

June 11, 1963

N. A. PETTER

3,093,243

PACKAGE FOR SMALL ELECTRICAL ARTICLES

Filed June 22, 1961

4 Sheets-Sheet 1

Fig. 1

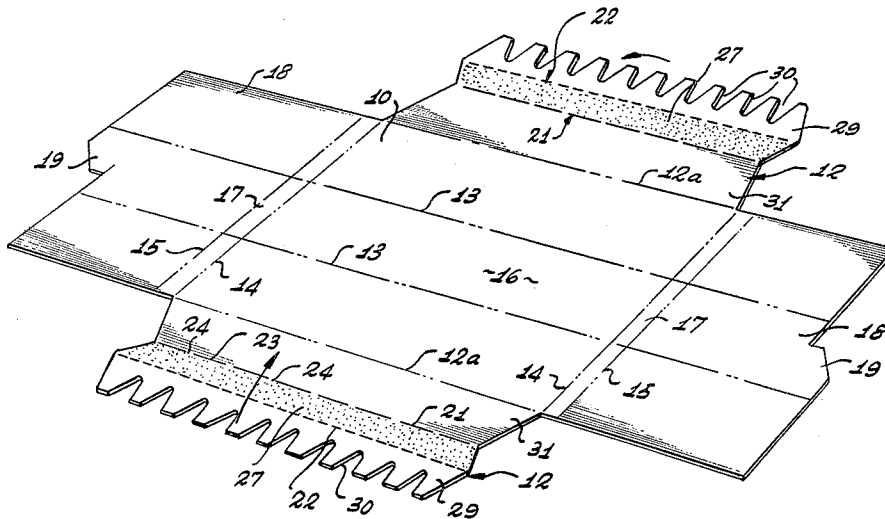
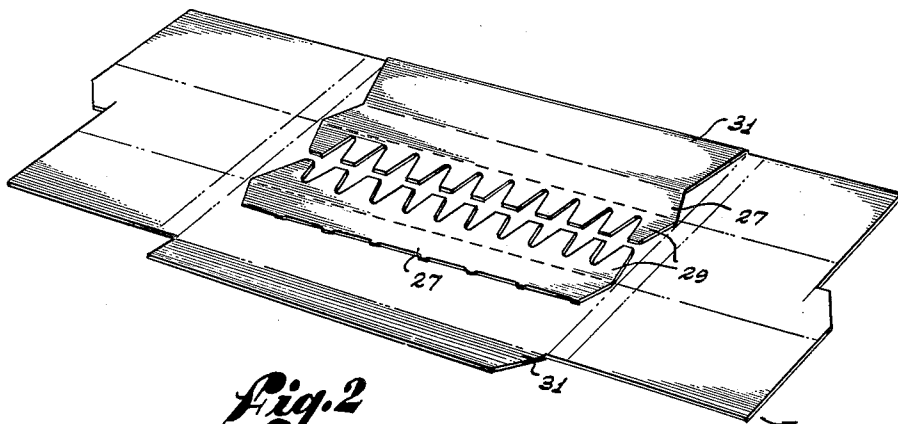


Fig. 2



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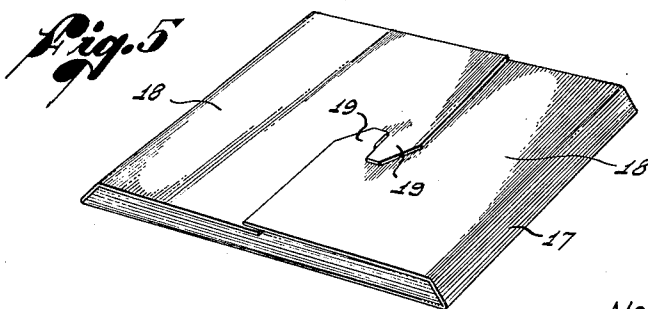
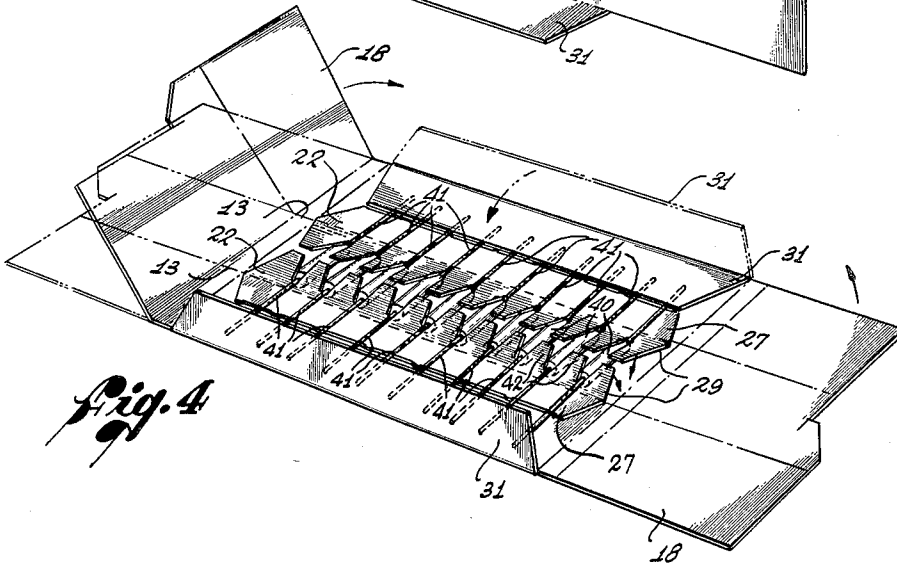
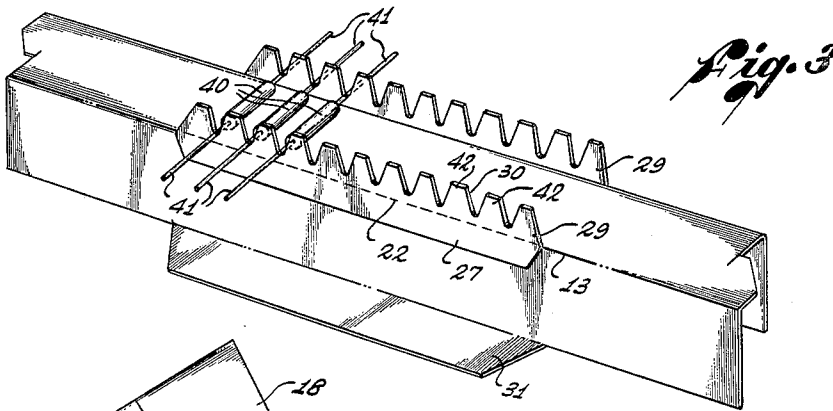
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Fig. 6

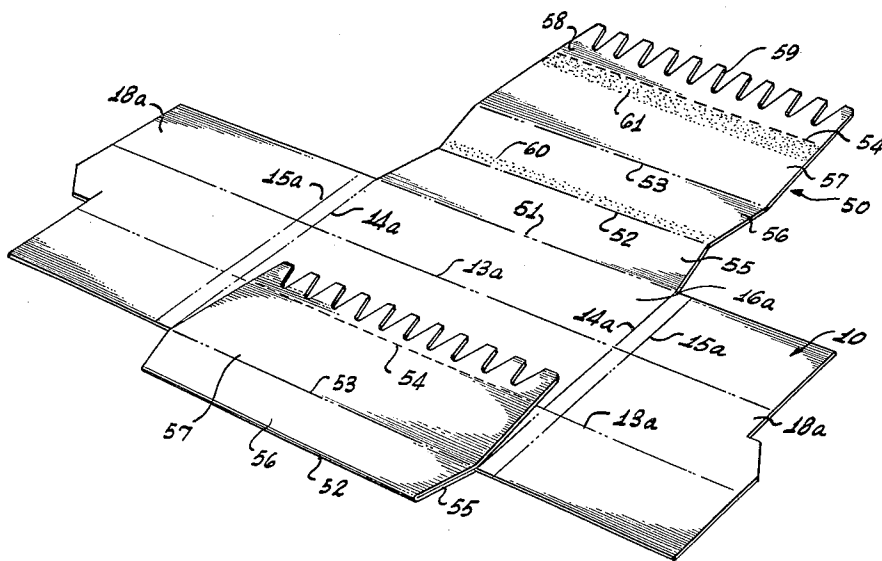
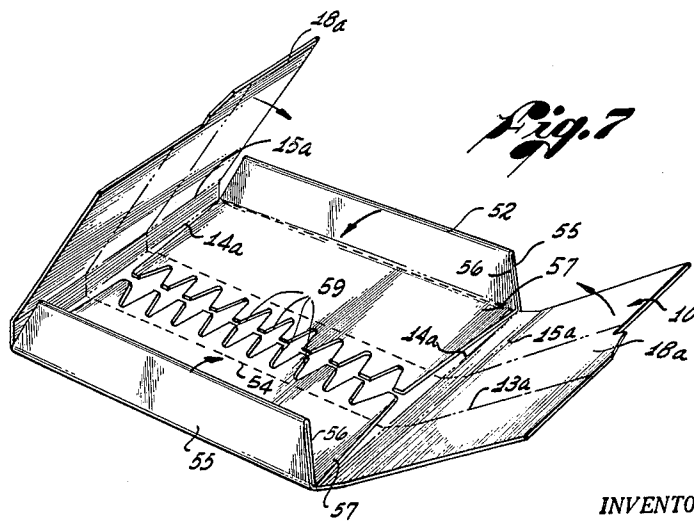


Fig. 7



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Fig. 8

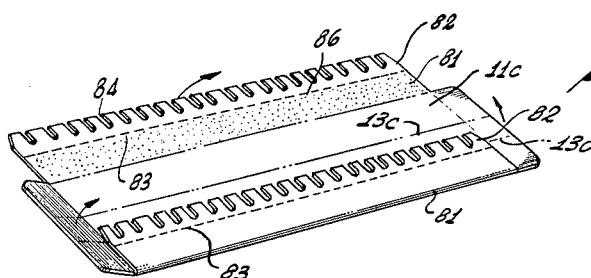
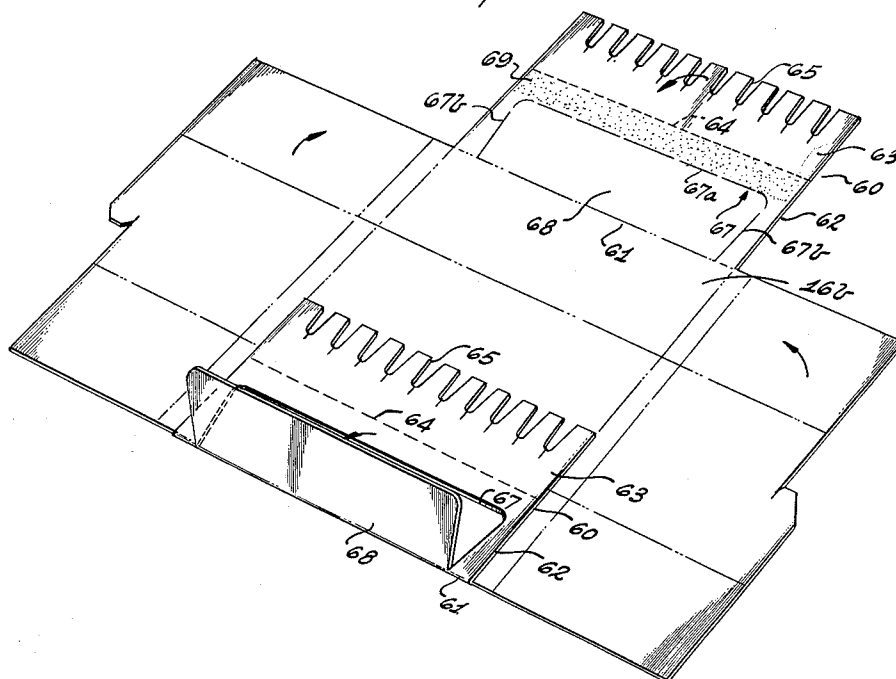


Fig. 9

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PACKAGE FOR SMALL ELECTRICAL ARTICLES
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6 Claims. (Cl. 206-65)

This invention relates generally to electrical parts packages, particularly to packages of and for small electrical parts, such as diodes, capacitors and resistors, characterized generally by a small cylindrical body, with a terminal wire extending from each end thereof.

The general object of the invention is to provide for conveniently packaging a number of such articles, such as, say, ten to twenty, with provision by which the packages can be readily and rapidly loaded with the articles, conveniently thereafter folded into a compact unit which adequately protects the articles during shipment, and finally unfolds into a position in which the articles are conveniently presented to the user.

The invention will be most easily understood by proceeding at once with detailed description of a number of illustrative embodiments of the invention, for which purpose reference is had to the accompanying drawings, in which:

FIG. 1 is a perspective view of a blank of a package in accordance with the invention;

FIG. 2 shows the blank of FIG. 1 in a subsequent position in its assembly;

FIG. 3 is a perspective view showing the package folded into loading position;

FIG. 4 is a perspective view showing the next stage in the completion of the package;

FIG. 5 is a perspective view of the completed and closed package of FIGS. 1-4;

FIG. 6 is a perspective view showing a blank, partially folded, of another embodiment of the invention;

FIG. 7 is a perspective view of a subsequent stage in the completion of the package of FIG. 6;

FIG. 8 is a perspective view of another embodiment of the invention; and

FIG. 9 is a perspective view of still another embodiment of the invention; and

Referring first to the embodiment of the invention shown in FIGS. 1-5, numeral 10 designated generally a blank of suitable paperboard, and comprised of a generally rectangular panel 11, having, spaced from opposite ends thereof, and extending from its opposite longitudinal edges, a pair of side panels or wings generally designated at 12. These side panels are separated from panel 11 by score lines 12a. Panel 11 is formed with two longitudinally extending, parallel score lines 13, extending from end to end. It is also formed, opposite the two ends of the side panels 12, with transverse score lines 14. Spaced shortly outside score lines 14, and parallel thereto, are score lines 15. The portion of panel 11 between the pairs of score line 12a and 14 becomes the back or back panel 16 of the final package, the strips or panels between the adjacent score lines 14 and 15 become the ends 17 of the final package, and the portions of panel 11 outside score lines 15 become end flaps 18, which are formed along their outside edges with any suitable means of interengagable fastening means, such as the hook elements 19 clearly illustrated in FIGS. 1 and 5.

The side panels 12 are formed with two parallel lines of weakening 21 and 22, parallel with the longitudinal edges of panel 11, the line 21 being a tear line and the line 22 being a score or hinge line. The line 21 preferably, in practice, comprises successive slits 23, sepa-

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rated by very short unsevered portions 24, which can be readily torn in the assembly of the package, so that the side panels are actually separated along the lines 21, as will be mentioned again presently. The score lines 22 may be conventional, though as here shown they comprise a line of separated slits. The lines 21 and 22 form intermediate panels 26, which are coated with adhesive, as indicated at 27.

Outside the score lines 22 are outside panels 29, whose outside longitudinal edges are serrated, or formed with spaced, transversely aligned notches 30. The notches 30 are preferably and here shown as V-shaped, but they may have other shapes, as will appear. Inside the score lines 21 are inside panels 31, which ultimately become side flaps, as will be described presently.

To assemble the package, the side panels 12 are folded inwards over panel 11, and the adhesive coated panels 27 pressed down and adhesively joined to the latter. The upper side panel 12 in FIG. 2 is so shown. It will be noted that the score line 22 then overlies the score line 13 in panel 11. These score lines need not be in precise coincidence. In a later embodiment, for example, score lines corresponding to 22 are spaced somewhat outside score lines corresponding to 13. As the next step, the panels 27 and 31 are ripped apart along the disruption line 21, and the resulting side flap 31 then bent outwards (see the lower flap 31 in FIG. 2). The remaining score-line-joined panels 27, 29, which will be seen later to function as article-confining panels, thus comprise an attached panel 27 and an unattached panel 29.

To load the package, the panel 11 (back wall 16 as well as end flaps 18) is bent backward on the two longitudinal score lines 13, so as to assume the loading position illustrated in FIG. 3. At this time, the panels 27 adhesively joined to panel back 16 outside score lines 13 are turned outward through 90°, and the serrated, unattached panels 29 turn similarly, so as to stand upright, or perpendicular to the portion of back 16 between the score lines 13 (see FIG. 3). This is the loading position. The electrical articles contained within the package may be, as heretofore noted, diodes, resistors, or capacitors, any one of which may assume the form of a cylindrical body 40 having terminal wires 41 extending from its opposite ends. The spacing of the unfastened, upright panels 29 is such as to receive the bodies between them, preferably with considerable end clearance, and the terminal wires 41 are received in opposite notches 30 in said panels 29, as shown. The distance from the bottom of the V-notches 30 to the score lines 22 is made substantially equal to the radius of the cylindrical body 40. Further, the end walls 17 are made substantially equal to, or slightly larger than, the diameter of the bodies 40.

After loading, as described, the panel 11 is again flattened with respect to score lines 13, and as this is done, the serrated, unattached panels 29, which start to move back toward a common plane, are bent angularly outward along the score lines 22, as to the position illustrated in FIG. 4, so as to accommodate the cylindrical bodies 40 beneath them. Here, the two tabs 42 on opposite sides of each notch 30 fold into overlying position relative to corner or edge portions of the packaged body 40, the terminal wires are positioned in the notch 30. The body 40 is thus partially covered over, and secured in position.

The terminal wires 41 extend outwards toward the edges of the back 16, and the side flaps 31 are then bent inward to confine these wires, as also indicated in FIG. 4.

Finally, the end flaps 18 are folded over and hooked to one another, completing the package, as shown in FIG. 5.

To unload the package, it is returned to the position of FIG. 3, where it presents the packaged articles conveniently for use by the operator.

FIGS. 6 and 7 show a modification. The panel 11a has longitudinal score lines 13a, and transverse score lines 14a and 15a as in FIGS. 1-5, and forms a back 16a, and end flaps 18a, also as in FIGS. 1-5. The lateral wings, here designated at 59, are somewhat differently constructed. Each is hinged by a score line 51 to back 16a, and has parallel score lines 52, 53 and 54, forming panels 55, 56, 57 and 58, of which the latter is serrated, as indicated at 59, in the manner of the package of FIGS. 1-5.

Adhesive is applied to panels 56 and 57, as indicated at 60 and 61, respectively.

To assemble the package, panels 55 and 56, on each side, are folded against one another, and adhesively joined together, to provide side flaps 56, 57 (see FIG. 7); and panels 57 are adhesively joined to back 16a between score lines 13a and 51. It will be noted that score lines 54 overlie score lines 13a. The package as thus completed is then used the same as that of FIGS. 1-5.

FIG. 8 shows another modification. The panel 11b making up the back and end flaps has the same scoring as before, as indicated in the drawings. The wings, here designated at 60, are hinged to back 16b along a score line 61. Each comprises two panels 62 and 63, separated by a score line 64, the outer panel being serrated as before, as indicated at 65. Each panel 62 is cut along the "tear line" 67 shown at the top in FIG. 8. That is to say, in a conventional manner, long slits are made, separated by very short portions of uncut material, so that a tear can easily be made along the entire line 67. The line 67 has a long, intermediate portion 67a parallel to score line 64, and just inside thereof, and two end portions 67b extending to score line 61, so that when the tear is made along the line 67, two side flaps 68 are released, to serve the purpose of the side flaps in the other forms of the invention. The panels 62, around the tear line 67, are coated with adhesive, as at 69, and joined thereby to back 16b, as shown in the lower portion of the figure.

FIG. 9 shows another modification, suitable for smaller sizes of articles. Panel 11c has parallel score lines 13c, which extend throughout the length of rectangular back 16c, and relatively short end flaps 18c. The lateral wings 80 comprise two panels 81 and 82, joined to each other by score lines 83, the outer edges of the outer panels 82 being serrated or notched, as at 84. The inner panels 81 are joined to panel 11c by score lines 85. Panels 81 are coated with adhesive, as indicated at 86, and stuck down to panel 11c. The package is loaded as described in connection with earlier embodiments. Panels 82 are bent up about score lines 83 to accommodate the packaged articles. The end flaps 18c are finally bent over, in the directions indicated by the arrows, and may be fastened down in any convenient manner, as by stapling. It will be observed that the notches in panels 82 are virtually parallel sided in FIG. 9. By having these parallel sided notches somewhat narrower than the cylindrical bodies of the packaged articles, the articles are very securely held, and no additional covering is required in this embodiment.

The invention has now been shown in various forms and modifications. It will, of course, be understood that the invention is capable of many additional variations within the scope of the appended claims.

What is claimed is:

1. In a package of electrical articles each comprising a cylindrical body and a terminal lead extending axially from each end thereof, the combination of: a back panel, a pair of parallel score lines spaced from one another on said back panel and extending the full length of the panel, said score lines being spaced apart by a distance greater than the length of the cylindrical bodies, a pair of article-confining panels, each formed with an intermediate longitudinal score line, attached to said back panel outside the parallel score lines of the back panel and outside

the score lines of the article-confining panels, the score lines of said article-confining panels being parallel to and in the vicinity of the corresponding score lines on said back panel, in such manner that the portions of the article-confining panels inwardly of the score lines in the latter are unattached to said back panel, and normally project inwardly toward one another, there being pairs of opposed and aligned notches formed in the edges of said unattached portions of said article-confining panels, a plurality of the said electrical articles adjacent said back panel, with the terminal leads thereof extended through the members of a pair of said aligned notches, and the cylindrical bodies thereof under said unattached portions of said article-confining panels, which are upwardly and angularly bent about the score lines thereof to an extent to accommodate said bodies.

2. A blank for a package of a plurality of electrical articles of the type comprising a cylindrical body and a terminal lead extending axially from each end thereof, comprising: a back panel, a pair of parallel score lines spaced from one another on said back panel and extending the full length of the panel, said score lines being spaced apart by a distance greater than the length of the cylindrical bodies, a pair of lateral wings extending from opposite longitudinal edges of said panel, each of said wings being hinged to the corresponding edge of said panel by a score line, and being divided into three separate panel portions, the panel portion next to said back panel from the next panel portion outwards by a tear line, and said next panel portion outwards from the outside panel portion by a score line, the outermost edge of said outside panel portion being formed with pairs of notches aligned transversely across the blank, the intermediate of said three panel portions being adapted to be adhesively joined to said back panel, with the score line separating the two outermost of said panel portions lying in the region of the corresponding score line in the back panel, and the innermost of said three panel portions being torn from the intermediate of said panel portions to form a side flap.

3. A package for a plurality of electrical articles of the type comprising a cylindrical body and a terminal lead extending axially from each end thereof, comprising: a back panel, a pair of parallel score lines spaced from one another on said back panel and extending the full length of the panel, said score lines being spaced apart by a distance greater than the length of the cylindrical bodies, a pair of lateral wings extending from opposite longitudinal edges of said panel, each of said wings being hinged to the corresponding edge of said panel by a score line, and being divided into four separate panel portions by three score lines parallel to said score lines in said back panel, the first two of said panel portions outside said back panel being of similar widths and being adhesively joined to one another to form a side flap, the next of said panel portions being adhesively joined to said back panel, and being of a width comparable with the distance from the edge of the panel to the said score line therein, whereby the score lines in the back panel and the score lines at the outer edges of the last-mentioned adhesively joined panel portions lie in general proximity to one another, the outermost edge of the outside panel portion being formed with pairs of transversely aligned notches adapted to pass the terminal leads extending from cylindrical bodies placed adjacent said back panel underneath the outside panel portions, with said outside panel portions angularly bent upwards about the score lines at the junctures of the outermost and next to outermost panel portions.

4. A package for a plurality of electrical articles of the type comprising a cylindrical body and a terminal lead extending axially from each end thereof, comprising: a back panel, a pair of parallel score lines spaced from one another on said back panel and extending the full length of the panel, said score lines being spaced

apart by a distance greater than the length of the cylindrical bodies, a pair of article-confining panels, each formed with an intermediate longitudinal score line, attached to said back panel outside the parallel score lines of the back panel and outside the score lines of the article-confining panels, the score lines of said article-confining panels being parallel to and in the vicinity of the corresponding score lines on said back panel, in such manner that the portions of the article-confining panels inwardly of the score lines in the latter are unattached to said back panel, and normally project inwardly toward one another, said back panel, when bent rearwardly about the score lines therein, swinging the unattached portions of said article-confining panels into positions elevated above the portion of said back panel between the two score lines therein, whereby to space said portions for reception of the cylindrical bodies lengthwise, therebetween, there being pairs of opposed and aligned notches formed in the edges of said unattached portions of said article-confining panels, each of said pairs of notches being adapted to receive and pass the terminal leads of one of the cylindrical bodies positioned therebetween, and said unattached portions of said article-confining panels being bendable outwardly about said score lines in said confining panels to accommodate portions of said cylindrical bodies thereunder when said back panel has been bent back into a plane, and means at the side edges of said back panel for confining the ends of said terminal leads passing through said notches in said unattached portions of said article-confining panels.

5. A package for a plurality of electrical articles of the type comprising a cylindrical body and a terminal lead extending axially from each end thereof, comprising: a back panel, a pair of parallel score lines spaced from one another on said back panel and extending the full length of the panel, said score lines being spaced apart by a distance greater than the length of the cylindrical bodies, a pair of article-confining panels, each formed with an intermediate longitudinal score line, attached to said back panel outside the parallel score lines of the back panel and outside the score lines of the article-confining panels, the score lines of said article-confining panels being parallel to and in the vicinity of the corresponding score lines on said back panel, in such manner that the portions of the article-confining panels inwardly of the score lines in the latter are unattached to said back panel, and normally project inwardly toward one another, said back panel, when bent rearwardly about the score lines therein, swinging the unattached portions of said article-confining panels into positions elevated above the portion of said back panel between the two score lines therein, whereby to space said portions for reception of the cylindrical bodies lengthwise therebetween, there being pairs of opposed and aligned notches formed in the edges of said unattached portions of said article-confining panels, each of said pairs of notches being adapted to receive and pass the terminal leads of one of the cylindrical bodies positioned therebetween, and said unattached portions of said article-confining panels

being bendable outwardly about said score lines in said confining panels to accommodate portions of said cylindrical bodies thereunder when said back panel has been bent back into a plane, said back panel having end extensions with pairs of transverse score lines defining end walls and end flaps, said score lines in said back panel extending throughout the full lengths of said end extensions, and side flaps at the side edges of said back panel foldable inwardly to confine the terminal leads passing through said notches in said unattached portions of said article-confining panels.

6. A package for a plurality of electrical articles of the type comprising a cylindrical body and a terminal lead extending axially from each end thereof, comprising: a back panel, a pair of parallel score lines spaced from one another on said back panel and extending the full length of the panel, said score lines being spaced apart by a distance greater than the length of the cylindrical bodies, a pair of article-confining panels, each formed with an intermediate longitudinal score line, attached to said back panel outside the parallel score lines of the back panel and outside the score lines of the article-confining panels, the score lines of said article-confining panels being parallel to and in the vicinity of the corresponding score lines on said back panel, in such manner that the portions of the article-confining panels inwardly of the score lines in the latter are unattached to said back panel, and normally project inwardly toward one another, said back panel, when bent rearwardly about the score lines therein, swinging the unattached portions of said article-confining panels into positions elevated above the portion of said back panel between the two score lines therein, whereby to space said portions for reception of the cylindrical bodies lengthwise therebetween, there being pairs of opposed and aligned notches formed in the edges of said unattached portions of said article-confining panels, each of said pairs of notches being adapted to receive and pass the terminal leads of one of the cylindrical bodies positioned therebetween, and said unattached portions of said article-confining panels being bendable outwardly about said score lines in said confining panels to accommodate portions of said cylindrical bodies thereunder when said back panel has been bent back into a plane, the outermost panel portions of said article-confining panels being hinged to the edges of said back panel, and a portion of each of said outermost panel portions being severed along a line spaced outward of the score line in said article-confining panel and extending at both ends to the edge of the back panel so as to form a hinged side flap.

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