" Method and system for issuing identification labels"

DESCRIPTION

The present invention relates to a method for issuing identification labels. It is also aimed at systems for implementing this method.

In numerous sectors of industry, distribution and transport, the identification of objects or goods takes place by the use of bar codes. This method of identification, although particularly widespread, presents a not insignificant rate of reading errors (poor reading or reading impossible), which leads the users and designers of the present identification systems to seek other higher-performance and safer techniques of identification to take the place of bar code techniques or to complement the latter.

Identification techniques already exist that employ labels pre-equipped with a circuit including a radiofrequency emitting chip. A drawback encountered with these pre-equipped labels lies in the fact that the radiofrequency circuit can have a thickness of the order of a millimetre, which poses technical problems during the passage of these labels into the printers. Several routes have been envisaged to overcome this drawback, in particular by attempting to reduce the thickness of the circuits and the chips, or by providing ramps on each side of the circuit. But these arrangements have not hitherto given satisfaction or would incur unacceptable additional costs.

The aim of the invention is to overcome these drawbacks by proposing a method of issuing identification labels which permits labels to be obtained

that offer both optical reading and radiofrequency reading, while not requiring any appreciable modification of existing labels or radiofrequency chips.

This aim is achieved with a method for issuing identification labels, comprising:

- a step for printing on a label first identification data, and
- a step for encoding a radiofrequency chip with second identification data.

According to the invention, this method further comprises, after the printing step, a step for depositing on each label already printed a radiofrequency circuit including a radiofrequency chip.

Thus, by depositing radiofrequency chips after the printing of the labels, the difficulties with the passage of a chip into a printer are eliminated. To implement this method, use can be made of radiofrequency circuits of very small thickness manufactured by conventional techniques. A major advantage of this method is that of being able to give operators, who are already equipped with label printers, an additional function contributing towards improved performance as regards safety and reliability of identification, without the latter making it necessary as such to change the equipment completely.

Moreover, the step for encoding the radiofrequency chip is preferably carried out after the depositing step.

According to a particularly advantageous form of embodiment, the radiofrequency circuits are supplied in advance on a continuous ribbon. During the depositing step, a radiofrequency circuit in the form of a label is detached from the continuous ribbon and progressively applied in a predetermined depositing zone on one of the faces of the label.

The radiofrequency circuits supplied on the continuous ribbon are preferably

covered in advance with an adhesive. But it would also be possible to make provision such that the depositing zones of the labels are covered in advance with an adhesive.

Depending on the constraints and requirements expressed by the users and operators of the system according to the invention, provision can be made such that the radiofrequency circuits are deposited either on the printing faces of the labels or on the faces opposite the printing faces.

The identification data inscribed in the form of bar codes and in the form of radiofrequency codes can be identical, approximately identical or again complementary, depending on the operators' requirements.

According to another aspect of the invention, a system for issuing identification labels is proposed that uses the method according to the invention, this system comprising:

- means for printing identification data on a label,
- means for encoding a radiofrequency chip with identification data.

This system is characterized in that it further comprises means for depositing on each label previously printed a radiofrequency circuit including a radiofrequency chip.

Other features and advantages of the invention will again emerge in the following description. In the appended drawings given by way of non-limiting examples:

- figure 1 represents diagrammatically the structure of a system for issuing labels according to the invention;
- figure 2 illustrates a particular form of supply of radiofrequency circuits on a continuous strip;
- figure 3 represents diagrammatically an example of a label produced with the system according to the invention; and
- figure 4 illustrates diagrammatically a form of depositing used in the method

according to the invention.

A particular example of an embodiment of a system for issuing identification labels will now be described, with reference to the aforementioned figures.

The system for issuing labels 1 according to the invention comprises a printing module 2 and a depositing and encoding module 3. Printing module 2 comprises a magazine 22 containing blank labels 25 supplied in the form of a continuous strip running along a run-off plane 21, driving mechanisms 23, 24, a printing head 20, and an ejection exit 26 for printed labels. This printing module 2 can in practice correspond to a standard label printer.

Depositing and encoding module 3 comprises an entry 39 arranged so as to receive the printed labels coming from printing module 2, driving mechanisms 33, 34, a depositing arrangement 37, a radiofrequency encoding unit 30, a mechanism 38 for separating the labels, and an ejection exit 31 for the printed and encoded labels.

Depositing arrangement 37 comprises a storage reel 35 for a roll 4 of a continuous ribbon or strip 10 containing a series of radiofrequency circuits each including radiofrequency chips, a receiving reel 36 for the continuous strip after deposition, a depositing roller 40 whose peripheral surface 41 is situated in the immediate proximity of the run-off plane 32 of the printed labels, and driving mechanisms (not shown). For the description of conventional techniques of depositing labels continuously, reference may be made for example to document US 4, 717,438.

It should however be noted that the method for issuing labels according to the invention differs from the industrial methods of producing anti-theft labels or integrated circuit boards of the prior art by the fact that, in the present invention, the radiofrequency circuit depositions are carried out upon request following a command for the issue of a label and consequently in a discontinuous manner, in contrast with the aforementioned industrial methods which are intrinsically of the continuous type

with objectives of speed and productivity.

Continuous strip 10 comprises, on a continuous support 100 of very small thickness made of silicone or equivalent material, a succession of radiofrequency circuits 110 regularly spaced and held on this support by a suitable adhesive, as referred to in figure 2. Radiofrequency circuits 110, of very small thickness, for example of the order of 3/10 mm, are themselves covered in advance on their outer face with an adhesive coating. They generally come in the form of a label of flexible material, essentially rectangular in shape and including an oscillating circuit and a radiofrequency chip.

Labels 200 produced with the method according to the invention comprise, as referred to in figure 3, a printing zone 230 containing for example an explicit or coded identification zone 220 and a bar code zone 210, and a depositing zone 240 for receiving by depositing and gluing a radiofrequency circuit 110 including a radiofrequency chip. This thus provides an identification label offering the complementarity of an optical identification and a radiofrequency identification.

The depositing of the radiofrequency circuits 110 on the previously printed labels 200 can be carried out in the manner shown diagrammatically in figure 4. Continuous strip 10 is drawn around depositing roller 40 in such a way that it is applied against label 200 itself drawn along the run-off plane 32. When

radiofrequency circuit 110 carried initially by the continuous strip comes into quasi-tangential contact with the outer face of label 110, it is then detached from continuous strip 10 which, beyond depositing roller 40, is drawn at an angle with respect to run-off plane 32 significantly greater than the angle of introduction of the continuous strip. Radiofrequency circuit 110 then remains glued to label 200 in depositing zone 240 reserved for this purpose.

It is also possible to envisage a pre-gluing of depositing zone 240 of label 200, this pre-gluing replacing the pre-gluing of the outer face of each radiofrequency circuit or label or again complementing it.

It should be noted that the radiofrequency circuit can be glued without distinction on the printing face of the label or on the opposite face, depending on the technical requirements and/or wishes expressed by the users of these labels. It is possible, moreover, to provide a system according to the invention containing, in its printing module, a printing head arranged for printing the label on a first of its faces, and, in its depositing module, a depositing device arranged for depositing a radiofrequency circuit on the opposite face. It is also possible to provide a depositing module containing two depositing devices on each side of the run-off plane.

In a first form of embodiment of the system according to the invention, provision can be made such that the depositing and encoding module is independent and arranged at the exit from an existing printing module. In a second form of embodiment, the depositing and encoding module can be included in a single structure combining the printing, depositing and encoding functions.

The baggage provided with the label having a radiofrequency chip obtained according to the invention can then pass into a sorting machine containing, in an integrated fashion or upstream, a portal frame containing at least one antenna device

for receiving and reading the message from the chip. The portal frame can also contain means for reading another carrier (bar code) for baggage not provided with a label having a chip and/or for a double reading (chip and bar code) of baggage provided with a label obtained according to the invention. The portal frame controls for example one or more sorting switches.

The invention is not of course limited to the examples that have just been described and numerous modifications can be made to these examples without departing from the scope of the invention. Furthermore, the present invention is not tied to a particular radiofrequency chip technology. Moreover, the respective dimensions of the labels and the printing and depositing zones can be any whatsoever.

CLAIMS

1. Method for issuing identification labels (200), comprising:

- a step for printing on a label (200) first identification data (230), and

- a step for encoding a radiofrequency chip (111) with second identification data, characterized in that it further comprises, after the printing step, a step for depositing on each identification label already printed (200) a radiofrequency circuit (110) including a radiofrequency chip (111).

2. Method according to claim 1, characterized in that the step for encoding the radiofrequency chip (111) is carried out after the depositing step.

3. Method according to any one of claims 1 or 2, characterized in that the radiofrequency circuits (110) are supplied in advance on a continuous ribbon (10).

4. Method according to claim 3, characterized in that, during the depositing step, a radiofrequency circuit (110) is detached from the continuous ribbon (10) and applied progressively in a predetermined depositing zone (240) on one of the faces of the label (200).

5. Method according to claim 4, characterised in that the radiofrequency circuits (110) supplied on the continuous ribbon (10) are covered in advance with an adhesive.

6. Method according to any one of claims 4 or 5, characterized in that the depositing zones (240) of the labels (200) are covered in advance with an adhesive.

7. Method according to any one of the preceding claims, characterised in that the radiofrequency circuits (110) are deposited on the printing faces of the labels (200).

8. Method according to any one of claims 1 to 6, characterised in that the radiofrequency circuits are deposited on the faces opposite the printing ones.

9. Method according to any one of the preceding claims, characterized in that the first and second information data are approximately identical.

10. System (1) for issuing identification labels, using the method according to any one of the preceding claims, comprising:

- means (20) for printing, in a predetermined printing zone (230) on one of the faces of a label, identification data (210, 220),
- means (30) for encoding a radiofrequency chip (111) with identification data, characterized in that it further comprises means (37) for depositing on each label (200) previously printed a radiofrequency circuit (110) including a radiofrequency chip (111).

11. System (1) according to claim 10, characterized in that the means of radiofrequency encoding (30) are arranged downstream of the depositing means (37).

12. System (1) according to any one of claims 10 or 11, characterized in that the depositing means (37) include means (35) for storing

radiofrequency circuits (110) arranged on a continuous strip (10) and means (40, 41) for applying successively each radiofrequency circuit (110) against a predetermined depositing zone (240) on one of the faces of the label (200).

13. System (1) according to claim 12, characterized in that the means of application comprise a roller (40) whose peripheral surface (41) is situated in the proximity of the run-off plane (32) of the labels (200), in such a way that the radiofrequency circuit (110) previously carried by the continuous ribbon (10) is pressed against the label (200) when it is engaged between the peripheral surface (41) of the roller (40) and said label (200).

14. System according to any one of claims 10 to 13, characterized in that the depositing means are arranged so as to deposit radiofrequency circuits on a face opposite the printing face of the labels.

15. System (1) according to any one of claims 10 to 14, characterized in that the depositing means (37) and the encoding means (30) are arranged in a separate depositing and encoding module (3) placed at the exit of a label printing module (2).