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2,881,911

PACKAGE FOR ELECTRIC COMPONENTS

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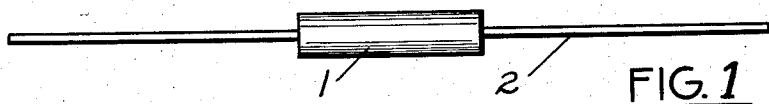


FIG. 1

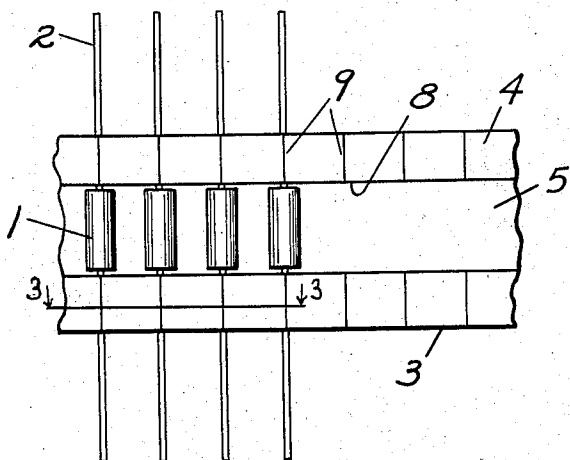


FIG. 2

FIG. 3

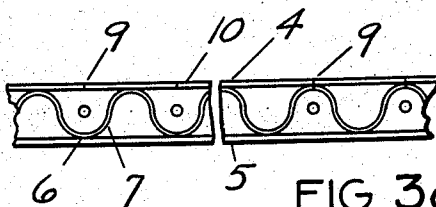


FIG. 3a

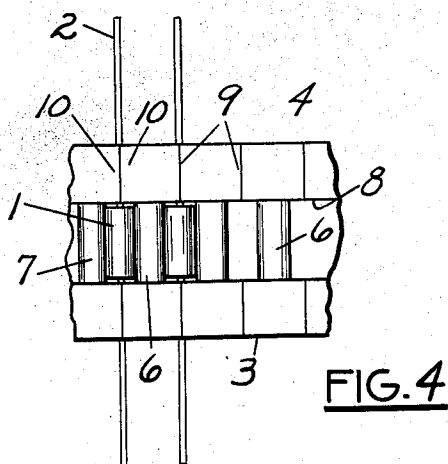


FIG. 4

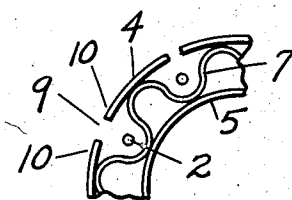


FIG. 5

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PACKAGE FOR ELECTRIC COMPONENTS

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4 Claims. (Cl. 206—56)

This invention is intended to package electric components such as resistors and condensers having pin shaped or cylindrical bodies and axially extending leads. The package uses a strip of corrugated paper board with the center portion cut away sufficiently to receive the bodies of the components and with the outer layer of paper slit to receive the leads. When the strip is flat, the leads are held in place by the flaps on each side of the slits. When the strip is bent in a direction to open the slits, the components are readily inserted or removed thereby adapting the package to both automatic loading and dispensing of components.

In the drawing Fig. 1 shows a typical pin type electric component such as a resistor, Fig. 2 is a plan view of a package for the components, Fig. 3 is a section on line 3—3 of Fig. 2, Fig. 3a is a section of a modification in which the slits pass through the top sheet and the centers of the crests, Fig. 4 is a plan view of a modification of the package for the components, and Fig. 5 shows the position of the package for loading and unloading.

The pin type electric components for which this package is primarily intended have a cylindrical or pin shaped body 1 with axially extending leads 2 at each end. One of the sizes of such components in common use has a body $\frac{5}{8}$ of an inch long, $\frac{3}{16}$ of an inch diameter with soft copper wire leads an inch and half long at each end. There are other sizes. The components can be resistors, capacitors, diodes, transistors, inductances. In all of these components, there is a problem in packaging of preventing tangling of the wire leads. If the components are to be used in automatic assembly machines, it is particularly important that the leads be free from tangling.

The package shown in Figures 2 and 3 is made from a strip 3 of corrugated paper board having upper and lower flat sheets 4 and 5 adhesively joined to the crests 6 of an intermediate corrugated sheet 7. The bodies 1 of the components are received crosswise in a slot 8 formed by cutting away the top sheet 4 and the corrugated sheet 7 midway between the sides of the strip. At suitable spacings the top sheet 4 is provided with transverse slits 9 which are preferably located midway between the crests of adjacent corrugations as indicated in Fig. 3 or through the top sheet and the center of the crests of the corrugations as indicated in Fig. 3a, although the location of the slits is not critical. In either location, or in any location, flaps 10 are provided on each side of the slit through which the leads 2 are readily inserted when the strip is bent as shown in Fig. 5. It is not necessary that the corrugated strip be bent in order to insert or remove the leads 2 because there is, ordinarily, sufficient resilience of the flaps 10 to permit insertion or removal of the leads.

When the components are loaded into the strip, it will be noted that there is at least one corrugation between adjacent leads 2 so that so long as the strip remains flat, the components are located at controlled spacings along the length of the strip whether the strip is vertical or horizontal. The flaps 10 have sufficient stiffness to hold the components in place so long as the strip remains in a flat as distinguished from a bent condition.

The package shown in Fig. 4 is made from the same strip of corrugated paper shown in Figures 2 and 3 and differs only in that the corrugated paper 7 is allowed to remain in the groove 8 extending down the center of the

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strip. By reason of this, the space between adjacent crests 6 of the corrugation receives the body of the component and both locates the component lengthwise of the strip and provides a cushion support. With the Fig. 4 construction, the slits 9 are arranged between the crests of adjacent corrugations so that a section would appear as in Fig. 3. In the Fig. 4 construction, the spacing of the components along the length of the strip 3 is determined by the spacing of the corrugations. In the construction of Figs. 2, 3 and 3a, the spacing of the components along the length of the strip is determined by the spacing of the slits 9. In both packages, the components are easily loaded or unloaded by bending the strips in the direction to separate the flaps 10 on either side of the slits 9 as shown in Fig. 5. In both packages the spacing between the top and bottom sheets 4 and 5 of the corrugated paper board should be more than half the diameter of the bodies 1 of the components in order that the leads 2 may be readily received beneath the flaps 10. For the ultimate in protection, the spacing between the top and bottom sheets 4 and 5 should be slightly greater than the diameter of the bodies 1 but this ordinarily will not be necessary. Although the leads 2 are shown projecting beyond the top and bottom edges of the strip 3, it is contemplated that in some cases the leads will be contained entirely within the dimensions of the strip. The projection of the leads as shown is not objectionable.

What is claimed as new is:

1. A package of electrical components of the type having a cylindrical body with a lead extending axially from each end of the body comprising a strip of corrugated paper board having corrugated paper sandwiched between upper and lower sheets with the crests of the corrugations extending crosswise of the strip and cemented to the upper and lower sheets, said strip having on its top side a central groove open at the top and closed at the bottom and extending lengthwise of the strip and of width corresponding to the length of the bodies of the components, said groove being provided on the upper side of the strip by having the top sheet in two parts respectively extending inward from each side of the strip and terminating with edges spaced apart the width of the groove, said groove receiving the bodies of the components crosswise of the groove, and crosswise slits in said parts of the top sheet providing flaps on each side thereof through which the leads pass as the bodies of the components are inserted or removed from the groove.

2. The package of claim 1 in which the groove is closed at the bottom solely by the bottom sheet and the corrugated paper underlies said parts of the top sheet and terminates at the spaced edges of said parts of the top sheet.

3. The package of claim 1 in which the corrugated paper overlies the bottom sheet at the bottom of said groove and the slits are between adjacent crests cemented to the parts of the top sheet.

4. The package of claim 1 in which the slits pass through the top sheet and centers of the crests of the corrugations cemented to the parts of the top sheet.

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