May 14, 1957 W. A. RINGLER ET AL 2,792,111

CONTAINERS FOR SMALL PARTS FOR RADIO AND TELEVISION AND THE LIKE

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Fig. 1

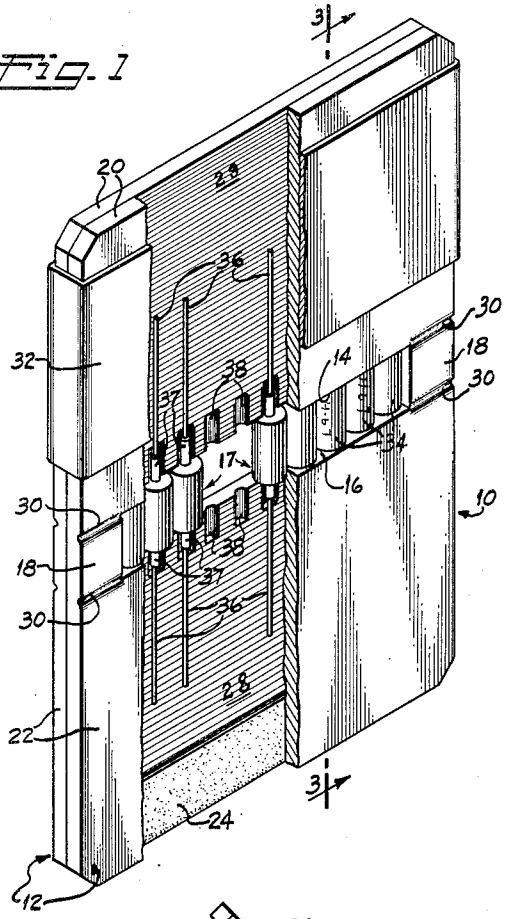


Fig. 3

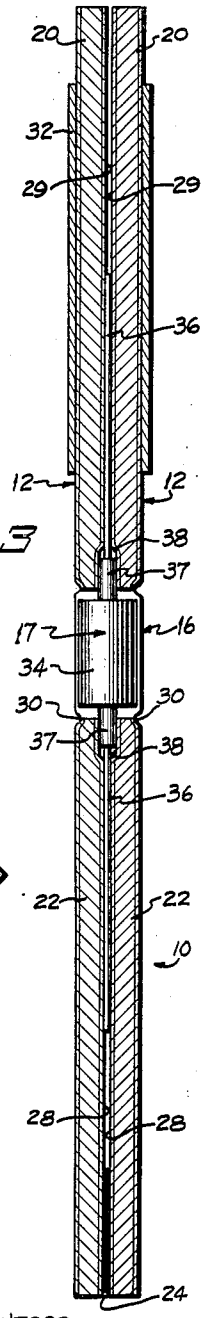
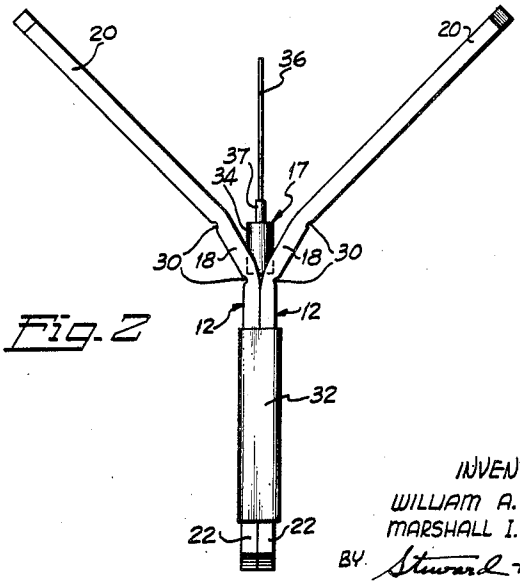


Fig. 2



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Fig. 4

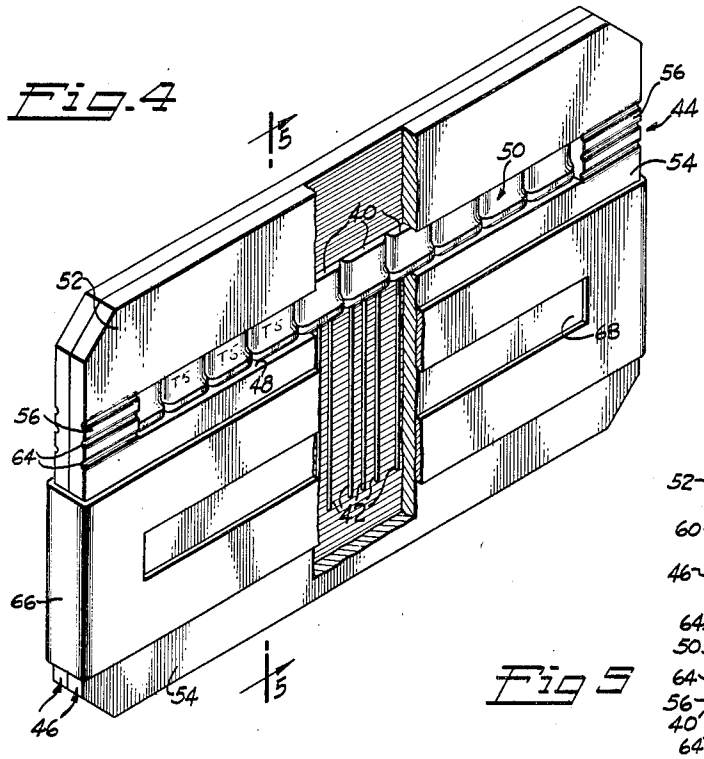


Fig. 5

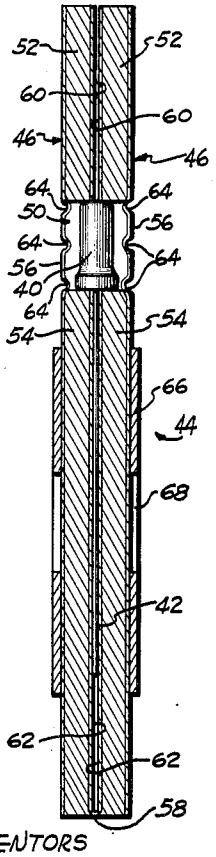
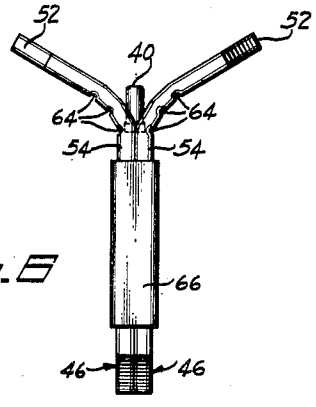


Fig. 6



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CONTAINERS FOR SMALL PARTS FOR RADIO AND TELEVISION AND THE LIKE

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4 Claims. (Cl. 206—65)

This invention relates to containers for handling small radio or television parts, such as resistors, diodes, transistors and similar small articles which have a body portion with lead wires extending therefrom. The invention is particularly directed to packaging such articles in relatively large quantities such as units of ten or twenty in a package for large-scale users of radio and television parts of this sort.

The use of a multitude of small electrical items in modern radio, television and related fields has brought about a need for some means for shipping and dispensing these parts in an orderly manner and in such a way that the articles are easily accessible in the container in which they are shipped. To fully meet this need, such a container should afford sufficient protection for the body and lead wires of the packaged articles. It should afford means for readily viewing the code designations on these items, and must in addition provide means which will allow removal of the contents one at a time without destroying the position and arrangement of the articles remaining in the container.

With the above in mind, it is an object of this invention to provide a package for shipping and dispensing small parts of the type referred to wherein the articles are maintained in an orderly manner and may be removed from the package individually or in quantity.

Another object is to provide a package or container wherein the code designation of the articles carried therein will be visible without disturbing the package or shifting the packaged items.

A further object is to provide a package for small articles of this type which is economical to manufacture and simple to use.

In general the invention is embodied in a package or dispenser for small radio or television parts having a body portion and one or more electrical leads extending therefrom, wherein the package has a pair of confronting sheet members having coinciding slots which form a space adapted to carry the body portions of the packaged articles while the leads are carried between the confronting sheets, each sheet having an upper portion arranged to swing outwardly to provide access for removal of the articles within the package. The confronting sheets are most desirably made of paperboard having a thickness which is at least half the width of the body portions of the articles to be packaged so that the articles are included within the outer surfaces of the two sheet members laid face-to-face.

The foregoing and other objects will be made apparent in the following description and drawings wherein:

Fig. 1 is a perspective view of one embodiment of the invention with a portion of one sheet broken away to show the manner in which the articles are positioned within the package;

Fig. 2 is an end elevation view of the package in Fig. 1, showing the manner in which the upper sections of the confronting sheets open outwardly to allow removal of the articles therein;

Fig. 3 is an enlarged vertical section along line 3—3 of Fig. 1, showing the disposition of the articles between the two confronting sheets and also the manner in which these sheets are hinged together;

Fig. 4 is a perspective view of another embodiment of the invention showing a package adapted to carry articles of a somewhat different type;

Fig. 5 is a vertical section taken along line 5—5 of Fig. 4, showing the disposition of the article in the package; and

Fig. 6 is an end elevation similar to Fig. 2 but showing the package of Fig. 4.

One embodiment of this invention is illustrated in Figs. 1, 2 and 3, wherein the package **10** comprises a pair of paperboard sheets **12** having elongated slots **14** which extend transversely of the package **10** and which coincide with each other when the sheets are brought together in face-to-face relationship to form the space **16** adapted to receive the body portions of the articles **17**. The sheets **12** should be of such a thickness that their combined thickness is at least equal to the diameter of the body of the articles **17** here shown. Since the articles to be carried in the package need not be cylindrical, the dimension of the article here referred to is, in the broader sense, that which is perpendicular to the plane of the sheets **12**. As illustrated in the drawings this dimension of the article is less than the two thicknesses of the sheets **12** together. Obviously, this is not absolutely necessary but it is preferred in order to protect the articles from damage and also to make it easier to stack and a plurality of these packages in cartons for bulk shipment. The sheets **12** are in this instance made of laminated paperboard as indicated in Figs. 3 and 5. However, other sheet material such as corrugated paper or even wood may also be used.

The height of the slots **14** must be such that they form a space **16** which will accommodate the height of the body portion of the article carried therein. The length of slot **14** transversely of sheet **12** may vary but, in general, it has been found most advantageous to have it extend throughout most of the transverse length of each sheet leaving only a relatively small connecting portion **18** at either end thereof. Thus, as viewed in the drawings, each sheet is divided into an upper section **20** above the slot **14** and a lower section **22** below the slot, both sections being connected by portions **18**, which act as hinges. Sheets **12** are connected together along their bottom edges by means of a hinge **24** as best shown in Fig. 3. Hinge **24** in this instance is a U-shaped sheet of thin flexible material which is secured to the lower marginal portions of confronting faces **28** of the lower sections **22** of sheets **12**.

The connecting portions **18** are scored, creased or otherwise weakened as indicated at **30** so that the upper sheet sections **20** may swing outwardly as shown in Fig. 2 to offer accessibility to the articles **17**, which in this case are diodes, carried in the package **10**. A retaining sleeve **32** completely encircles the two sheets **12** and acts to prevent the swinging outwardly of upper sections **20** when positioned over them as shown in Fig. 1. This sleeve slides over the confronting sheets in frictional engagement therewith.

In the specific construction illustrated in Figs. 1 to 3, there are two crease lines **30** at each end of the elongated slot **14** in each sheet **12**, these crease lines being substantially coextensive with the long sides of the slot and extending to the edge of the sheet. While this arrangement has been found to be desirable because it provides good access to the diodes **17**, it is of course possible to provide only a single crease line in the connecting portion **18** of the sheet **12**. Furthermore, it is also within

the scope of the invention to construct each sheet 12 of separate upper and lower sections and to hinge these two sections together by some means similar to the above described hinge 24 connecting the two confronting sheets 12. In any event, the connecting portions 18, which in effect form the juncture between the upper and lower sections of the confronting sheets 12 should be located adjacent to or in the vicinity of the slots 14 for best results.

The diodes 17 shown carried in package 10 in Figs. 1–3 consist, in this particular instance, of a substantially cylindrical body 34 with lead wires 36 extending from each end thereof. As best shown in Figs. 1 and 3 the body 34 of the diode is carried in space 16 with its lead wires 36 extending downwardly and upwardly between the confronting faces 28 of the lower sections 22 of sheets 12, and between the confronting faces 29 of the upper sections 20, respectively.

The particular articles here shown have at each end of the body portions 34 a rigid projection 37 having a diameter intermediate that of the body 34 and the lead wires 36, to which the lead 36 is fixedly connected. In order that the confronting members 12 may accommodate the projections 37, a pair of oppositely disposed depressions 38 are provided on the inner faces of the upper and lower sections of the sheets 12, said depressions extending upwardly and downwardly from the horizontal edges of the slot 14. The length of the depressions 38 is just sufficient to permit the projections 37 at both ends of the body 34 to lie within them. Furthermore, depressions 38 are spaced along the longitudinal edges of slots 14 at equal distances sufficient to permit the body portions of the diodes 17 to lie side-by-side in the package. Depressions 38, therefore, relieve the strain which would be placed on the sheets 12 by squeezing the projections 37 between the faces of the sheets 12 when the latter are brought into their confronting relationship as shown in Fig. 1. Moreover, in filling the package with the articles 17, depressions 38 help in arranging the articles in their proper positions and to hold them in position while the package is being assembled. In addition, if the package is partially filled, some of the articles having been used and therefore removed from the package, the articles remaining therein are held in proper position by these depressions so that they may be easily removed when needed, thereby preventing the upper leads 36, by which the diodes are removed as will be explained hereinafter, from becoming entangled and making it difficult for the packaged articles to be removed.

In packaging the articles, the sheets 12 are spread apart so that at least one of the sheets preferably lies in a substantially horizontal position, and the articles 17 are then placed side-by-side on the inner face of said horizontal sheet with their body portion 34 located in the slot 14 and the lead wires 36 extending over inner faces 28 as illustrated in the broken away portion of Fig. 1. When the slot 14 in one of the sheets is filled with the required number of articles, the other sheet 12 is swung over it about hinge 24, so that its inner faces 28 and 29 confront the inner faces 28 and 29 of the first sheet in order to hold the articles in place within the package formed thereby. After the package is thus loaded, the retaining sleeve 32 is slipped over the now confronting sheets 12 and into position over their swingable upper sections 20. In this condition, the package is ready for use or shipment.

In order to remove one or more of the diodes, resistors or the like, from the package thus formed, it is only necessary to slide the retaining sleeve 32 down the package into position over the lower sections 22 of sheets 12, thus permitting the upper sections 20 to be swung outwardly exposing the upper portions of the row of articles 17 as shown in Fig. 2. The leads 36 are then readily accessible so that the articles may be removed in any desired quantity without disturbing the position of those remaining in the package. The package may be closed again by simply sliding the sleeve 32 upwardly, thereby pressing and holding the upper sections 20 together.

The embodiment of the invention illustrated in Figs. 4 to 6 is similar to that of Figs. 1, 2 and 3 except that it is made to accommodate articles which have a body portion 40 and leads 42 extending from only one end thereof. As in the first embodiment, this package 44 comprises a pair of sheets 46 having elongated slots 48 which coincide when the sheets are brought together in face-to-face engagement to form a space 50 adapted to receive the body 40 of an article, which in this instance may be a transistor, for example. Here again, the combined thickness of the two sheets should be at least equal to the diameter or thickness of the body 40, and the height of the slot 48 should be sufficient to allow the body 40 to fit therein. The slots 48 divide the sheets 46 into upper sections 52 and lower sections 54 (as viewed in the drawings) connected by portions 56. Upper sections 52 are shorter than lower sections 54 because the upper sections in this particular case do not carry any lead wires.

In this particular embodiment of the invention, sheets 46 are formed from a single sheet of material, the midpoint of the blank being scored so that the two sheets may be folded as indicated at 58 in Fig. 5 to bring the inner faces 60 and 62 of each sheet into face-to-face engagement.

The connecting portions 56 are creased as indicated at 64 so that the upper sheet sections 52 may be swung outwardly to provide access to the articles within the package, in the same manner as the embodiment shown in Fig. 2. It will be noted that there are three crease lines 64 traversing the connecting portions 56 in this embodiment of the invention. The reason for providing three crease lines, instead of two as in the first embodiment described or of providing only a single crease line at each end of the slots 48 as might be done, is to increase the flexibility of the connection between the upper and lower sections 52 and 54, respectively, of the sheet members 46 so that the upper sections 52 may be spread apart sufficiently to permit a person's fingers to grasp the body portions 40 of the articles contained in the package, this being necessary where the articles are not provided with leads extending upwardly as in the case described hereinbefore. Furthermore, as has been herein suggested, it is also possible to provide some other flexible connection between the upper and lower sections of the package, such as a hinge of some sort. It will therefore be understood that the invention is not necessarily limited to the use of crease lines but includes any means whereby the upper portion of the package may be opened up in the manner here disclosed.

A retaining sleeve 66 completely encircles the two sheets 46 and acts to prevent the upper sheet sections 52 for swinging outwardly. This sleeve slides over the sheets in frictional engagement therewith and has an opening 68 which coincides with the slots 48 when the sleeve is in retaining position over the upper sections 52 of the package. The opening 68 makes it possible to place the retaining sleeve 66 over the space 50 and to still allow the observance of the code designations on the packaged articles through this opening.

The loading and dispensing of the articles carried in package 44 is the same as that of the first embodiment, previously described.

While the foregoing specific illustrations describe the most desirable forms of the invention, in which a relatively large quantity of articles are contained in a single package, it is entirely possible and might conceivably be highly desirable to construct containers embodying the principles of the invention for packaging articles individually. Packages of the sort for single articles could

very well fill certain needs and are of course clearly within the scope of the invention.

The sleeves used to hold the confronting sheets in face-to-face relation could, if desired, cover the entire package or be in the form of an envelope with the lower end thereof closed. Furthermore, it is of course possible to use numerous releasably retaining means other than the sleeve shown, such as a clip which would engage the swingable sheet sections, or even a semi-tacky pressure sensitive adhesive tape. Moreover, instead of hinging the sheets **12** or **46** to each other as described herein, they could be separate members and the faces of the lower sections of the sheets could be fastened together, as by gluing or stapling, after the articles have been loaded in the package. The upper sections of the package would thus be free to be spread apart for obtaining access to the articles in accordance with the principles of this invention.

It is further contemplated that a transparent covering may be fastened to the sheet members so as to cover the space carrying the body portions of the articles when such would be desirable or, if it is not necessary to view the articles when the package is closed, both sides of the package could be completely covered with a non-transparent material. Such an arrangement might be practical where the articles need greater support along their sides to prevent their falling out of the package. These and other modifications obviously come within the scope of this invention.

What is claimed is:

1. A package of small electronic articles having body portions and lead wires extending therefrom, comprising in combination; a pair of flat confronting sheets of relatively thick material, said sheets being normally in face-to-face engagement with each other, each sheet having a slot located within its margins, said slots coinciding to form a space receiving the body portions of the articles while the leads are carried between the engaging faces of said sheets, each sheet being provided with hinge means intermediate its ends and adjacent to said slot, said hinge means and slot dividing said sheets into upper and lower sections, releasable retaining means for holding said confronting sheets in said face-to-face engagement and adapted to release the hinged sections at one end of the package so that they can be swung outwardly with respect to each other to afford access for removal of the articles carried by the package while the sections at the other end of the package remain held in face-to-face engagement by said retaining means.

2. The device as defined in claim 1, wherein said retaining means comprises a sleeve member encircling said confronting sheets in the direction of the juncture between said upper and lower sections and is slidable upwardly and downwardly on said confronting sheets.

3. The device as defined in claim 1 wherein said confronting sheets are hingedly secured together along the lower edges of said lower sections.

4. A package of a plurality of small articles such as radio resistors having body portions and wire leads extending therefrom, comprising in combination; a pair of flat confronting sheets hinged together along their lower edges, said sheets being normally in face-to-face engagement with each other, each of said sheets having an upper and a lower section hinged together, each sheet having an elongated slot located adjacent to and extending in the direction of the juncture between said upper and lower sections, said slots in said confronting sheets coinciding to form a space receiving the body portions of the articles in side-by-side relation while the leads extending from said body portions are carried between the engaging faces of said sheets, the upper sections being swingable at their junctures with the lower sections outwardly with respect to each other to provide access for removal of the articles carried by the package while said lower sections are held in face-to-face contact, and a sleeve member encircling said confronting sheets in the direction of the juncture between said upper and lower sections for holding the swingable upper sections in face-to-face engagement, said sleeve being movable downwardly and upwardly on said confronting sheets to open and close the package.

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