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(54) IMPROVEMENTS IN OR RELATING TO LABELS

(71) We, NORPRINT LIMITED, of Horncastle Road, Boston, Lincolnshire, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to labels and is particularly concerned with improved forms of label strip. Strips of self-adhesive or heat-sealable labels have been known for many years and have considerable advantages, in comparison with single labels, as they are easier to produce, print, overprint or otherwise handle and they can be readily applied to articles with a suitable labelling appliance. Label strips find widespread use, for instance, in supermarkets and other retail concerns, where large numbers of articles need to be labelled to show their price.

Known forms of label strip can be disadvantageous in practice, however, particularly when used in labelling appliances, because it is difficult to achieve a high standard of accuracy in overprinting, applying and other operations carried out sequentially on a large number of labels, while at the same time avoiding the need for expensive registration arrangements and equipment. One reason for known disadvantages is the common and understandable practice of supplying label strips in reel form. As this means that the reel diameter gradually decreases in use of the labels, advancing mechanism can only operate on the label strip or its backing and not on the reel per se, so that individual labels need pin-holes, perforations or other special features for cooperating with advancing mechanism incorporated in the labelling appliance.

Specification No. 945,398 shows a heat-sealable label strip in roll form useful for sealing package wrappings; the labels shown in this specification are in the shape of squares having notched arcuate corners. Specification No. 977,635 shows a label strip in which individual labels are rectangles lacking their corners and are carried upon a carrier strip having a central row of perforations for cooperating with a pinwheel in an applicator device. Specification No. 1,111,851 discloses various forms of label band comprising a carrier strip and a sequence of labels carried by said strip and extending along the length thereof, at least one of the longitudinal edges of said band having a regularly repeating pattern of indentations of such form that said edge is defined by a continuous wavy or zig-zag line which deviates alternately to one side and then the other side of a straight line, the extent of such deviation being bounded by a pair of lines parallel to said straight line, and the pattern of deviation being such as to divide the area between said pair of lines into two series of congruent areas lying respectively on opposite sides of said wavy or zig-zag line and not having any boundary which extends at right angles to said straight line. These provide individual labels which can have unusual shapes, lacking any edge portion at the sides of the band which is at right-angles to the direction of advance of the label strip.

An object of the present invention is to provide improved forms of label strip which are eminently suitable for accurate application and printing when used is relatively simple and inexpensive applicator and other devices.

According to this invention, a label strip comprises an elongated backing carrying a plurality of separate labels detachably secured to the backing along the length thereof, at least one edge of the strip having a regularly castellated shape, i.e. a continuous rectangular wave form which lies within a pair of lines parallel to the direction of feed of the label strip and deviates alternately to one or other side of a straight line midway between the pair of lines, substantially all of the one edge of the strip being either coincident with or normal to the pair of lines.

Preferably, both edges of the strip having a castellated shape and, most preferably, are symmetrical about the centreline of the strip.

A particularly advantageous form of label strip has equal indentations and protuberances forming the castellations i.e. each

[*Price 25p*]

Price 75p

SPECIFICATION AMENDED - SEE ATTACHED SLIP

castellation is formed by an indentation followed by a protuberance and these are of equal size in the length direction of the strip; more than one row of labels can be provided along a label strip and, with the label shape just mentioned the multiplicity of rows can be formed on a single label strip without wastage, the indentations of one row receiving the protuberances of the next.

The individual labels are preferably defined and separated by cuts which do not penetrate the backing. These cuts can be located at any desired position relative to the castellations of the sides, for instance, the cuts can be disposed in line with the parts of the edge(s) which lie normal to the pair of lines. A preferred label has symmetry both longitudinally and transversely of the label strip, however.

Various forms of label strip according to the invention are shown in the accompanying drawings, wherein:

Figs. 1 to 3 show various forms of label strip;

Fig. 4 shows a preferred form of castellated label strip;

Fig. 5 shows a label strip formed of rows of labels of the kind shown in Fig. 4;

Fig. 6 shows on an enlarged scale a preferred detail of a castellation.

Fig. 1 shows a label strip 10 of paper, comprising a series of rectangular labels 11, each formed between the edges 12 of the strip 10 and transverse cuts 13 provided through the paper of the labels, but not through the backing strip. The edges 12 are castellated, having a rectangular waveform comprising longer longitudinal and shorter longitudinal parts 12a, 12b joined by leading and trailing transverse parts 12c, 12d; this wave form lies within a pair of imaginary lines parallel to the long axis 14 of the strip 10 and therefore to its direction of advance, such lines being parallel to one another and coincident with the edge parts 12a, 12b; the transverse edge parts 12c, 12d are normal to these parallel lines. The cuts 13 are located at the midpoints of the longer edge parts 12a; in use, the leading transverse edge parts 12c can be engaged e.g. by projections on a driving sprocket to advance the label strip 10, e.g. to an overprinting station.

The label strip 20 shown in Fig. 2 has one edge 22 castellated and the other edge 25 straight; the former consists of long portions 22a interrupted by small rectangular indents having a longitudinal edge portion 22b and leading and trailing transverse edge portions 22c, 22d; the former coincide with transverse cuts 23 separating the individual labels 21 from one another. Where the labels 11 of Fig. 1 have both longitudinal and transverse symmetry, the labels 21 have no symmetry, but the same advantageous driving registration facilities are provided.

The label strip 30 shown in Fig. 3 has both edges 32 castellated, each consisting of inboard longitudinal edge portions 32a alternating with outboard longitudinal edge portion 32b of equal length. The portions 32a on one edge 32 lie opposite the portions 32b on the other edges; they are joined by leading and trailing transverse portions 32c, 32d and all the individual labels 31 are plain rectangles, as the transverse cuts 33 coincide with the transverse edge portion 32c, 32d. It will be appreciated that the label strip of Fig. 3 can be formed as part of a multi-row label strip, the individual rows 30 running longitudinally of the strip and being separated from one another by their interlacing castellated edges 32.

The label strip 40 of Fig. 4 can also form part of a multi-row label strip without wastage, as its edges 42 are provided with indentations and protuberances of equal length. These are formed by alternate inboard and outboard longitudinal edge parts 42a, 42b, which are joined by leading and trailing transverse edge parts 42c, 42d. The inboard parts 42a at each side are opposite one another and the cuts 43 separating the individual labels 41 join the midpoints of the edge parts 42a, so that the labels have longitudinal and transverse symmetry.

Fig. 5 shows a part of a multi-row label strip 46 formed of a number of label strips 40 having their castellated edges internesting or interlacing one another.

Fig. 6 shows a detail of a label strip; the kind of label strip shown in Figs. 4 and 5 is illustrated, though the features of Fig. 6 can apply to all forms of label strip of the invention. In Fig. 6, the imaginary parallel lines between which the castellated edge lines are shown as the broken lines 46, 47, and their imaginary centreline by the chain-dotted line 48. The edge portions which are coincident with and normal to the lines 46, 47 form the major part of the edges and the entire edges can be so disposed; it is preferable for only the majority rather than the whole extent of the edges to be coincident with or normal to the lines 46, 47 and for the corners between the respective edge parts to be rounded, as shown at 49 in Fig. 6. The straight portions of the transverse edge parts may in practice be relatively small, e.g. from 0.5—1.5 mm, but such a distance provides amply for accurate engagement by e.g. driving surfaces of appliances which the label strips are used with.

The improved labels and strips of the invention have a number of advantages. One of the major problems in overprinting and applying labels is obtaining a good register, either between the overprinting and preprinted matter or between the label and the dispensing edge. There are many known means for doing this, but these have either financial or technical drawbacks. The pro-

vision of punch holes to denote discrete label areas and, on self-adhesive labels which have a backing layer, the removal of material between labels, are expensive, as they have to be done on slower-running production machines.

The provision of a regular wavy edge can be done more rapidly, but has the drawback that a claw or driving unit has to connect with a radius in order to obtain a good register. This means that the register is not always perfect.

The improved labels of the invention have all of the stated advantages and none of the defects. By having a rectangular edge whose indents and protrusions are equal in size as in the most preferred embodiments, several reels of labels can be produced simultaneously with no waste. The rectangular edge allows a claw or driving mechanism to positively engage with the label and obtain a perfect register.

WHAT WE CLAIM IS:—

1. A label strip comprising an elongated backing and a plurality of separate labels detachably secured to the backing along the length thereof, at least one edge of the strip having a regularly castellated shape.

2. A label strip according to claim 1, in which both edges have a castellated shape.

3. A label strip according to claim 2, in which both edges are symmetrical about the centreline of the strip.

4. A label strip according to any preceding claim, in which the castellated edge comprises equal indentations and protuberances.

5. A label strip according to any preceding claim, in which each label comprises a rectangle having along each of its two opposite sides a central integral protuberance of rectangular shape equal in length to half the length of the label.

6. A label strip according to any preceding claim, in which the labels are defined by cuts which do not penetrate the backing.

7. A label strip according to any preceding claim, in which two or more rows of labels are provided upon the backing.

8. A label strip according to claim 1, substantially as described with reference to Fig. 1, Fig. 2, Fig. 3 or Fig. 4 of the accompanying drawing.

9. A label strip according to claim 7, substantially as described with reference to Fig. 5 or Fig. 6 of the accompanying drawing.

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