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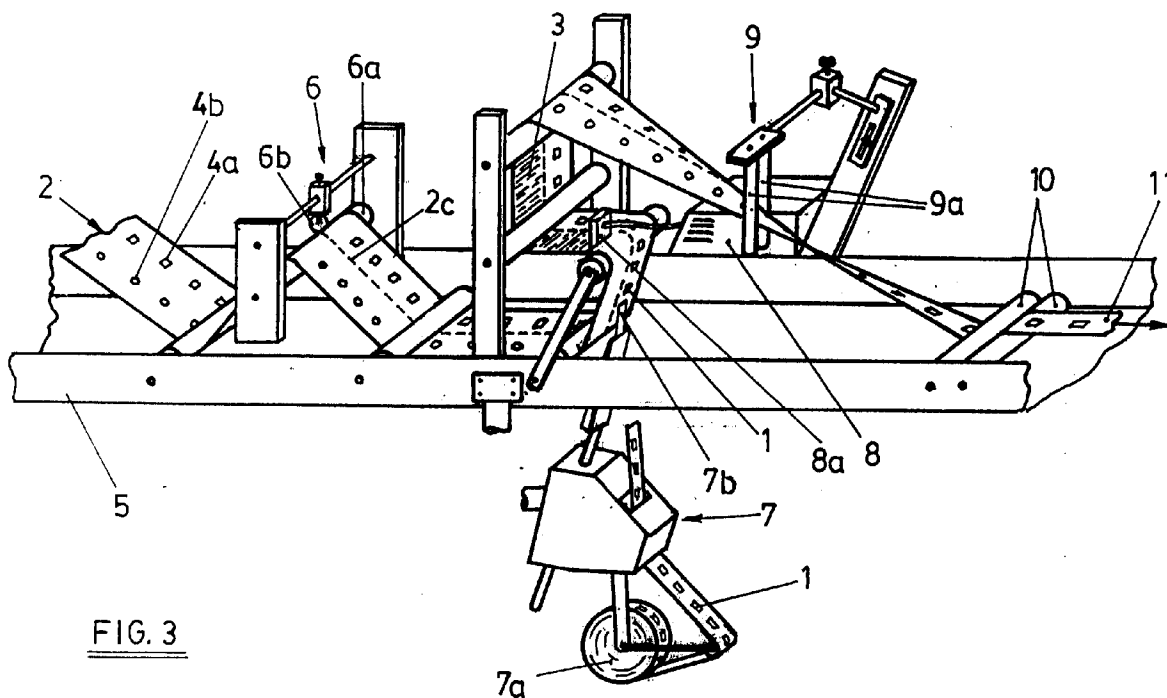
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AL LT LV MK RO SI(30) Priority: **31.01.1997 ES 9700188**(71) Applicant: **Germark, S.A.****08940 Cornellà de Llobregat, Barcelona (ES)**(72) Inventor: **Cid Juncosa, Iban****08940 Cornellà de Llobregat (Barcelona) (ES)**(74) Representative: **Aguilar Forment, Domènec****c/o Aguilar & Revenga****C. Consell de Cent 415, 5.o-1.a****08009 Barcelona (ES)**(54) **A safety label and a device for its manufacture**

(57) The label includes a radio-frequency tag fitted between two sheets of cardboard that are stuck together by the opposing sides, with these elements forming a single body. The device used for the manufacture of these labels includes some accessories being attached to a rotary printing machine, with the said accessories

being: a mechanism for guiding and marking the strip of cardboard that has been printed in the same rotary machine, one labelling machine that positions the tags on the strip, a glue dispenser, a guide for folding the strip and some pressure rollers. The obtained labels are used for marking and protection against the robbery of products for their sale.

**FIG. 3****EP 0 858 061 A2**

Description

OBJECT OF THE INVENTION

The present invention refers to a label, of the kind of ones used for attaching by any means to products for their sale, and which includes a safety element with the purpose of preventing the robbery of the product to which the label is associated, with the said safety element being of the type of those known in the field of electronics as a "radio-frequency tag". The invention includes, as well as the label itself, a device for its manufacture.

BACKGROUND TO THE INVENTION

Conventional labels are made up by a portion of cardboard generally printed on both sides and which do not include any safety element aimed at preventing the robbery of the product onto which they are to be placed.

These labels are obtained using a strip of cardboard passing through a rotating machine in which the two sides of the strip are printed. These prints shall remain positioned on the right and on the back of the label, once the printed strip has been suitably cut.

This means of obtaining the labels poses a series of problems, such as the need to use a cardboard with a high grammage so as to obtain a label with a certain rigidity, or the impossibility of printing on both sides of the strip all the colours available in the printing machine vats; this is due to the fact that first the printing for one side of the strip is carried out, printing it with the colours available in the initial vats of the printing machine and subsequently the said strip is turned around using rollers, printing the colours from the remaining vats on the other side.

At the present time there are some safety elements on the market whose purpose, as regards the protection of products, is similar to the label that is the object of the invention; these elements are designed to be attached to the products to be sold and may be detected remotely by a receiver device, thereby activating an alarm when someone attempts to remove the product from the establishment unless the safety element has been deactivated by means of a specific piece of equipment. Amongst the said elements we should highlight the ones used in the large department stores, which are made up by two parts that are anchored to the product and which are removed at the time payment is made and the radio-frequency tags.

These radio-frequency tags are widely spread and at the present time they are attached to the product using a self-adhesive label in such a way that they are hidden between the label and the product, or they are introduced into the package container for the product; in either case, it is necessary to manually add the radio-frequency tag to the products that you want to protect, and they are easily located by any possible thief, which

allows him to choose the products that do not incorporate this element.

DESCRIPTION OF THE INVENTION

The label in this invention has the specific characteristic of including a radio-frequency tag placed between two sheets of cardboard with equal external profiles that are stuck along the edges opposite one another, shaped into a single body; the two strips of cardboard are printed on the outer side, whereby the label in the invention, which includes the aforesaid tag, has a look just like a conventional label and it is attached to the product in a similar way to the latter.

This label provides some big advantages determined by the fact of having an in-built radio-frequency tag; one of these advantages is the fact that when the product is labelled the radio-frequency tag is already associated to the product in question, whereas at the present time the labelling and the incorporation of the tag to the product are carried out in two different and totally independent operations.

Another of the advantages of this label is that the tag, since its thickness is very low and since it fits between the two sheets of cardboard it is not easily detectable by any possible thief.

The invention envisages, for the manufacture of the label, the use of a device made up by a rotating label printing machine, fitted with specific accessories that may be removed from the former when they are not manufacturing this type of labels, with the printing machine then working in the conventional manner.

It should be pointed out that the object of the invention, apart from the label itself, is concentrated on the accessories mentioned above, since the rotary printing machine could be any of those existing on the market that, regardless of the technology used to perform the said printing (typography, flexography, silk screen printing, offset, etc.), it will allow it to perform parallel prints on one of the sides of a continuous strip which remain symmetrically positioned as regards the middle line of the strip.

In accordance with the invention, the accessories to be positioned on the rotary printing machine are the following: a) a guiding and marking mechanism for the strip, which includes a roller over which the already printed strip is guided and a ruler which acts against the central part of the strip making a lengthways notch in it, b) a labelling machine that positions the self-adhesive radio-frequency tags onto the non-printed surface of the strip and onto the areas opposite each other with one of the parallel prints made on the other side of the strip, c) a glue dispenser that applies a layer of adhesive product over one of the halves of the non-printed side of the strip, d) a guide for folding the strip, made up by two parallel rollers set out in a noticeably perpendicular direction to the advance movement of the strip and which make the former fold along the longitudinal notch, in such a way

that the two halves of the non-printed side remain opposite one another and e) pressure rollers that press the previously folded strip thereby achieving the final sticking of the opposite sides.

These accessories are attached to the printing machine between the printing and stamping or final adjustment areas, in such a way that the printed strip can pass through all of them, thereby obtaining a number of labels fitted with the corresponding radio-frequency tag and between which there remains a small separation.

In the stamping and final adjustment area, which is usual in rotary printing machines, the excess material is sliced off from the sides of the labels, including the fold, and some cross notch cuts are made in the intermediate separations which make it easier to separate the labels later and some stamped marks. These marks allow the individual detection of the labels by the other machines currently used, such as reprinters or guillotines, so that the latter may, respectively, print variable information (price, type of currency, use by dates, etc.) in a certain area of the labels, or to perform precise cuts in order to achieve their total separation, thereby handing them over one by one.

The addition of the aforementioned accessories to a conventional rotary printing machine, for the manufacture of the safety label, provides important advantages, such as the possibility of using a cardboard with a much smaller substance than those used in the manufacture of conventional labels, since, when carrying out the crosswise folding of the strip, the labels obtained will have double the thickness than that of the initial strip.

Another of the advantages determined by the use of these accessories is that both the front and the back of the label are printed simultaneously on the same side of the strip of cardboard, which allows all the colours available in the machine to be used for both prints.

The accessories mentioned allow the simultaneous manufacture of two or more series of labels to be performed, thereby increasing productivity and providing that the necessary band width is accepted by the rotary printing machine; in this case, the rotary machine must simultaneously print the fronts and the sides on the backs of the labels to be produced, in such a way that when the strip is folded by the central area, the said prints shall remain in areas that coincide with one another and by the outer sides of the labels, with it also being necessary to include a number of labelling machines in parallel equal to that of the series of labels to be manufactured, so that they will all have the corresponding radio-frequency tags.

DESCRIPTION OF THE DRAWINGS

In order to complete the description that is being made and so as to help towards a better understanding of the characteristics of the invention, the present descriptive report comes with a set of non limiting drawings which are an integrated part thereof, in which for illus-

tration purposes only, the following has been shown:

- Figure 1, a perspective view of the safety label.
- 5 - Figure 2, a elevation view of the label, with a scaled cross-section of parallel stretches, in which the different elements that form it may be seen.
- Figure 3, a perspective view of the accessories that are mounted onto the printing machine and of a strip of printed cardboard passing through them.

PREFERRED EMBODIMENT OF THE INVENTION

As may be observed in the referred Figures, the label, shown in Figures 1 and 2, includes a radio-frequency tag (1) placed between two sheets of cardboard (2a and 2b) which form the front and the back of the label and which are attached by the opposing sides by means of a layer of adhesive (3), in such a way that the tag (1) and the sheets (2a and 2b) form a single body.

As is seen in Figure 2, the tag (1) has a smaller surface area than the sheets of cardboard (2a and 2b), thereby remaining totally hidden between them.

The sheets (2a and 2b) are obtained from a strip of cardboard (2) provided with two prints (4a and 4b) that remain positioned, respectively, at the front and at the back of the label when the latter is shaped.

The prints (4a and 4b) are carried out in a rotary printing machine (5) of which, since it is a conventional one, only the area of the frame has been shown over which the accessories are attached that are necessary for producing the labels.

These accessories are mounted onto the machine (5), below the printing area, in such a way that the strip (2) is printed before passing through the former.

These accessories are: a mechanism (6) for guiding and marking the strip (2), a labelling machine (7), an adhesive dispenser (8), a folding guide (9) for the strip (2) and roller presses (10).

The mechanism (6) for guiding and marking includes a roller (6a), over which the printed strip (2) is guided, and a ruler (6b) which acts against the central area of the strip (2) thereby making a lengthways line of holes in it (2c).

The labelling machine (7) is the one in charge of positioning the successive radio-frequency tags (1) over the non-printed side of the strip, in such a way that they remain centred with respect to each one of the prints (4a).

The tags (1) are initially stuck to a supporting coil (7a) from which they are separated when the support passes through a dispensing edge (7b) included in the machine (7).

The glue dispenser (8) has an applicator nozzle (8a) which drops the adhesive layer (3) onto one of the halves of the non-printed side of the strip of cardboard (2).

The folding guide (9) includes two rollers (9a) set out in a direction that is noticeably perpendicular to the advance of the strip of cardboard (2) thereby causing its folding along the longitudinal line of holes (2c), in such a way that both halves of the non-printed side are kept opposite one another thereby holding the tags (1) in place.

The pressure roller (10) press down the two halves of the previously folded strip, thereby achieving the final ticking of the latter through the adhesive layer (3), whereby a single strip of material (11) is achieved, with a width equal to half the initial strip (2) and along which a series of labels are interspersed.

This strip (11) will finally pass through a series of conventional elements, not shown in the Figures, such as a stamping machine in which the labels shall be partially separated and some holes (2e) shall be made for hooking the labels to the products and some stamped marks (2d) which will allow the detection of each one of the labels by other machines, such as the reprinters, guillotines, etc.

It is not deemed necessary to extend this description any further so that any expert on the subject may understand the scope of the invention and the advantages that arise therefrom.

The terms in which this reports has been written up must be taken always in their widest sense and not as being limited.

The materials, shape, size and layout of the elements may undergo alteration providing that does not mean any change to the essential characteristics of the invention, which are claimed below.

Claims

1. A safety label and a device for its manufacture; characterised because the label includes a radio-frequency tag fitted between two sheets of cardboard that are stuck together by the opposing sides, with these elements forming a single body.

2. A label, according to previous claim, characterised because the radio-frequency tag has a surface area smaller than the sheets of cardboard, thereby remaining hidden by them.

3. A label, according to previous claims, characterised because the sheets of cardboard included therein are printed on the outer sides.

4. A device for the manufacture of the label of the previous claims, characterised because it includes a series of accessories used for being attached between the printing, stamping or final adjustment areas of a rotary printing machine, with the said accessories being: a) a mechanism for guiding and marking the strip of cardboard that has already

been printed, b) at least one labelling machine that positions some self-adhesive, radio-frequency tags on the non-printed side of the strip of cardboard, c) a glue dispenser that applies a layer of adhesive product over one of the halves of the non-printed side of the strip, d) a guide for folding the strip, made up by two rollers arranged in a noticeably perpendicular direction to the advance of the strip of cardboard thereby forcing it to fold along the longitudinal line of holes, in such a way that the two halves of the non-printed side remain opposite each other and e) some pressure rollers that press the previously folded strip, thereby achieving the final bonding of the two halves opposite each other.

5. A device, according to claim 4, characterised because the guiding and marking mechanism for the strip of cardboard includes a roller over which the printed strip slides and a ruler that acts against the central area of the strip making a longitudinal row of holes in it.

6. A device, according to claim 4, characterised because the guide for folding the strip includes two parallel rollers arranged in a direction noticeably perpendicular to the advance of the strip of cardboard.

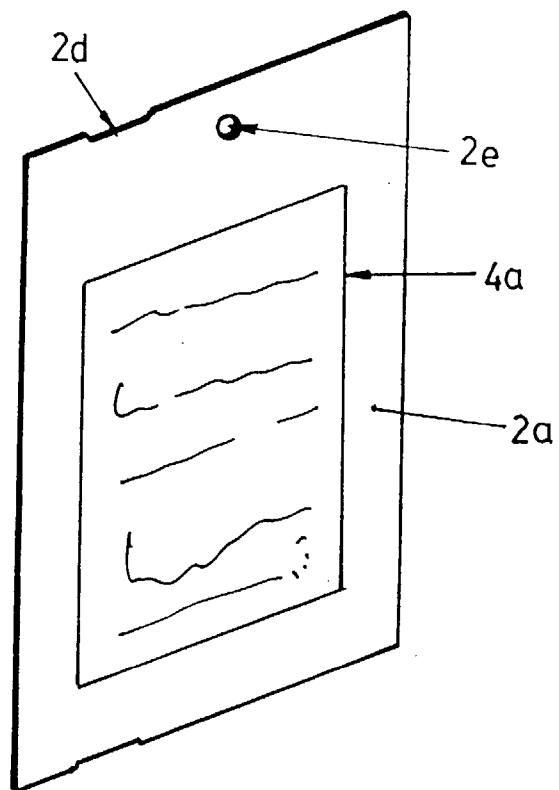


FIG. 1

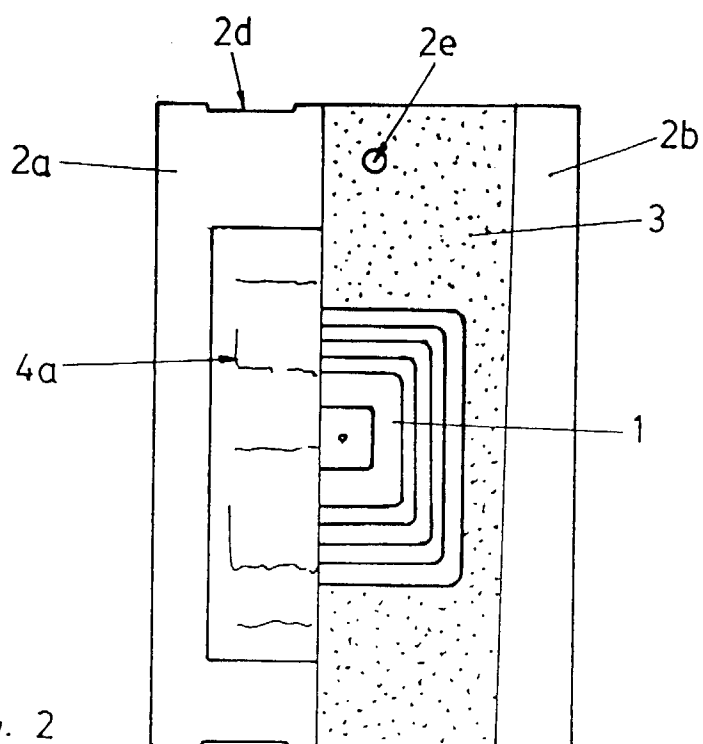


FIG. 2

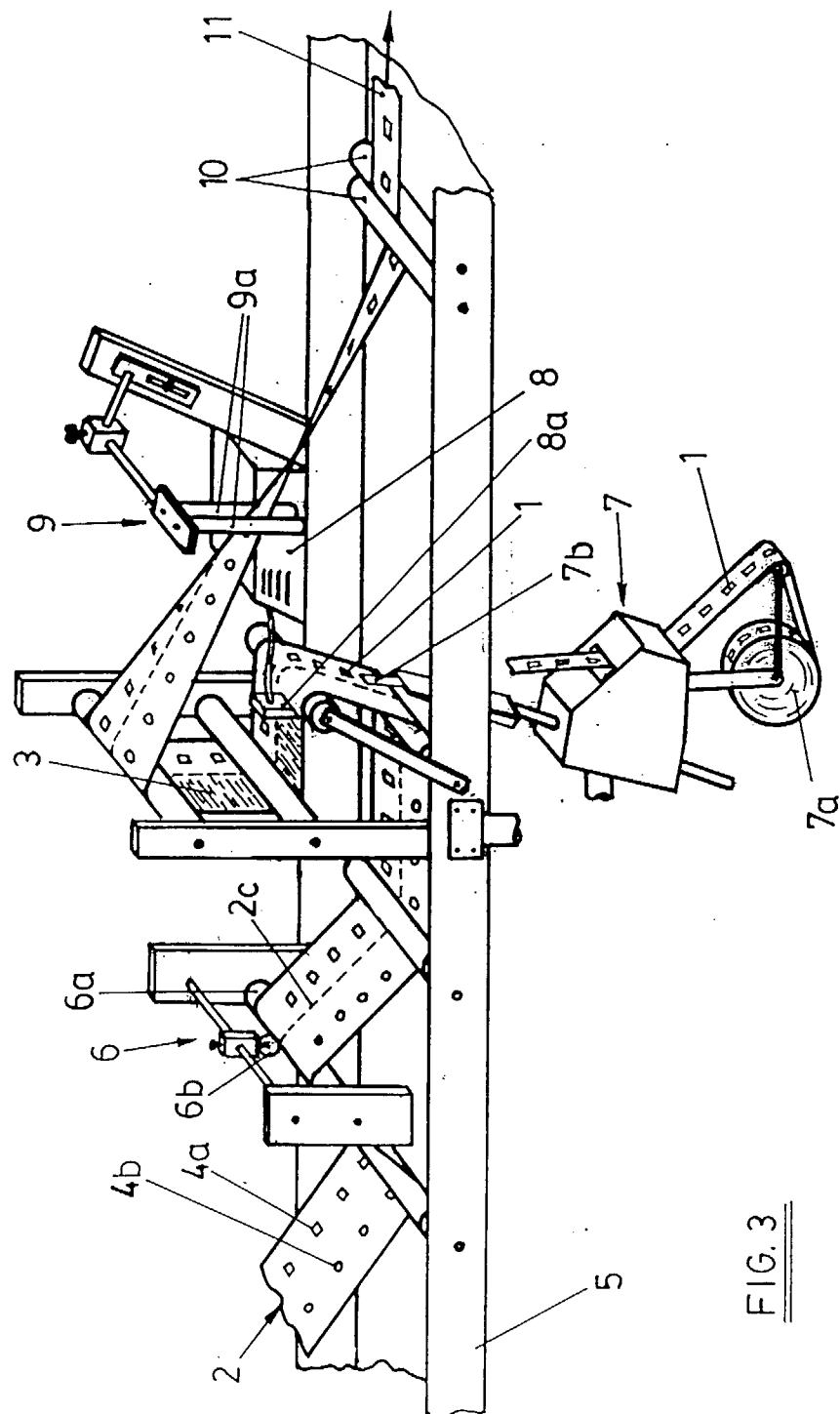


FIG. 3