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J. C. D'ESPOSITO ETAL

3,116,007

CONTAINER WITH INTERLOCKING TRAY AND COVER

Filed Oct. 26, 1962

2 Sheets-Sheet 1

Fig. 2

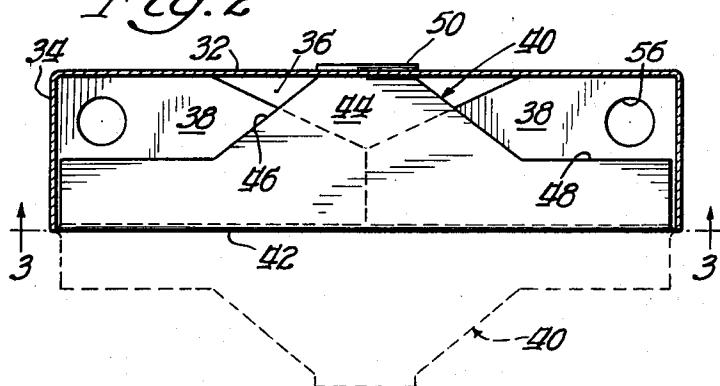


Fig. 4

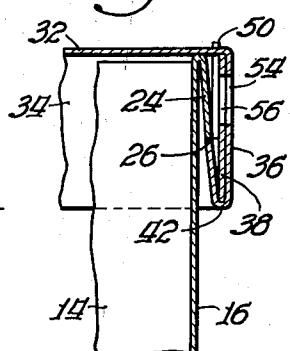


Fig. 3

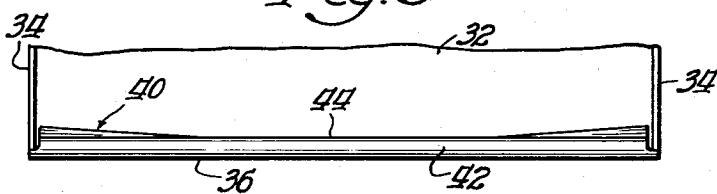
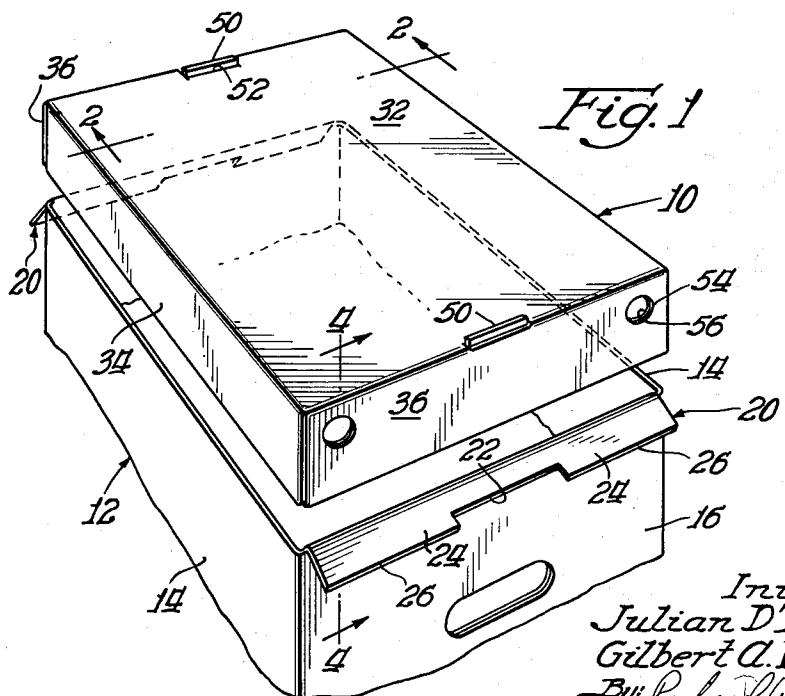


Fig. 1



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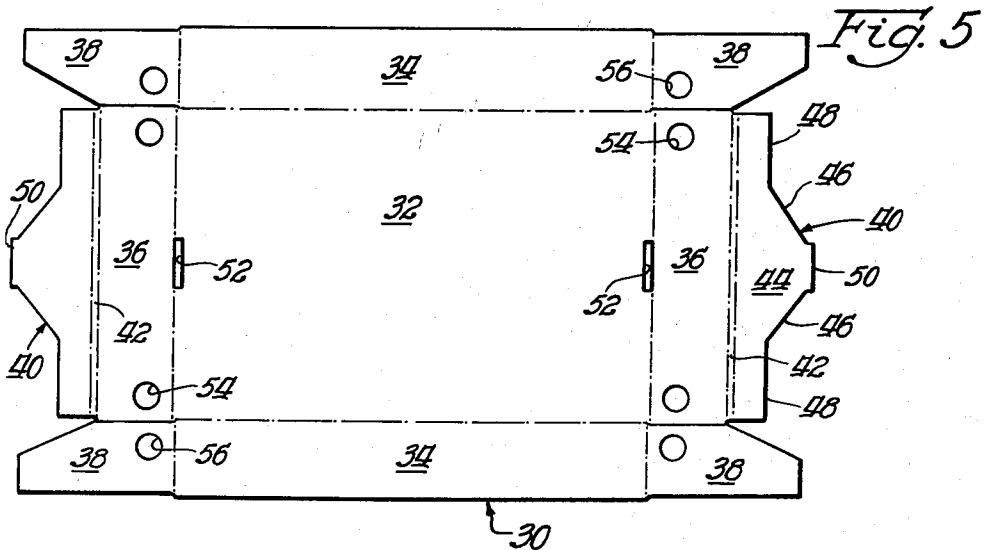


Fig. 6

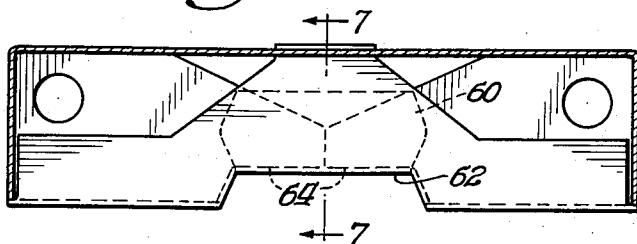


Fig. 7

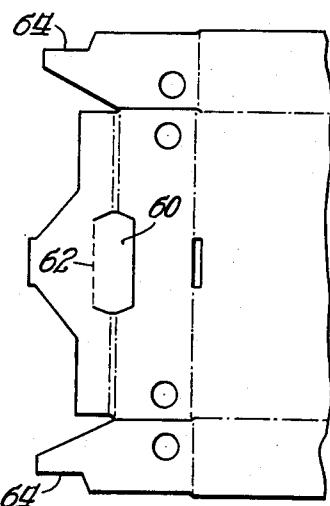
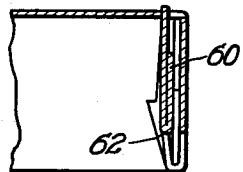


Fig. 8

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CONTAINER WITH INTERLOCKING
TRAY AND COVER

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1 Claim. (Cl. 229—45)

This invention relates to paperboard receptacles, and more particularly to an improved interlocking tray and cover arrangement for a container.

The invention comprehends a tray and cover connection which is self-contained so as not to require additional fastening means such as staples, wire, or like devices.

It is, therefore, an object of the invention to provide, in a two-piece container, self-contained means for removably interlocking a tray and cover in closed condition.

A more specific object of the invention is the provision, in a container tray and cover connection, of an upwardly facing locking flange abutment on the cover removably engageable with a downwardly facing locking flange abutment on the tray for detachably locking the former on the latter.

These and other objects of the invention will be apparent from an examination of the following description and drawings, wherein:

FIGURE 1 is a fragmentary perspective view of a container tray and cover arrangement embodying features of the invention;

FIGURE 2 is a transverse vertical section taken on line 2—2 of the FIGURE 1;

FIGURE 3 is a transverse horizontal section taken on line 3—3 of FIGURE 2;

FIGURE 4 is a longitudinal vertical section taken on line 4—4 of FIGURE 1, when the container is in a closed position;

FIGURE 5 is a plan view of the blank from which the structure of the previous views may be formed; and

FIGURES 6, 7 and 8 are views similar to FIGURES 2, 4 and 5, respectively, but illustrate a modified form of the invention.

It will be understood that, for purposes of clarity, certain elements have been intentionally omitted from certain views where they are believed to be illustrated to better advantage in other views.

Referring now to the drawings, and particularly to FIGURE 1, for a better understanding of the invention, it will be seen that the novel container embodying features of the invention includes a cover, indicated generally at 10, adapted to be telescopically received over the upper portion of a tray, indicated generally at 12.

Still referring to FIGURE 1 it will be seen that the tray includes a bottom wall, not shown, having upstanding therefrom opposing pairs of side and end walls 14 and 16, respectively, which are hingedly attached to each other and to the bottom wall to form a tubular structure.

Extending outwardly and downwardly from the upper edges of end walls 16 are a pair of locking flanges 20 which may be formed integrally with the upper edges of the end walls 16 or which may be formed integrally with a liner or inner end wall panel, not shown.

Still referring to FIGURE 1, it will be seen that each flange 20 extends transversely across the container tray substantially the entire length of the tray end wall and may be provided with a central recess or cutout 22 to form at the ends of the flange a pair of downwardly and outwardly extending projections 24 which present at their outer edges downwardly facing abutment surfaces 26, the function of which is described later in the specification. Referring now to FIGURE 5 of the drawings, it will be seen that

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the container cover 10 may be formed from a blank 30 of foldable sheet material, such as paperboard, which includes a generally rectangular center or top wall panel 32 having hingedly attached to opposite side edges thereof a pair of side wall panels 34, and having hingedly attached to opposite end edges thereof a pair of end wall outer panels 36. Attached to the end edges of each of the cover side wall panels 34 are a pair of corner or connecting panels or flaps 38.

Still referring to FIGURE 5 of the drawings, it will be seen that there is hingedly attached to the outer side edges of each of the cover end wall outer panels 36 a locking flange or end wall inner panel 40. Inner panel 40 is preferably connected to outer panel 36 by means of a relatively thin elongated connecting strip 42 having its opposite side edges hinged to the respective end wall inner and outer panels.

Each end wall inner panel includes a somewhat triangular shaped center portion 44 which is formed when the outer free corners of the inner panel have been cut away, as at 46. At the recessed corner areas, panel 40 presents a pair of abutment surfaces 48 which face upwardly, when the container is in erected condition with the cover in place, for engagement with the downwardly facing abutment surfaces 26 on the tray locking flange 20, in a manner best illustrated in FIGURE 4 of the drawings.

At its outer extremities the triangular center portion 44 of cover inner end wall panel 40 presents an extension or lug 50 adapted to be received within a complementary slot 52 formed in the cover top wall panel 32, as best seen in FIGURES 2 and 4, when the container cover is in erected condition.

To assemble the cover, side wall panels 34 and end wall outer panels 36 are folded down from top panel 32, and the corner flaps 38 are folded at right angles to the side wall panels and positioned between the inner and outer panels of the respective end walls. At this point the end wall inner panels are folded upwardly 180° over the corner flap and into parallel relation with the end wall outer panels, with the lugs 50 of the inner panels being positioned within their related slots 52 of the center panel to thereby lock the container cover in erected condition.

In operation, the erected cover is placed over the erected tray of the container and forced downwardly until the upwardly facing abutment surfaces of the cover end wall inner panels pass below the plane of the downwardly facing abutment surfaces of the tray locking flanges. At this point the tray locking flanges will tend to flex outwardly while the cover end wall inner panels or locking flanges will tend to flex inwardly toward the center of the container and thereby effect an interlocking engagement between the abutment surfaces of the tray and cover members of the container.

Although the basic concept of providing a tray and cover locking arrangement wherein downwardly facing surfaces on a tray engage upwardly facing surfaces on a cover is not basically new to the container art, most of the arrangements known in the art provide this type of engagement toward the center of the end walls of the container. However, because of the natural tendency of paperboard containers to deform, this type of engagement is not always satisfactory when located in the center of the end or side walls of the container because the mating surfaces become disengaged. In this arrangement, however, the engagement takes place at the corners of the container where there is very slight chance of dimensional change in the overall length of the container, as distinguished from the center of the container where the walls are free to bow inwardly or outwardly. Thus, in this arrangement the interlocking engagement is achieved at the four cor-

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ners of the container and will be effective regardless of any deflection in the end walls of either the container tray or the container cover.

In order to facilitate removal of the cover from the tray of the container there may be provided aligned apertures 54 and 56 in the end wall outer panels and corner flaps, respectively, of the cover through which fingers or other objects may be pushed to urge the tray locking flanges 20 inwardly so as to disengage the abutting surfaces of the cover and tray and thereby permit removal 10 of the former from the latter.

Turning now to FIGURES 6, 7, and 8 of the drawings, it will be seen that a modified form of the invention is shown. The invention shown in these views is substantially identical with that of the previous views except for 15 the fact that in each end wall section a spacer flap 60 has been cut from portions of the inner and outer panels of the end wall on three sides and hinged on the fourth side along score line 62 to one of the two end wall panels. The spacer flap 60 could be hinged to either end wall 20 panel, but in the preferred form the flap is hinged to the end wall inner panel as shown in FIGURE 8.

The function of the spacer flap is to provide an additional ply of board thickness between the inner and outer panels of the end wall, and this is accomplished by folding the flap 60 over 180° into full face engagement with the end wall inner panel before the end wall inner panel is in turn folded back 180° over on top of the corner flaps and the end wall outer panel. This additional thickness in the end wall section provides even greater pressure than in the previous arrangement in maintaining the abutment surfaces of the cover and tray members of the container in locking engagement with each other. 30

We claim:

A tray and separate, detachable, locking cover arrangement for a container comprising: 35

(a) a tray including a bottom wall and opposed pairs of upstanding side and end walls hingedly interconnected to form a tubular structure closed at the bottom and open at the top;

(b) said tray end walls each having hingedly attached to its upper edge a relatively narrow locking flange extending downwardly over the outer surface of an upper portion of the related end wall and being co-extensive therewith; 45

(c) each of said locking flanges having a central recess in its lower edge and having on opposite sides of said recess a pair of generally rectangular, laterally

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spaced side portions presenting horizontal, co-planar, downwardly facing, abutment surfaces extending from opposite sides of said central recess to the respective ends of said flange;

(d) a separate cover including a top wall and opposed pairs of depending side and end walls hingedly interconnected to provide a tubular structure closed at the top and open at the bottom to telescopically receive an upper portion of said tray;

(e) said cover end walls each including a pair of inner and outer panels hingedly connected at their lower edges and disposed in face to face relation; (f) each of said inner panels having a pair of generally trapezoidal shaped recesses in the upper corners thereof and including:

(i) a wedge-shaped central portion with downwardly diverging side edges;

(ii) a pair of generally rectangular side portions presenting upwardly facing abutment surfaces disposed in alignment with corresponding abutment surfaces of a related locking flange for abutting engagement therewith to detachably lock the cover on the tray of the container;

(g) the upper part of each cover inner end wall central portion being received within a complementary opening in said top wall to lock said cover end wall panels in erected position;

(h) the central portion of each cover inner end wall panel between said side inner end wall panel side portions being no greater in width than the width of the central recess of the related locking flange, to permit the receipt of a portion of said central portion in said central recess, when the cover is in closed position on the tray, and thereby accommodate the outward flexing of the locking flange side portions to facilitate the engagement of their abutment surfaces with the related abutment surfaces of the cover inner end wall panel side portions.

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