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2,874,637

CODING DEVICE

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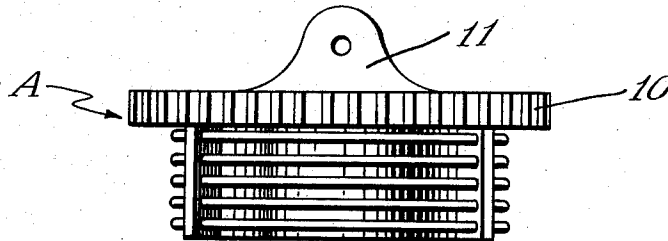


Fig. 1

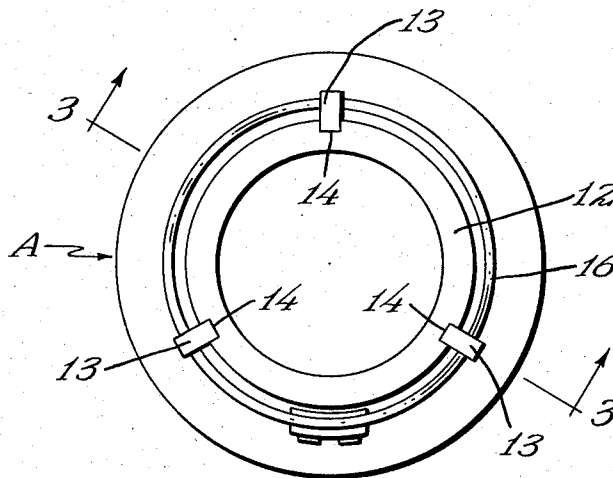


Fig. 2

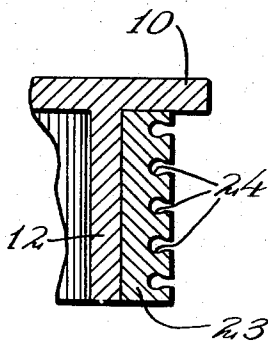


Fig. 5

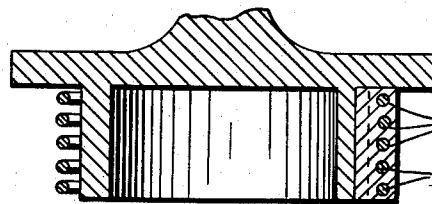


Fig. 3

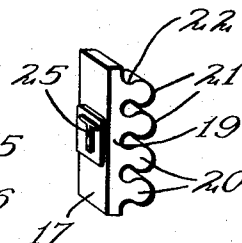


Fig. 4

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1

2,874,637

CODING DEVICE

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6 Claims. (Cl. 101—377)

This invention relates to an improvement in coding device and deals particularly with a rotary support for letters, figures or other indicia to be printed upon a bag label or similar device.

In my previous Patent No. 2,597,634 issued May 20, 1952, I disclosed a code printing device designed to print desired indicia upon the open end of thermo plastic containers after the ends are sealed closed. The apparatus includes a means for sealing the containers which are normally in the form of bags and the coding device acts to apply the indicia on the sealed portion of the bag as it passes the coder. In other heat sealing devices labels are applied over the heat sealed ends of the bags and somewhat similar coding devices are employed for providing a suitable marking. It is with a coding device of this general character to which the present invention relates.

An object of the present invention lies in the provision of a coding wheel which includes a series of generally radially extending ribs and a helical coil supported by these ribs. The helical coil is supported sufficiently close to the outer edges of the radially extending ribs so that printing plates supported by the wire coil will extend beyond the ribs in a radial direction. In other words the ribs do not project sufficiently to interfere with the printing operation.

A feature of the present invention lies in the simplicity of the present structure. In the past the printing plates have been supported by a series of axially spaced discs which engage rearwardly extending projections on the printing plates. The printing plates are normally formed of rubber or similar resilient material and the projections on the plates may extend between the discs and be supported thereby.

Alternatively the printing rollers may be formed with spaced peripheral grooves into which the rearward projections on the printing plates may extend. However, unless the grooves are undercut or unless the discs are similarly undercut, the printing plates do not engage in place as effectively as with the present construction.

A feature of the present invention lies in the provision of a printing roller having a generally cylindrical outer surface and having a helical coil encircling the cylindrical surface therefrom. The coil is preferably made of wire having a circular cross section. As a result the printing plates may be provided with projections which are designed to extend about more than one hundred eight degrees of the wire and accordingly the printing plates will effectively be retained in proper position.

An added feature of the present invention lies in the provision of a printing roller which is inexpensive to produce and which is as effective in operation as structures of considerably more cost. If the surface of a printing roller is grooved to provide undercut grooves, the cost of the machine is high. If the roller is formed of discs in side by side relation, the cost of production as well as the cost of assembling is high. With the present

2

arrangement the cost is extremely low both for the forming operation and the assembly operation.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of the specification:

Figure 1 is a side elevational view of the printing roller showing the construction thereof.

Figure 2 is a bottom plan view of the roller shown in Figure 1.

Figure 3 is a sectional view through the roller, the position of the section being indicated by the line 3—3 of Figure 2.

Figure 4 is a perspective view of a type plate formed of rubber or other suitable material.

Figure 5 is a sectional detail of a modified form of construction in partially formed condition.

The roller is indicated in general by the letter A and is usually provided with a gear 10 by means of which the roller may be rotated by engagement with another suitable driven gear. In the particular structure illustrated a pair of ears 11 project upwardly from the gear 10 to support a lever arm which is not illustrated in the drawings and which controls the movement of the roller. As the details of the operation of the roller are not of importance in the present invention, these structural details have not been shown.

A sleeve 12 is integrally connected to the gear 10 to project downwardly therefrom. The outer and inner surfaces of the sleeve 12 are preferably cylindrical. A series of angularly spaced ribs 13 extend outwardly from the sleeve 12 in a generally radial direction. These ribs 13 may if desired be integral with the sleeve 12 but are more readily separately formed and are press fitted into angularly spaced grooves 14 in the outer surface of the sleeve 12.

As is indicated in Figure 3 of the drawings the ribs 13 are provided with longitudinally spaced apertures 15 extending therethrough. These apertures are usually similarly spaced and are of proper diameter to accommodate the coil 16. The coil 16 is preferably a helical coil of wire and is threaded through the openings 15 of the various ribs 13 by a rotative movement of the coil relative to the sleeve 12. If desired a guide jig may encircle the sleeve 12 during the mounting of the coil into the apertures so as to guide the wire smoothly from one aperture 15 in one rib 13 to the next aperture 15 in the next rib 13.

The coil 16 is formed in any suitable manner, this coil normally being formed much in the manner of a wire spring. The coil may be formed of proper length or may be formed in longer lengths and cut off when the coil is properly mounted.

The rubber type which is used is of the general form best illustrated in Figure 4 of the drawings. The type is shown as including a flat front face 17 forming the forward surface of a web 19 of rubber or similar resilient material. Rearwardly extending ribs 20 are provided on the rear surface of the web 19 in generally parallel relation. These ribs 20 are provided with rounded extremities 21 and the outer ends of the ribs are larger than the neck portions 22 connecting the larger ends with the web 19. The ribs themselves and the portions between the spaced ribs are usually rounded in serpentine form, the spaces between the ribs being designed to accommodate the wire of the coil 16 and the enlarged rib ends being compressed as they are pressed between the wires and expanding rearwardly of the wires to effectively hold the type in place. In other words the ribs are designed to extend more than one hundred eight degrees about the surface of the wire as it would appear in section so as to be firmly anchored in place.

In Figure 5 of the drawings I disclose a slightly modified form of construction in which the ribs are provided with notches to accommodate the wire in place of the apertures 15. The sleeve 12 of this construction is provided with ribs 23 which are normally inserted into grooves 14 in the sleeve 12 with a press fit. The ribs 23 are provided with longitudinally spaced notches 24 of proper width to snugly accommodate the wire coil.

As the wire is bent into helical form in forming the coil, it normally tends to resist movement when engaged in the notches 24. However, if preferred the coil may be more effectively anchored in place by flattening the outer surface of each rib 23 over the wires engaged.

The type usually is provided with a projecting pattern 25 of any suitable shape or design which is designed to print the desired symbol and the element 25 may be molded integrally with the web 19 or may be adhered thereupon, the insignia 25 having a flat backing portion which can be secured to the surface 17 of the web 19.

With the particular arrangement illustrated the printing rollers may be formed at a fraction of the cost usually incurred in producing rollers of this type. The structure outlined embodies a casting with the gear 10, the sleeve 12 and the ears 11 being integrally formed. In producing the structure described, the gear teeth are usually cut in the edge of the structure or may be cast therein. The grooves 14 may either be cast in the cylindrical surface of the sleeve 12 or may be readily milled therein in a simple operation. The ribs 13 may be formed separately in any suitable manner and attached in the grooves 14 of the sleeve 12. The helical coil may then be threaded through the openings or grooves in the ribs and the structure is complete.

An alternate manner of assembling the structure which has some advantages over that previously described is to thread the various ribs 13 onto the wire coil before the ribs are attached to the sleeve 12. Once the ribs are in place upon the coil, they are spread into angular relation and the structure thus produced is pressed onto the sleeve 12. Either method of assembly is simple, easy and rapid.

In accordance with the patent statutes, I have described the principles of construction and operation of my coding device, and while I have endeavored to set forth the best

embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A printing roller including a roller body, a series of radially extending ribs on said body projecting outwardly therefrom, and an axially extending helical coil of wire supported by said ribs, and means on said ribs holding the convolutions in evenly spaced relation.

2. The construction described in claim 1 and in which said roller body includes a generally cylindrical sleeve.

3. The construction described in claim 1 and in which said roller body includes a gear mounted coaxially with said body.

4. The construction described in claim 3 and in which said ribs are engaged in grooves in said roller body.

5. A printing roller including a roller body including a generally cylindrical sleeve, angularly spaced grooves in the outer surface of said sleeve extending longitudinally thereof, ribs mounted in said grooves and extending in a generally radial direction, said ribs having spaced apertures therein, and a helical wire encircling said sleeve and held in spaced relation thereto by said ribs, said coil extending through said apertures.

6. A type roller including a cylindrical sleeve, a series of radially extending ribs parallel to the axis of said sleeve and extending beyond the outer surface thereof, said ribs having spaced wire engaging means therein, and a helical coil encircling said sleeve and supported by said wire engaging means in spaced relation to the surface of the sleeve.

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