

Sept. 28, 1943.

C. I. ELLIOTT

2,330,345

PACKAGE

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Fig. 1.

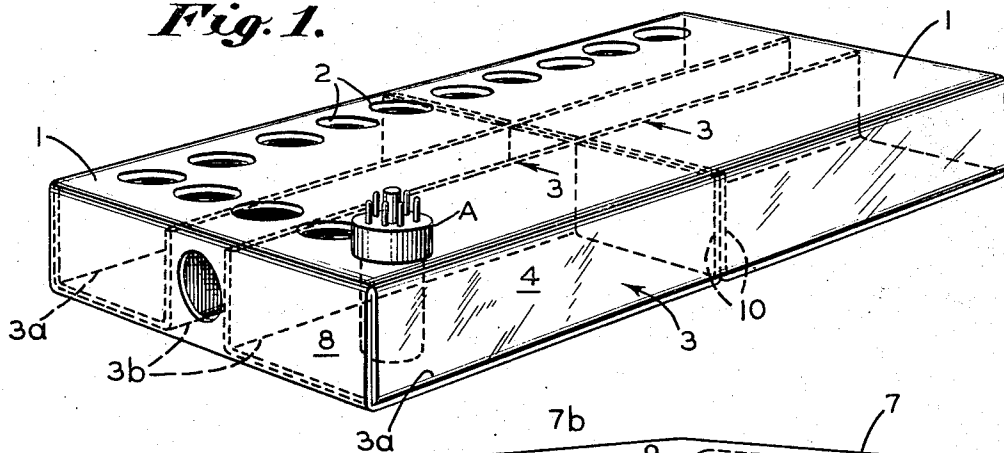


Fig. 2.

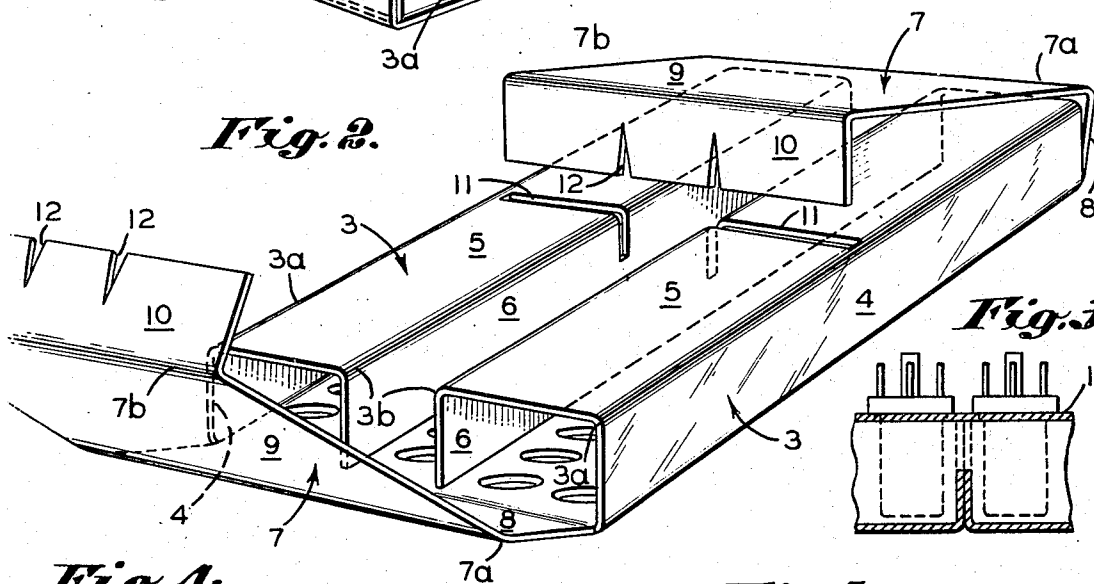


Fig. 3.

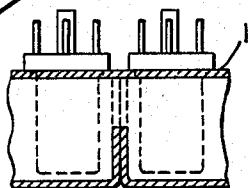


Fig. 4.

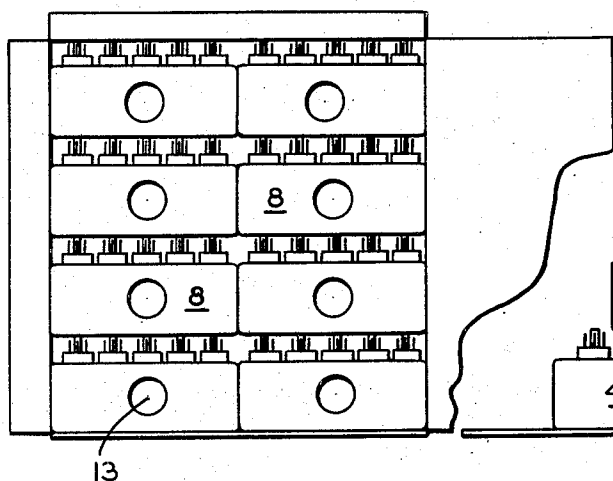
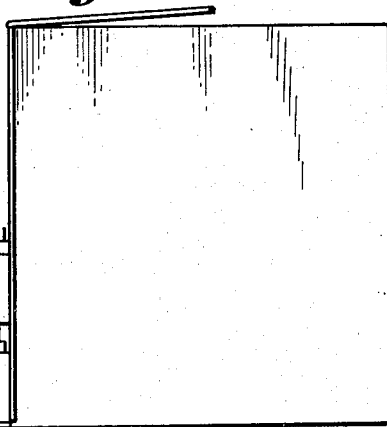


Fig. 5.



INVENTOR

Charles I. Elliott

BY

Charles McClair

ATTORNEY

UNITED STATES PATENT OFFICE

2,330,345

PACKAGE

Charles I. Elliott, Sea Girt, N. J., assignor to
Radio Corporation of America, a corporation of
Delaware

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2 Claims. (Cl. 229—16)

My invention relates to containers or holders for packaging large numbers of small fragile articles, such as lamps or radio tubes and the like, particularly to platform trays for holding such articles.

In handling large quantities of fragile articles, such as radio tubes, it is important that the containers receive as well as dispense the articles with minimum inconvenience to the operator, that the container be strong for rough handling and for high stacking, and that the container be simple in construction and capable of being "knocked down" or collapsed when empty to a small size. Further, the waste space in the container must be as small as possible consistent with proper insulating separation between the articles.

An object of my invention is a container, for fragile articles, that is simple in construction, that is adapted for easy receiving and dispensing of its articles and that is strong enough to support considerable weight.

A further object of my invention is a container, for small fragile articles, in which the waste space between the articles is a minimum and which may be collapsed when empty to a small size.

The characteristic features of my invention are defined in the appended claims and one embodiment thereof is described in the following specification and shown in the accompanying drawing in which:

Figure 1 is a perspective view of my novel platform tray;

Figure 2 is a bottom view of my novel tray, with parts of the tray developed to better show details of construction;

Figure 3 shows a section of the detail viewed along line 3—3 of Figure 2; and

Figures 4 and 5 show front and side views of trays stacked in a conventional shipping box.

My novel tray is adapted to hold or package articles A, such as conventional metal or glass envelope radio tubes, having a cylindrical body with a flange near one end larger than the body. My platform tray comprises a rectangular platform 1 preferably of relatively stiff foldable packaging material, such as re-inforced corrugated cardboard. An odd number of parallel rows, at least three and preferably five, of platform holes 2 are made in the platform parallel to the sides of the platform, each hole being large enough to receive the body of the article to be packed without passing the flange on the article so that the body of the article may hang freely in the platform hole. Rectangular side flaps 3, extending from the two

side edges of the platform, are creased or scored along score lines 3a and 3b parallel to the platform edges to divide the side flap into a side wall panel 4, bottom panel 5, and end panel 6 of the same width as the side wall panel 4. Each side flap is bent downwardly from the platform and folded with a substantially right angle bend at each of the score lines to bring the edge of the end panel 6 of the side flap into line contact with the center of the underside of the platform. Each side flap provides two vertical supporting panels, one along the edge of the platform and the other along the center of the platform, the intermediate or bottom panels 5 of the flaps each of which is preferably wide enough to cover the rows of platform holes, providing a smooth flat base for the tray. The four vertical panels 4 and 6, extending throughout the length of the platform, acts as joists to provide a particularly strong support for the platform. The two side flaps 3 may be creased and bent and given a set, as by heating, to cause the panels 4 and 5 to remain substantially in the position shown in Figure 2. If desired, tenons extending from the edges of the panels 6 through slots in the platform may be provided to prevent slippage of the panels 6 along the platform. In any case, when the tray is loaded with radio tubes, the end panels 6 lie between adjacent rows of the tubes and are held by the tubes in their positions normal to the platform. The side flaps preferably are creased so that when the flaps are folded, their end panels 6 stand spaced apart and thus provide four parallel spaced supporting joists for the platform. If there is an odd number of rows of holes in the platform, such as five, the end panels 6 of the side flaps may conveniently be brought to the opposite sides of the center row of holes. The tray with its two folded side flaps is strong and when loaded may be stacked in boxes or shipping containers. Side-by-side trays in the box prevent sideways sloughing or collapsing of the flaps along their score lines.

It has been found convenient to lock the side flaps 3 in place by folding end flaps 7 over the side flaps, in overlapping relation. End flaps 7 are each scored along lines 7a and 7b parallel to the ends of the platform, to divide each end flap into an end wall panel 8, bottom panel 9, and tuck panel 10. The end flaps are folded along the scores and the tuck panel is pressed into slots 11 intermediate the ends of the side flaps and normal to the edges of the side flaps 3. The slots preferably extend from the score line 3a to a point intermediate the score lines 3b and the

edges of the end panels 6 of the side flaps. Notches 12 in the edges of the end panels of the end flaps and spaced a distance equal to the desired spacing between the end panels 6 straddle the inner edges of the slots 11 and lock the end panels against sidewise displacement. If desired, separate slots may be provided for each tuck panel. The slots may be made near the ends, Figure 2, of the side flaps 3 and the width of the bottom panel 9 chosen to bring the tuck panels into the slots.

Because my improved platform tray may be made without any fastening means, such as staples or glue, it may be knocked down to a one-piece flat blank and stacked and stored in small spaces. My tray is particularly useful in handling large numbers of articles, such as radio tubes during manufacturing processing. Radio tubes, for example, may be loaded on my trays and passed through paint drying ovens without damage to the tray, there being no glue employed in fabricating the tray. Particularly good results have been obtained in making trays with five parallel rows of die cut holes, ten in each row, for 50 radio tubes of the conventional metal or glass envelope type having a base and contact prongs at one end of the envelope. The trays have a platform about 7" wide and 13 3/4" long and are made of 200 lb. Mullin test combined corrugated paper with a B-flute intermediate corrugated member. This paper comprises two flat outer layers of jute or kraft paper .016" thick bonded to the intermediate corrugated layer of .009" stock.

Figures 4 and 5 show how my trays may be piled in side-by-side stacks in a box opening on its sides, with finger holes 13 in the ends of the trays so that any tray in a stack may be withdrawn. An empty tray inverted over a loaded tray may be used to transfer all of the articles from the one tray to the other for up-ending the tubes.

My novel platform tray is strong, simple in construction, is capable of being knocked down or collapsed and offers a minimum of waste space between the packed articles.

I claim:

1. A one-piece tray made of foldable sheet material and comprising a rectangular support platform having an odd number and at least three rows of holes parallel to the sides of said platform, two rectangular side flaps integral with opposite edges of said platform and having end panels adapted to be perpendicular to and in edge contact with said platform on opposite sides of the middle row of platform holes when said side

flaps are closed in said platform, each side flap having near the middle a slot extending partly across the end panel between adjacent holes in each row, two end flaps having tuck panels which lie side by side midway of said platform when said end flaps are closed, each of said tuck panels being adapted to enter both said slots in said side flaps and each having in its edge two notches to interlock with and hold said side flap end panels perpendicular to and in edge on contact with said platform and on opposite sides of the middle row of holes and spaced about the diameter of said holes to form the side walls of a trough in alignment with and open to said middle row of holes.

2. A one-piece tray made of foldable sheet material and comprising a rectangular support platform having an odd number and at least three rows of holes parallel to the sides of said platform, two rectangular side flaps integral with and extending the entire length of the opposite edges of said platform and each having score lines to form a side panel and an end panel of the same width, and a bottom panel joining and spacing said other two panels to cause said end panels to stand perpendicular to and in edge contact with said platform on opposite sides of the middle row of platform holes when said side flaps are bent at right angles at the score lines and are closed on said platform, each side flap having near the middle a slot extending across the bottom panel and partly across the end panel, two end flaps integral with and extending the entire length of the opposite ends of the platform and each scored to form an end wall panel of substantially the same width as the end panels of said side flaps, a bottom panel of a width equal to the distance along the side flap to the slot in said side flap, and a tuck panel substantially as wide as said end wall panel and as long as the end of said platform and adapted to enter said slot and having in its edge two notches to interlock with the end panels of said side walls at the bottom of the slots in said end panels and to make edge on contact with said platform, said tuck panels abutting each other to form a joist extending transversely of said platform between holes in said rows and holding the end panels of the side flaps perpendicular to said platform and on opposite sides of the middle row of holes and spaced approximately the diameter of said holes to form the side walls of a trough in alignment with and open to said middle row of holes.

CHARLES I. ELLIOTT.