

United States Patent Office

3,764,447

Patented Oct. 9, 1973

1

3,764,447
LABELS

Geoffrey E. Duff, Kirton, England, assignor to Norprint
Limited, Boston, Lincolnshire, England
Filed Feb. 27, 1970, Ser. No. 14,938
Int. Cl. B65h 5/26; G09f 3/02
U.S. Cl. 161—38

1 Claim

ABSTRACT OF THE DISCLOSURE

A strip of labels is formed from a sheet of material having spaced longitudinal demarcation lines such as slits or cuts and similar regularly spaced transverse demarcation lines to define individual labels. The lines which define the side edges of at least one side have a regular indentation or are formed with a regular castellation. The preferred form includes a longitudinal demarcation line on each side which form a rectangular projection which is centered intermediate the length of each label, thereby leaving a recess of rectangular form which is centered in respect to the transverse demarcation lines. The labels are defined on either a single strip of material which, for example, may also include a backing sheet or on a whole sheet of material in which a plurality of rows of such labels are formed together and wherein the projections formed on a side of one of the rows interengages in the recess formed on the edges of the next adjacent row.

SUMMARY OF THE INVENTION

This invention 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. Since the reel diameter gradually decreases during the 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.

Heat-sealable label strips in roll form, useful for sealing package wrappings, and in the shape of squares having notched arcuate corners are known, and so is a label strip in which individual labels are rectangles lacking their corners and carried upon a carrier strip having a central row of perforations for cooperating with a pin-wheel in an applicator device. Also known are 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 is bounded by a pair of lines

2

parallel to said straight line, and the pattern of deviation is 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 strip material which are eminently suitable for accurate application and printing when used in relatively simple and inexpensive applicator and other devices.

According to this invention, a label strip comprises a sheet of material having a plurality of spaced longitudinal demarcation lines defining label side edges and a plurality of regularly spaced transverse demarcation lines defining label ends, adjacent longitudinal and transverse pairs of demarcation lines defining a label therebetween and at least one of the longitudinal lines defining one of the label side edges having a regularly castellated shape. A regularly castellated shape is regarded herein as 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 have a castellated shape and, most preferably, are symmetrical about the centerline of the strip.

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

BRIEF DESCRIPTION OF THE DRAWINGS

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 constituted in accordance with the invention;

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.

GENERAL DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 shows a label strip 10 of paper, comprising a series of rectangular labels 11, each formed between cut edges or parallel demarcation lines 12 of the strip or sheet of material 10 and transverse cuts or demarcation lines 13 provided through the sheet of material 10, but not through a backing strip 10'. 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 waveform 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 portions 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 portions 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 the multi-row label strip 46 formed for a number of label strips 40 having their castellated edges interesting 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 center-line 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 ac-

curate engagement by e.g. driving surfaces of appliances with which the label strips are used.

The improved labels and label 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 provision 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.

I claim:

1. A label strip which is adapted to be fed by a driving sprocket located alongside the label, comprising a sheet of material having spaced substantially parallel longitudinal label side edges of castellated form, a plurality of regularly spaced transverse demarcation lines extending between said side edges and defining respective top and bottom edges of said labels, each of said labels having a drive recess of substantially rectangular form formed by said castellated side edges with a transverse edge extending normal to said side edges and providing a sprocket drive edge which is adapted to be engaged by the drive sprocket located alongside the label, wherein the recesses of adjacent labels are defined on respective alternate sides of the label strip and extend along substantially the entire length of the associated labels.

References Cited

UNITED STATES PATENTS

| | | | |
|-----------|---------|----------------|------------|
| 544,613 | 8/1895 | Dolmetsch | 74-460 |
| 2,095,437 | 10/1937 | Fox | 161-406 |
| 2,217,506 | 10/1940 | Bottle | 282-11.5 A |
| 3,325,188 | 6/1967 | Hiersteiner | 282-11.5 A |
| 3,503,834 | 3/1970 | Schröter | 161-406 |
| 3,473,827 | 10/1969 | Leadbetter | 40-2 R X |
| 1,983,463 | 12/1934 | Kingsbury | 281-5 |
| 2,863,661 | 12/1958 | Picking | 271-1 |
| 3,193,430 | 7/1965 | Messmer et al. | 156-361 X |

FOREIGN PATENTS

| | | | |
|-----------|---------|---------------|------------|
| 760,606 | 11/1956 | Great Britain | 282-11.5 A |
| 1,109,505 | 6/1961 | Germany | 283-21 |

CHARLES E. VAN HORN, Primary Examiner

U.S. Cl. X.R.

283-21, 62; 281-5; 271-1; 40-2 R