature, such as acoustic, visual, on the occurrence of events that are symptomatic of detections not correct or, however, or worthy of attention.

In particular, the sensor is selected between an infrared distance sensor and a laser light distance sensor and is provided a reference element adapted to be disposed adjacent to the first postal article of said stack of postal articles, said reference element being free to translate along the direction of increase / decrease of said stack, said measuring means being adapted to measure the distance from said detection position to said reference element.

Brief Description of Drawings

The invention will be illustrated below with the following description of an embodiment thereof, given by way of an example and not a limitation, with reference to the accompanying drawings in which:

Figure 1 schematically shows a possible embodiment of a mobile box or container, provided by the method and by the apparatus, according to the invention, for the tracking of postal items delivered through a "door to door" distribution;

Figure 2 schematically shows, in a partially sectional view, a first embodiment of the measuring compartment of which the container body is provided;

Figure 3 shows in detail a possible embodiment of the tracking device of Figure 2;

Figures 4 and 5 show a schematic view partially in section of two variants of the measuring compartment of Figure 2;

Figure 6 shows in a block diagram a possible sequence of steps through which is possible to perform the tracking of postal items according to the method provided by the present invention.

Detailed description of embodiments

In Figure 1 is schematically shown a container body 101 provided by the present invention to contain a stack 130 of postal articles 100, such as leaflets, advertising flyers or handbills of various nature, or any other type of paper communication "not addressed" and distributed "door to door". The container body 101 can be, for example, a trolley provided with wheels 125 through which the cart itself and the postal items to be delivered contained in it are moved along a predetermined delivery path for the door to door distribution. In an alternative embodiment, not shown in the figures, the container body can be devoid of wheels, and can be mounted on a wheeled vehicle, such as a bicycle, or a motorcycle, or another vehicle.

Inside the container body 101 is at least one measurement compartment, for example a first and a second measuring compartments 102a and 102b schematically represented by a rectangular drawn with a broken line. As schematically shown in Figure 2, within each measuring compartment 102a and 102b are provided measuring means 103, described in more detail below, to measure the number of postal articles 100 present in each of them.

In figure 2 is schematically illustrated a possible embodiment of a measuring compartment 102. It is provided with a tracking device 103 integral with the measuring compartment 102. The device 103, for example, can be anchored to the upper outer wall 122 and electronically connected to a distance sensor 104 agent in the compartment 102. In particular, the distance sensor 104 is disposed at a predetermined height from the base 123 of the compartment 102, for example at a central location. The distance sensor 104 through its beam 105 measures the remaining distance "d" (see Figure 2)

between the top of the measuring chamber 102 and the upper end of the stack 130 of postal articles 100, obtaining a distance data. Distance data is then acquired by the tracking device 103.

In particular, in Figure 3 is shown schematically a possible embodiment of the tracking device 103 comprising a processing unit 106 adapted to control a distance sensor 104, such as a sonar, a GPS device 107 which can acquire at least a variation data among DATE, TIME and GEOGRAPHICAL COORDINATES at the occurrence of a signal of change in the number of postal items present in the measurement compartment, a device GPRS / UMTS 112 for the transmission of data acquired by the sensor 104 and by the GPS 107 to the central system 111, a memory 110 for storing the acquired data, a rechargeable battery 108 for powering the device 103, an outlet 109 for charging the battery.

In particular, the sensor 104 is adapted to perform a telemetric detection of the distance (d) between the stack 130, namely the nearest postal article 100a, and the detection position at which the same sensor 104 is placed.

The cart 101 is transported by the messenger along the delivery path of the door to door distribution. At each stop, i.e. at each delivery of at least one postal article, the tracking device 103 measures the amount of variation in the stack 130 of postal articles 100 stacked in the measuring compartment 102, associating such signal variation to the acquired coordinates of the place of delivery and to the date and time of delivery. These data are then transmitted to the central system 111 which realizes the processing.

As schematically illustrated in Figure 4, can be provided, mainly in the case of use of "optical" sensor with infrared / laser, a reference element 150, such as a tab in material having a known value of the reflective / absorbent capacity, suitable to be arranged adjacent to the first postal article 100a of the stack 130. The reference element is provided free to slide along a direction of growth, or decrease, of the stack 130 of postal articles contained within the measurement chamber 102, for example along a vertical direction. In this case, therefore, the, or each, detection sensor 104 of the distance d is adapted to detect a given distance corresponding to the distance sensor 104 of the same from the element reference 150. Therefore, the variation in quantity of articles stacked 100 present in the measurement chamber 102 is obtained by monitoring the distance d between the detection sensor 104 and the reference element 150. In this way, it is possible to neglect the different reflective / absorbent properties of the various possible types of postal articles, and in particular of the printed colors, or the material in which they are made. Consequently, the measurement of the number of postal items is uniform and independent of the specific reflective/absorbent properties of postal articles to be traced, minimizing measurement errors.

In the variant of Figure 5, the means of measurement of the change are adapted to provide a detection of the weight of the stack 130 in the container 101 with the achievement of a given weight. In this

case, the weight detection is carried out through at least one load cell 104' disposed in the measurement chamber 102, for example below a support plane 120 of the stack 130.

In Figure 6, is schematically illustrated a block diagram 200, which indicates the main steps of the method according to the invention, for the tracking of postal items contained in a container body.

5 The method comprises, in particular, a step of measurement, at predetermined time intervals, of the number of postal articles present in the container body with obtaining of a quantity data, block 201. Followed by a step of detection of each variation in the number of postal articles, i.e. the data of the amount, between two successive measurement steps obtaining a variation signal, block 202. There is therefore an association to each change signal detected with a plurality of variation data, such as date,
10 time, and geographical coordinates of the place in which occurs the change in the number of postal articles, block 203, and finally an electronic transmission via GPRS / UMTS of the change data to a central management unit 111 adapted for processing the data of variation and real-time tracking the number of items delivered in a given place and at a certain date and time, block 204.

The above description of a specific embodiment is able to show the invention from the conceptual
15 point of view so that others, by using the known technique, will be able to modify and / or adapt for various applications such an embodiment without further research and without departing from the inventive concept, and, therefore, be understood that such adaptations and modifications will be considered as equivalent to the specific embodiment. The means and the materials to realize the different functions described herein could have a different nature without departing from the scope of
20 the invention. It is understood that the phraseology or terminology employed are for illustration and not of limitation.

CLAIMS

1. Method for tracking postal articles (100) delivered through a "door to door" postal distribution, said method characterized in that it comprises the steps of:

- arranging a hollow container body (101) arranged to contain a stack (130) of postal articles (100)

5 which comprises a predetermined number of postal articles (100);

- handling said hollow container body (101) along a predetermined delivery path of said postal articles (100);

- measuring the number of postal articles (100) which are present in said hollow container body obtaining a amount data, said measuring step carried out at predetermined intervals of time and/or at
10 predetermined operating conditions associated with the geographic position in respect of the time of said container;

- detecting at least one change in the number of postal articles (100), i.e. of said amount data, between two different measuring steps obtaining a variation signal;

- associating a plurality of spatial-temporal data of localization to each amount data and/or to each
15 variation signal detected, said plurality of spatial- temporal data of localization comprising at least one among: date, time and geographic coordinates of the place where said measuring step has been carried out and/or said change has been occurred in the number of postal articles;

and wherein at least one step is also provided selected from the group comprising of:

- electronic transmission via GPRS/UMTS of said amount data and/or variation signals and of said
20 spatial-temporal data of localization to which said amount data and/or variation signals are associated, said transmission being carried out towards a central elaboration unit that is arranged to process said data and to track in real time the number of articles delivered in a predetermined place and in a predetermined date and time;

- local memorization of the amount data and/or variation signals and of the spatial-temporal data of
25 localization to which said amount data and/or variation signals are associated.

2. Method, according to claim 1, wherein said measuring step of the number of said postal articles comprises at least one among:

- a detection step for detecting a minimum distance (d) existing between said stack (130) which is present in said hollow container body (101) and a predetermined detection position obtaining a
30 distance data;

- a detection step for detecting the weight of said stack (130) which is present in said hollow container body (101) obtaining a weight data, in particular said detection step carried out by at least one load cell arranged in a measuring space, in particular below said stack;

- or a combination thereof.

3. Method, according to claim 2, wherein said detection step for detecting the minimum distance is carried out by means of at least one of the technologies selected from the group comprising of:

- telemetric infrared light detection carried out by means of at least one infrared light detection sensor (104) arranged in said detection position;

5 - telemetric laser detection carried out by means of at least one laser light distance detection sensor (104) arranged in said detection position;

- telemetric ultrasonic detection carried out by means of at least one ultrasonic detection sensor (104) arranged in said detection position;

- or a combination thereof.

10 4. Method, according to claim 2 or 3, wherein once a distance data is acquired through at least one of said detection steps, a conversion step is provided for converting said distance data in an amount data of the articles, said conversion carried out on the basis of at least one known value selected from the group comprising of:

15 - a known value of the size of said hollow container body (101) and a known value of the thickness of a single postal article (100) of said stack (130) that is present in said hollow container body (101),

- a known value of the size of said hollow container body (101) and a known value of the size of a number of postal articles (100) that are initially present in said hollow container body (101).

20 5. Method, according to claim 3, wherein said detection step for detecting the minimum distance is selected from the group consisting of: said telemetric laser detection and said telemetric infrared detection and wherein a reference element is provided, in particular a tab element, said reference element arranged to freely slide along a growth, or decrease, direction of said stack of postal articles that are contained in said container and wherein said, or each, detection distance sensor is configured to measure the distance from said reference element in such a way that, during said detection step for detecting said distance, the variation of amount of stacked articles that are present in said container is carried out through the distance between said detection distance sensor and said reference element, in order to be independent from the reflective/absorbing properties of the postal articles.

25 6. Method, according to claim 2, wherein said measuring step of the number of postal articles comprises a detection step for detecting the weight of said stack obtaining a weight data and a conversion step of said weight data in a value of the amount of articles, said conversion step carried out on the basis of a known value selected from the group consisting of:

30 - a known value of the weight of a single article stacked in said container body,

- a known value of the number of articles that is initially present in said container body.

7. Method, according to claim 6, wherein a correction step is provided for correcting said detected weight data, said correction step carried out by means of at least one inclination sensor, or "inclinometer", arranged to provide the necessary corrections of the measurement of the weight data.

8. Apparatus for tracking postal articles (100) delivered through a "door to door" postal distribution characterized in that it comprises:

- a hollow container body (101) arranged to contain, in use, a plurality of postal articles (100), said hollow container body (101) having at least one measuring space and being moved along a predetermined delivery path;

- a measuring means for measuring (104, 104') acting in said, or each, measuring space (102), said measuring means (104, 104') arranged to measure the number of postal articles present in said hollow container body (101) obtaining an amount data, said measuring means arranged to measure said number of postal articles at predetermined time ranges and/or at predetermined operating conditions, in particular said operating conditions associated to the geographic position in the time of said container;

- a GPS device (107) arranged to detect the geographic coordinates of said hollow container body (101) during said delivery path, said detection of said geographic coordinates occurring in association to data and/or time of the delivery;

and wherein at least one of the following devices is provided:

- a memorizing device (110) for memorizing the data measured by said measuring means (104, 104') and by said GPS device;

- a GPRS/UMTS transmission device arranged to transmit in real time said data that are obtained by said measuring means and by said GPS device (107) to a central elaboration unit (111);

- a rechargeable supply device (108) for supplying said memorizing device and/or said transmission device and/or said measuring means and/or said GPS device.

9. Apparatus, according to claim 8, wherein said measuring comprises at least one sensor selected from the group consisting of:

- an infrared distance sensor;

- a laser distance sensor;

- an ultrasonic distance sensor;

- a force sensor for measuring the weight data;

- or a combination thereof.

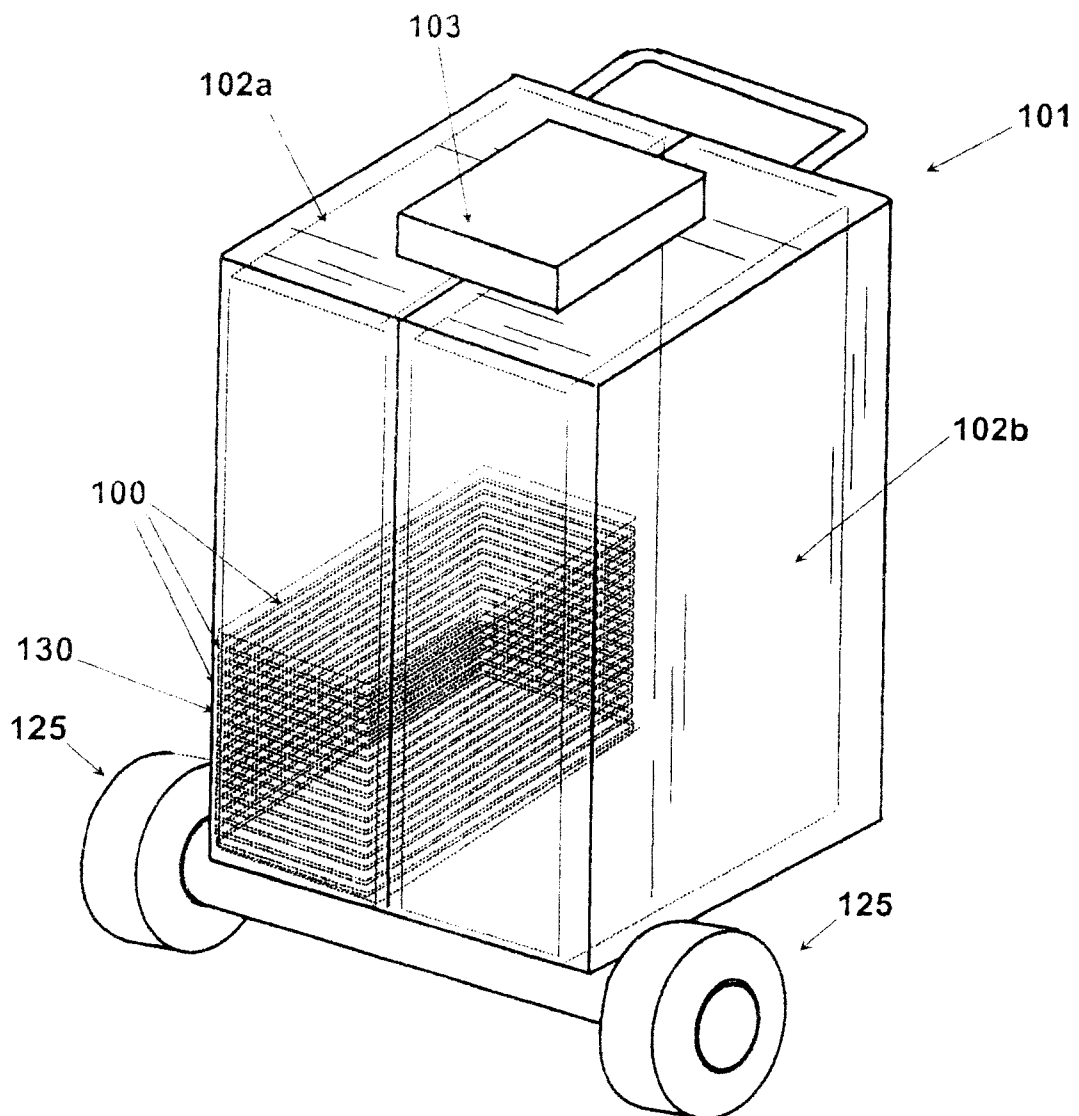
and wherein an electronic device is provided having a GPS (Global Position System) chip arranged to detect at least one value selected from the group consisting of: date, time, and geographic

coordinates associated to the moment and to the geographic position wherein said, or each, sensor detects a related data and/or at predetermined intervals of time.

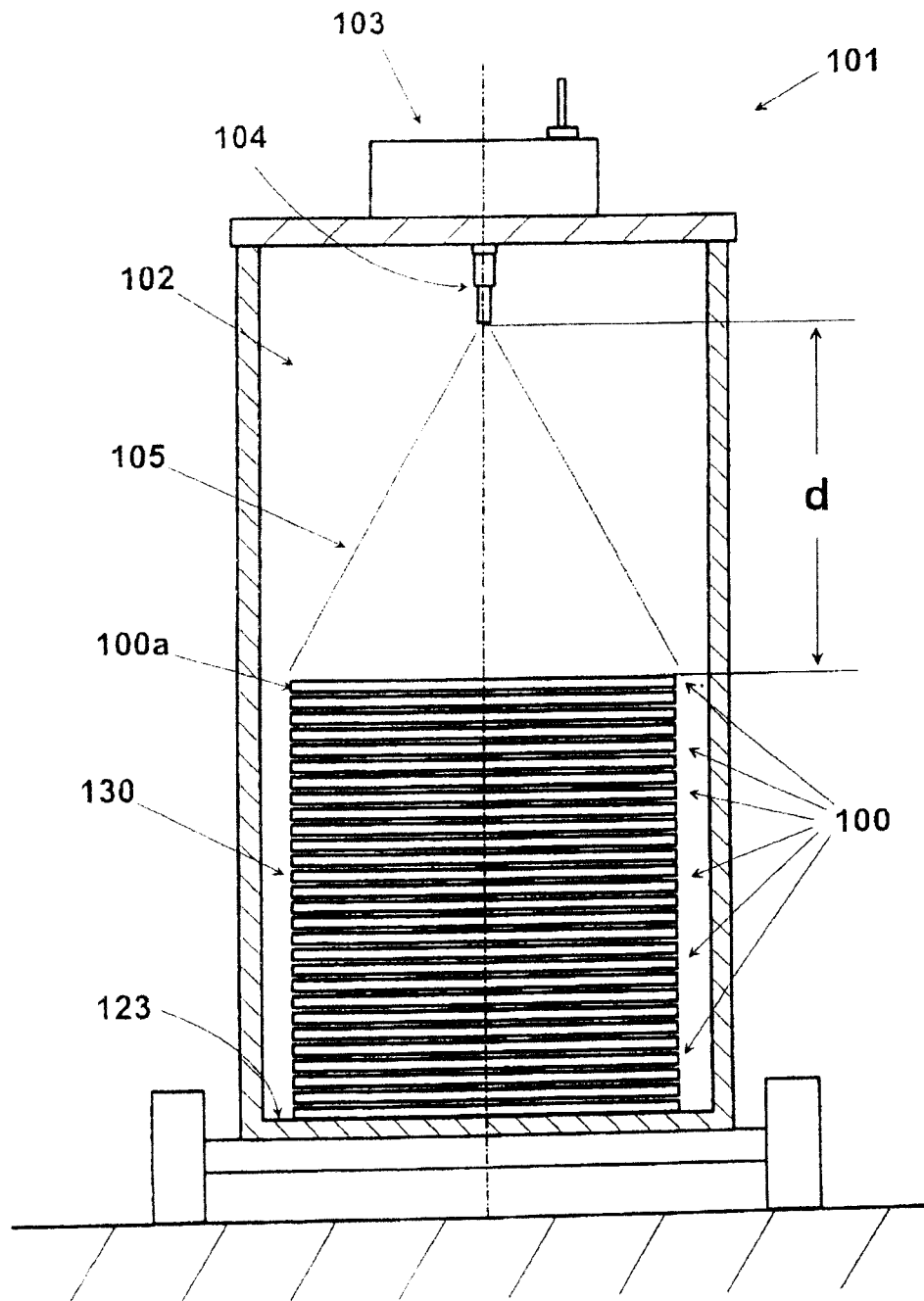
10. Apparatus, according to claim 8, wherein said sensor is selected from the group consisting of: an infrared distance sensor and a laser distance sensor and wherein a reference element is provided that is arranged to be placed adjacent to the first postal article of said stack of postal articles, said reference element being configured to be free of translating along the growth/decrease direction of said stack, said measuring means arranged to measure the distance from said detection position to said reference element.

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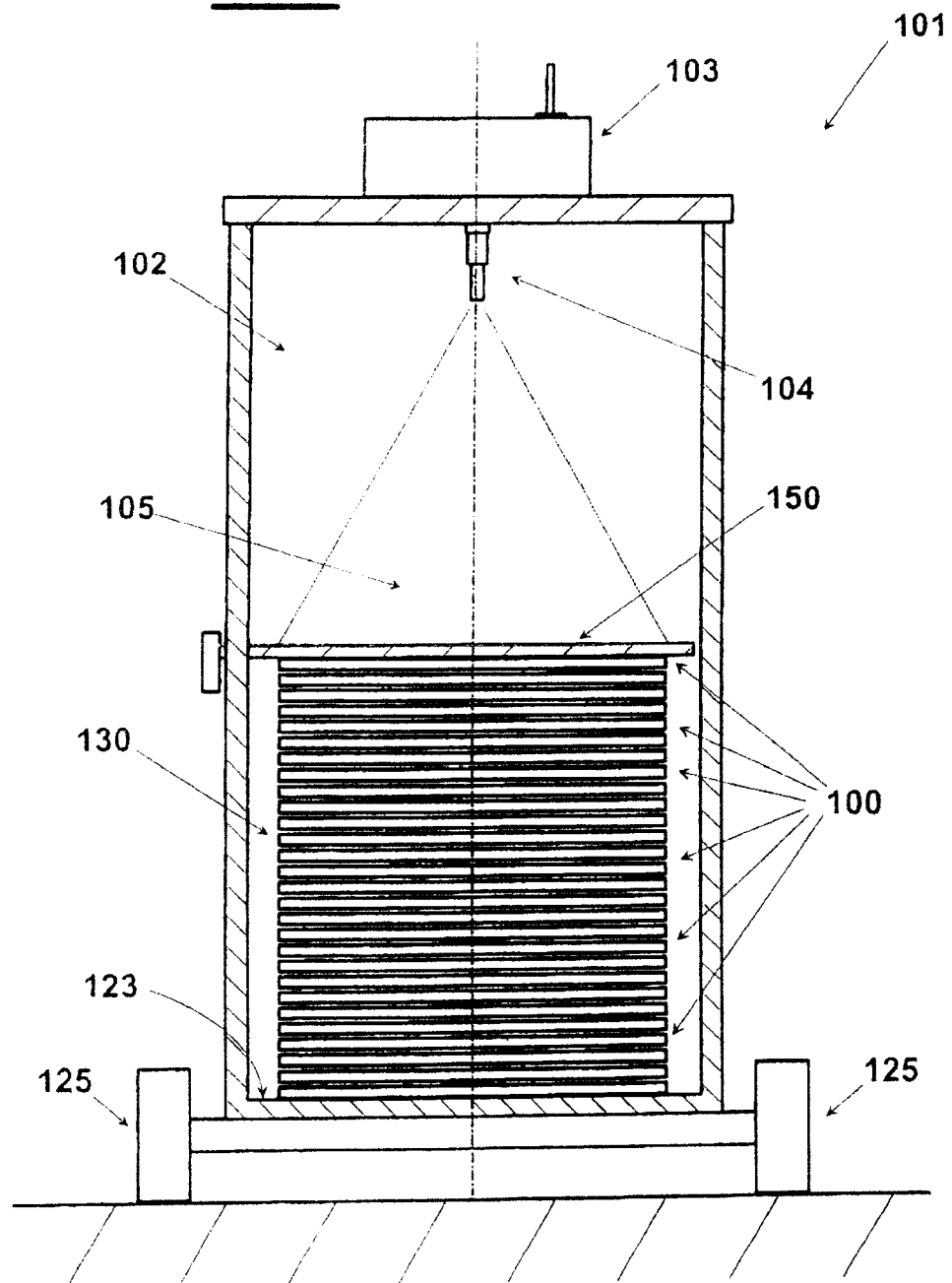
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Fig. 1

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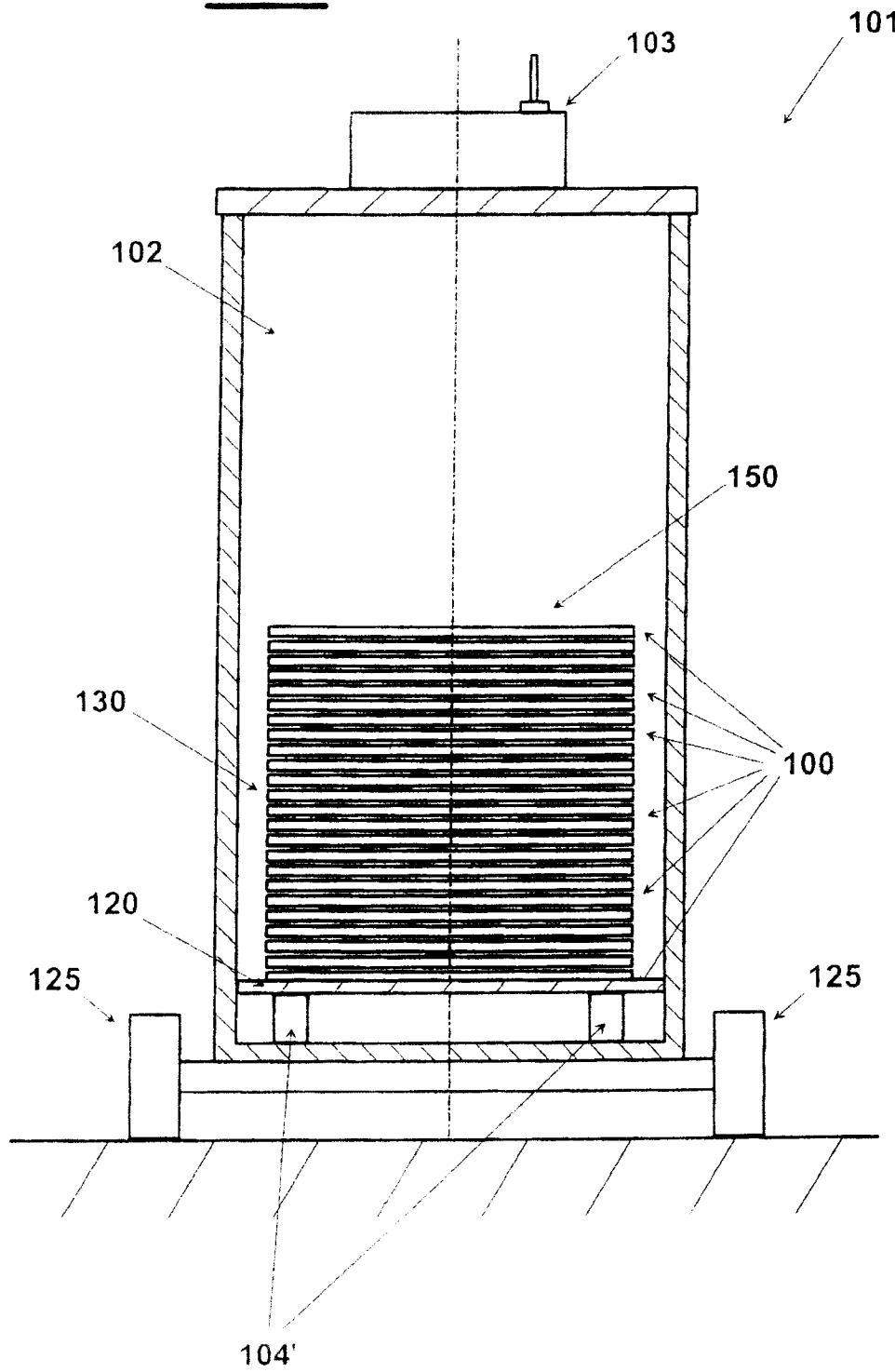
Fig. 2

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Fig. 4

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Fig. 5



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Fig. 6

