Aug. 7, 1956 L. J. SHIOLENO 2,757,792

PACK FOR CONDENSERS

Filed Nov. 13, 1953

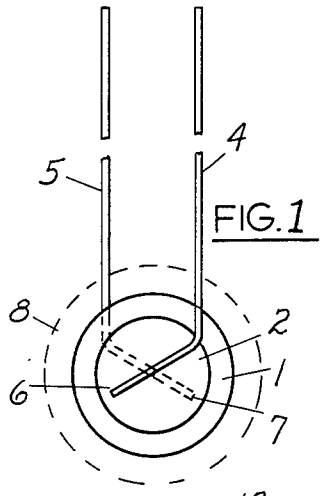


FIG. 1

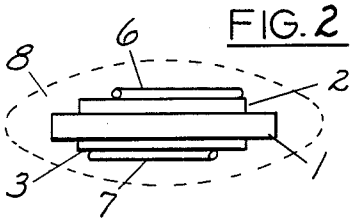


FIG. 2

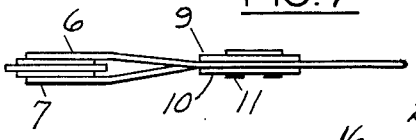


FIG. 7

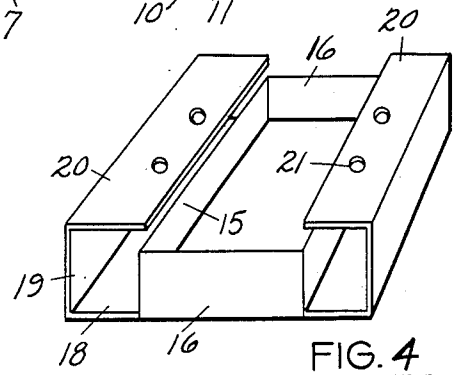


FIG. 4

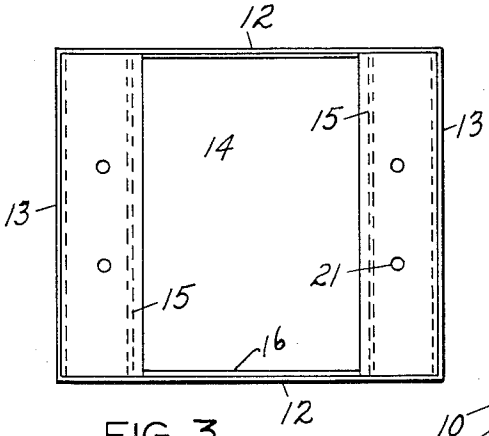


FIG. 3

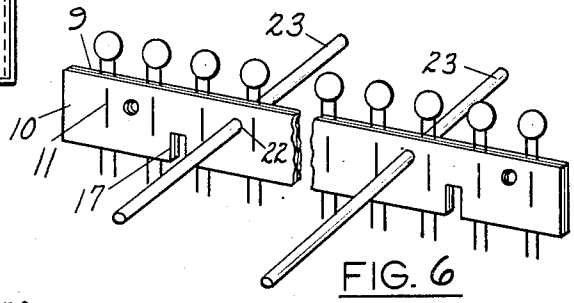


FIG. 6

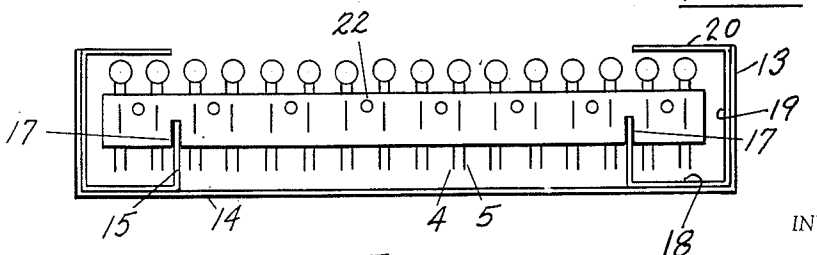


FIG. 5

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PACK FOR CONDENSERS

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4 Claims. (Cl. 206—65)

This invention is intended to simplify the packing and handling of disk condensers consisting of an electroded disk of dielectric material with two or more leads extending therefrom in the plane of the disk. Such condensers are fastened to a strip of flexible material with the condensers spaced apart along one edge of the strip and the leads extending crosswise of the strip and projecting from the opposite edge of the strip. One way of fastening the condensers to the strip is disclosed in the application of J. D. Heibel SN 390,115, filed November 4, 1953.

In order that the condensers may be easily handled for shipping, storage and movement up to the point of use, the strips on which the condensers are mounted are provided with notches in one edge so that the strips may be mounted side by side edgewise on a support. When the strips of condensers are mounted on the support, fingers can be inserted through aligned holes in the strips and the strips can be lifted off the supports as a group. The holes also can be used to index the condensers in an automatic lead forming machine which removes the individual condensers and cuts and forms the leads to the shape desirable for connection of the condensers into any particular electronic circuit.

In the accompanying drawings Fig. 1 is a front view of a disk condenser, Fig. 2 is an end view of the condenser, Fig. 3 is a top plan view of a tray for shipping a plurality of strips of condensers, with the condensers mounted thereon mounted in an open topped shipping container, Fig. 4 is a perspective of the rack on which the strips of condensers are loaded, Fig. 5 is a section through the tray after loading with condensers, Fig. 6 is a perspective showing the manner of handling the strips of condensers by spaced fingers or rods projecting through holes in the mounting strips; and Fig. 7 is a transverse section through one of the strips of condensers showing the manner in which the condensers are mounted on the strips by clamping the leads between flexible strips of cardboard.

In Figs. 1 and 2 of the drawings is shown a condenser having a disk shaped dielectric **1** preferably ceramic with electrodes **2** and **3** on opposite faces thereof. The condenser has generally parallel leads **4** and **5** respectively having angularly offset ends **6** and **7** engaging and soldered to the electrodes **2** and **3**. The condenser is enclosed in an insulating case **8** usually formed by dipping in a plastic, which serves as a moisture barrier in addition to providing electrical insulation. The leads **4** and **5** which project a considerable distance outside the case are usually longer than is required for many of the circuits so that at the point of use the leads are cut off to the desired length, if necessary, and are given a preliminary forming operation so that the leads may be easily connected into the particular circuit. The condenser so far described is or may be of common construction.

As shown more clearly in Figs. 5, 6, and 7 a plurality of the condensers are spaced along one edge of a composite strip comprising flexible strips of cardboard **9** and **10** with the leads **4** and **5** extending crosswise of the strip

between the cards and clamped therebetween by staples **11**. When the condensers are assembled in this manner the strips can be handled as a unit and each of the condensers will be definitely positioned with respect to one edge of the strip while the leads **4** and **5** will be clamped flat between the cardboard strips **9** and **10** and likewise will be definitely positioned with respect to the strips. Fastening the individual condensers between the cardboard strips **9** and **10** eliminates the possibility of tangling of the condenser leads present in bulk shipment. Also the handling of the condensers in the stockroom is facilitated because each strip of condensers will contain a definite number so that the strips can be handled and counted as a unit.

Figs. 3, 4, and 5 show an improved pack for supporting a large number of strips of condensers side by side. In this arrangement, there is an open topped generally rectangular tray having side walls **12**, end walls **13**, and a bottom wall **14**. Telescoped within the open topped container or tray is a rack having at its center a support comprising upstanding walls **15** spaced inward from the end walls **13** and being connected at their ends by upstanding walls **16** adjacent the side walls **12**. The cardboard strips **9**, **10** have notches **17** which fit over the upper edge of the upstanding walls **15**, as more clearly shown in Fig. 5, thereby supporting the condensers with their leads slightly above the bottom wall **14** and with the condensers slightly below the upper edges of the walls **12** and **13**. A large number of the strips **9**, **10** with the condensers fixed therebetween can be supported edgewise side by side on the supporting walls **15**. Integral with the bottom edge of each of the supporting walls **15** is a flap having a section **18** extending along the bottom wall **14** to the end wall **13**, a section **19** extending up along the inside of the end wall **13** and an inwardly extending section **20** extending in spaced relation over the top of the ends of the strips of condensers. As shown in Fig. 4, hand holes **21** in the section **20** of the flap permit the rack to be lifted out of the open topped tray or container. After the strips of condensers have been loaded side by side on the rack, the rack with the condensers thereon can be wax impregnated thereby coating all the exposed surfaces of the condensers and leads with a film of wax. There is some loss of wax absorbed by the rack and by the card supports **9**, **10**, but this is not material. The wax impregnation helps hold the strips of condensers on the rack.

Upon arriving at the point of use, the rack can easily be lifted out of the open topped tray or container by gripping the flaps through the finger holes **20** and when the rack is outside the container, holes **22** between every other condenser will be above the upper edges of the upstanding walls **15**, **16** so that fingers or rods **23** can be run through the holes **22** and the entire load of condensers lifted off the rack at once. This is convenient if the strips of condensers are to be fed to a machine which will automatically remove the individual condensers from the strips and cut and form the leads. The holes **22** and the strips **9**, **10** serve as index holes by which the strips of condensers can be indexed to the lead forming mechanism.

By this method of packing, the individual condensers are kept separate so that tangling of the condenser leads is prevented. When packed for shipment as shown in Fig. 5, the condensers are supported below the upper edge of the open topped tray or container and the condenser leads **4**, **5** are supported above the bottom wall **14** of the tray. Accordingly during shipment there is no chance of bending the condenser leads during shipping or of damaging the individual condensers.

What is claimed as new is:

1. In combination, a plurality of flexible strips, a plu-

rality of condensers spaced along and spaced from one edge of each strip and having leads extending crosswise of the strip and projecting beyond the opposite edge of the strip and fastened thereto to support the condensers, and a shipping container for said plurality of strips with condensers supported thereon having supports extending crosswise of the strips above the bottom of the container, said strips having notches therein between the leads and on the edge opposite the condensers fitting over the supports and holding the strips edgewise on the supports with the condensers uppermost and with the leads above the bottom of the container.

2. A shipping construction for condensers including a rectangular rack having upstanding side and end walls, a plurality of flexible strips each having condensers spaced along and spaced from one edge of the strip having leads extending crosswise of and fastened to the strip and projecting beyond the edge of the strip opposite the condensers, notches in said edges of the strips opposite the condensers fitting over the upper edges of the upstanding side walls of the rack and supporting the strips edgewise side by side with the condensers uppermost and the leads lowermost, and flaps extending from the lower edge of said upstanding side walls outward beneath the leads at the bottom of the ends of the strips, up along the ends of the strips and inward over the tops of the condensers at the ends of the strips.

3. The construction of claim 2 in which the assembly is wax impregnated after the strips of condensers are assembled.

4. In combination, a flexible strip, a plurality of disc condensers spaced along and spaced from an edge of the strip having leads extending crosswise of and fastened to the strip and projecting beyond the edge of the strip opposite the condensers, supports extending crosswise of the strip, said strip having notches in one edge fitting over the supports and holding the strip edgewise on the supports, and holes in the strip above the notches for receiving fingers by which the strip may be lifted off the supports.

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