

March 22, 1932.

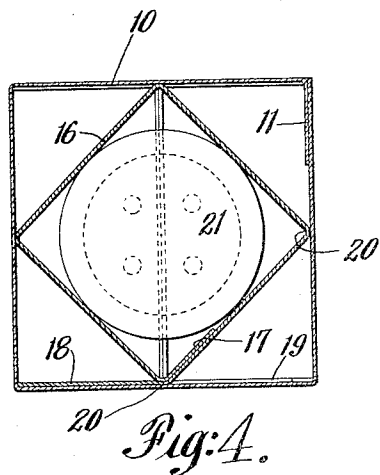
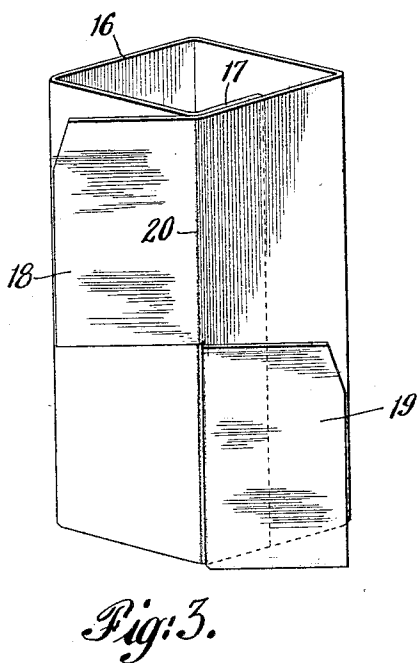
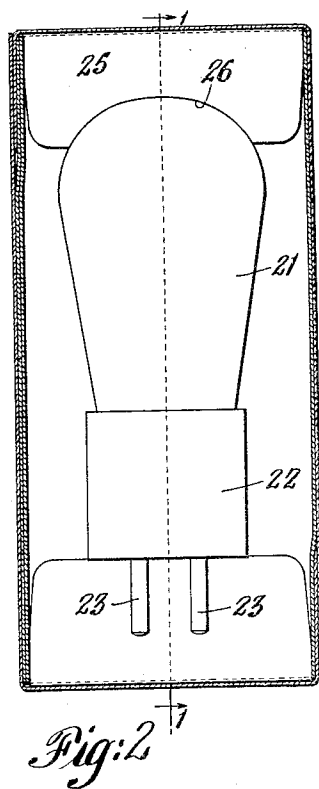
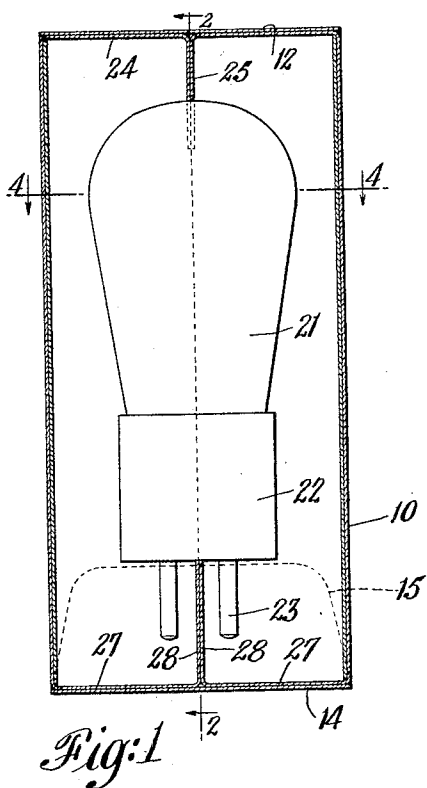
H. L. METZGER

1,850,329

CARTON

Filed May 30, 1930

2 Sheets-Sheet 1



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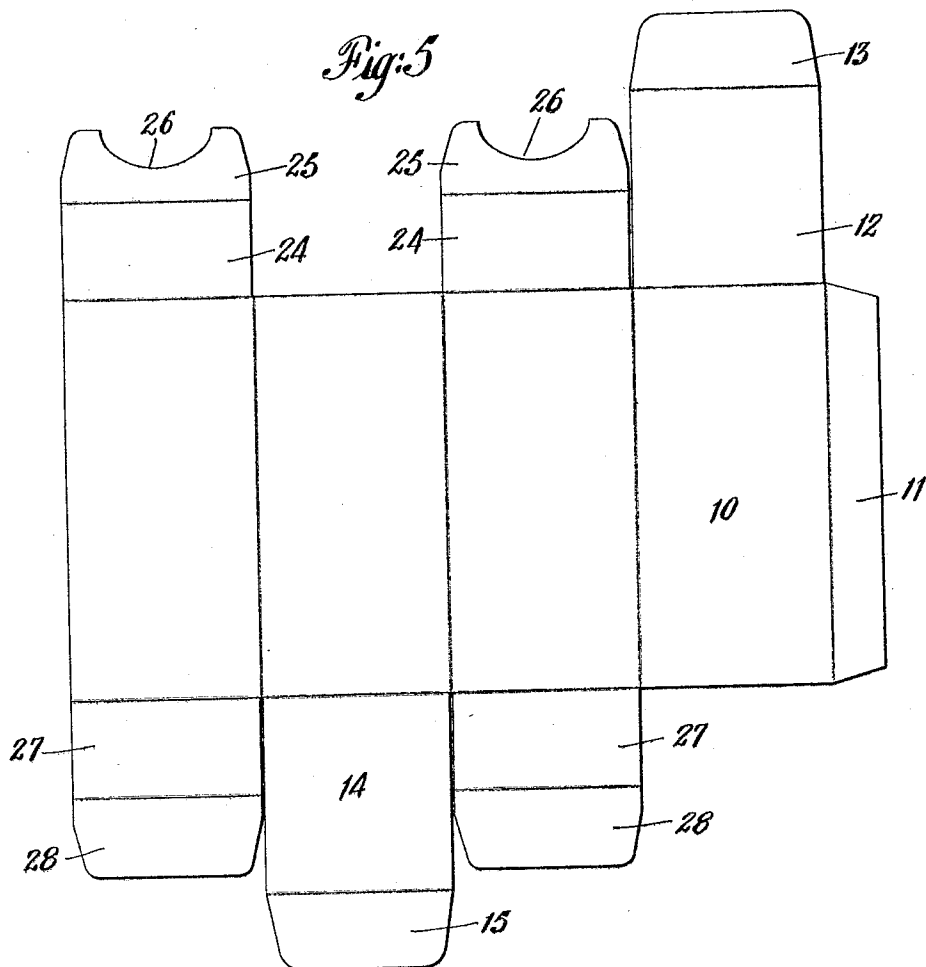
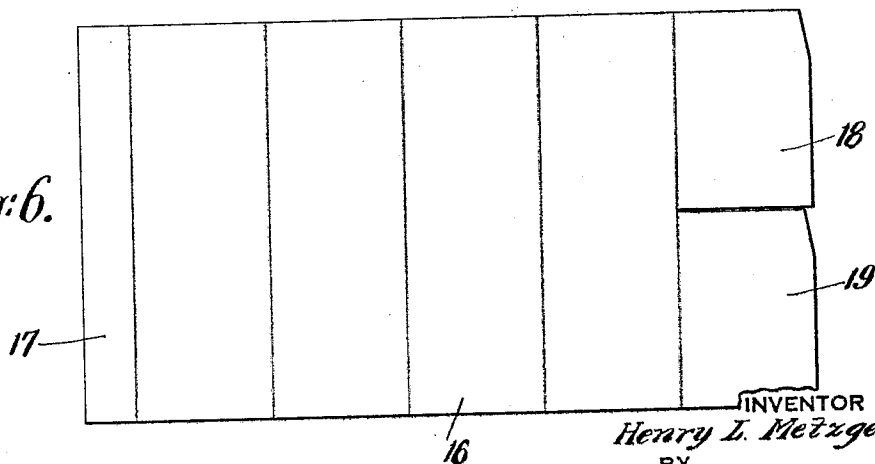


Fig. 6.



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UNITED STATES PATENT OFFICE

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CARTON

Application filed May 30, 1930. Serial No. 457,643.

This invention relates to improvements in cartons or boxes and particularly to containers of this sort, formed of foldable or pliable material such as pasteboard and the like, intended to be used in the transportation and handling of fragile articles, such as glass bulbs and the like, especially where it is desired to wrap and maintain the articles separately. The new container contemplated by the present invention is especially suited to the handling and protection of radio tubes and similar evacuated, electrical devices formed largely of glass.

It has been an object of the invention to provide a simple and inexpensive form of container which will effectively prevent breakage of the contents thereof during ordinary handling even though the contents be in the nature of glass bulbs or tubes or similar fragile articles. To this end the invention has in view the provision of an outer container and a tubular inner liner or retaining element within which the article may be carried in such a way as not to permit contact of any of its fragile surfaces with a wall through which a blow or shock may be directly transmitted from the outside. The arrangement is such that a substantial space is provided between the fragile surfaces of the article and the outer wall of the container so that a cushioning effect is produced by means of the material of the container and the liner, and by the various air pockets provided between these parts.

A feature of the invention is in the provision of integral extensions on the outer container and on the liner for holding these elements in proper relation and for retaining a radio tube, or similar article, in a relatively fixed position within the container. The entire structure consists only of two separate elements formed of pasteboard, or any other suitable material, and folded appropriately to produce the outer container and inner liner with the characteristics mentioned.

Other objects and advantages of the invention will appear from the detailed description of one admirable embodiment of the same, which will now be given in conjunction

with the accompanying drawings, in which:

Figure 1 is a longitudinal, sectional view through the container taken along the line 1—1 of Figure 2 and showing a radio tube in position in the container.

Figure 2 is a similar view taken along the line 2—2 in a plane at right angles to the plane of Figure 1.

Figure 3 is a perspective view of the inner liner.

Figure 4 is a transverse, sectional view taken along the line 4—4 of Figure 1.

Figure 5 is a plan view of the strip of material which is appropriately folded to produce the outer container, and

Figure 6 is a plan view of a strip of material which may be appropriately folded to produce the inner liner.

Referring now to the drawings, the outer container 10 may, for the particular purpose for which the illustrative carton is intended, be provided with a main body having four side walls forming an enclosure which is substantially rectangular or square in cross section. This container may be produced from a flat strip of pasteboard or the like, having the general form indicated in Figure 5 and provided with suitable creases or fold lines at points where it is intended to be bent or folded. One of the walls of the container may have an extension 11 which, when bent at right angles, may overlap the adjacent wall and may be glued, cemented, or otherwise secured, to the longitudinal edge of the adjacent wall. An outer closure for the top of the container may be provided in the form of an extension 12 of one side thereof, having a tab or flap 13 which may be turned inwardly along the inner edge of the opposite side of the container when the latter is closed. A similar arrangement may be provided at the bottom of the container in the form of an extension 14 of either the same or a different side wall of the container and being provided with a tab or flap 15 adapted to cooperate with the inner surface of the opposite wall.

Within the outer container there may be provided a tubular element 16 which may be of substantially the same length as the con-

tainer and serve as a protective liner or retainer for the radio tube or similar article to be carried by the carton. This tubular element may also be produced from a single flat strip of pasteboard, or the like, having creases or fold lines at suitable points and when folded is preferably also substantially square in cross-section and is placed within the container in such a way that the four edges of the element extend longitudinally of the side walls of the container at points midway between the corners of the same, or at some other point intermediate these corners. In forming the tubular element, an extension 17 of one wall may be turned at right angles and may extend parallel to an adjacent wall of the retainer, to which it may be pasted or otherwise secured. This adjacent wall of the retainer is also preferably provided with an extension which may be split at any point intermediate its length, preferably at a midpoint, thereby providing an upper wing 18 and a lower wing 19. These wings are preferably bent or turned in opposite directions in such a way as to be placed in substantially the same plane but with one wing on one side of the edge 20 of the liner and with the other wing on the opposite side of this edge. The wings should preferably be of such width as to extend into the corners of the outer container when the retainer is in position. When the element is centrally located, with its sides diagonally across the corners of the container, as indicated in Figure 4, the wings will be of equal width, equivalent to substantially half the width of a side wall of the container.

The radio tube, or similar article, is intended to be inserted within the retaining member or liner. As best indicated in Figure 4, the dimensions of the member 16 are such that its sides will be in close contact with and tangent to points of the glass bulb portion 21 of the tube. It is to be noted, however, that the points of contact between the retainer and the bulb are well removed from the outer walls of the container 10. Any shocks or blows which may be applied to any of the surfaces of the container walls will be taken up by the yielding sides of the retainer 16 and will not be transmitted directly to the glass or other fragile material within the retainer. The radio tube may be provided with the usual base 22 having the usual plurality of contact prongs 23. As shown, the base 22 is normally smaller in diameter than the largest diameter of the glass bulb, so that there is a certain amount of free play between the base and the walls of the retaining member 16. This play, however, is taken up and the radio tube is held rigidly within the retainer by means of certain flaps and extensions integral with the outer container, as will now be explained.

At the top of the container there may be provided two flaps 24 formed as integral

extensions of two of the opposite sides of the container. These flaps when folded over are adapted to extend to the midpoints of the container so as to each close off one-half of the upper end of the same. Thus, when both flaps are folded over, the end of the container is more or less completely closed off. Tabs 25 which are formed as further integral extensions of the flaps are provided with arcuate edges 26, which are adapted to co-operate with the upper end of the radio tube when these tabs are turned inwardly along the axis of the container. When so arranged the two tabs 25 will have their sides in close contact throughout and they will definitely serve to prevent movement of the radio tube toward the upper end of the container. It is to be noted that the tabs 25 when in place are held between the diagonal corners of the retainer 16 and are thus maintained in proper relation.

The previously mentioned cover member 12 with its tab 13 will be folded over and inserted to completely close the upper end of the box after the flaps 24 have been properly inserted.

At the lower end of the box a somewhat similar pair of flaps 27 are provided and these are adapted to extend to the central axis of the container and thus each close off one-half of the lower end of the same. Tabs 28, integral with these lower extensions, may be turned inwardly along the axis of the container and may be passed between adjacent pairs of the prongs 23 extending from the base of the tube. The length of these tabs will preferably be such that their upper ends will engage the base of the tube and hold it against longitudinal or axial movement. The tube is thus quite rigidly held between the pairs of tabs 25 and 28, and at the same time the upper end of the tube is held in centralized position by contact with the side walls of the liner 16. It will be understood that the bottom cover element 14, with its tab 15, will be inserted in closing position after the flaps 27 have been properly folded.

In inserting the tabs 28, it is to be noted that they fit between diametrically opposite corners of the liner 16, similarly to the tabs 25. This insures axial alignment of these tabs within the container and prevents them from becoming folded back upon the main portions of the flaps 24 and 27. If it were not for this aligning action of the retaining member 16, these tabs, and particularly the upper tabs 25, could be folded inwardly to such an extent that they would not properly restrict the longitudinal movement of the radio tube.

By means of the simple construction shown, embodying the use of only two separate strips of pasteboard, or the like, properly folded and each glued along only a single seam, a radio tube, or similar article,

may be more or less rigidly suspended within a carton in such a way that it is in contact with only suspended pasteboard and any shocks or blows applied to the outer wall of the carton will be transmitted to the tube
5 only through comparatively resilient and flexible sections of the pasteboard cushioned by a number of air pockets. It will be apparent that the construction disclosed lends
10 itself readily to the rapid and automatic production of the cartons by stamping out and creasing the two blanks and folding and securing the same.

While one admirable form of the invention has been set forth in considerable detail, it is to be understood that this represents only one illustrative embodiment and that many variations may be made in the particular construction shown without departing from the spirit and scope of the invention. For example, the carton or its retaining element need not be square in cross-section but may be rectangular, or they may have the form of a prism or other polyhedron.

What I claim is:

1. A carton for a fragile article which comprises an outer container substantially rectangular in cross-section, a tubular retaining member substantially rectangular in
30 cross-section adapted to closely surround said article within the container, the corners of said member engaging the walls of said container intermediate the corners thereof, and wing elements at the opposite ends of said
35 member each adapted to cooperate with a wall of said container to maintain a definite relation between the member and container.

2. A carton for a fragile article which comprises an outer container substantially rectangular in cross-section, a tubular retaining member substantially rectangular in
40 cross-section adapted to closely surround said article within the container, the corners of said member engaging the walls of said container intermediate the corners thereof, and
45 wing elements at the opposite ends of said member formed as integral extensions of one side thereof each adapted to cooperate with a wall of said container to maintain a definite
50 relation between the member and container.

In testimony whereof, I have signed my name to this specification this 13th day of May, 1930.

HENRY L. METZGER.