July 26, 1955 C. R. CAMP ET AL 2,713,962

REINFORCED CONTAINER

Filed April 2, 1953 2 Sheets-Sheet 1

Fig. 1

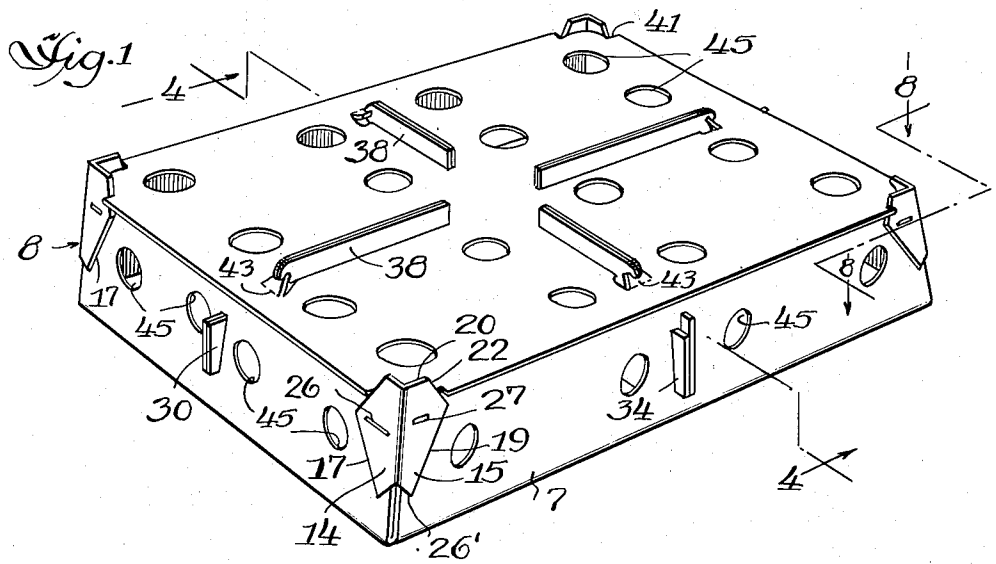


Fig. 3

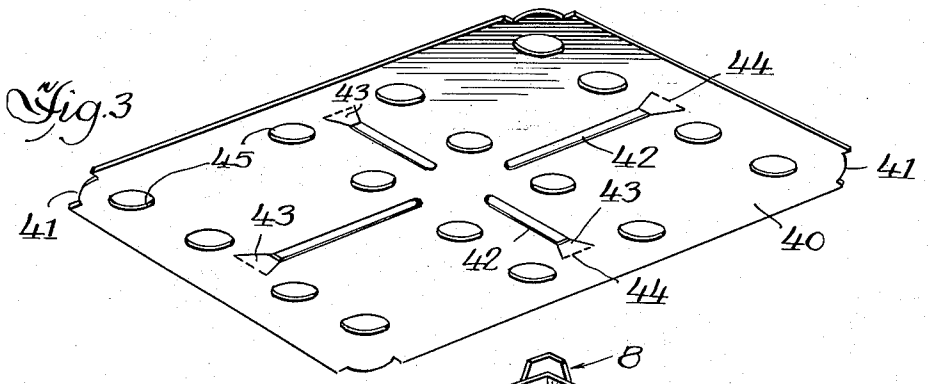
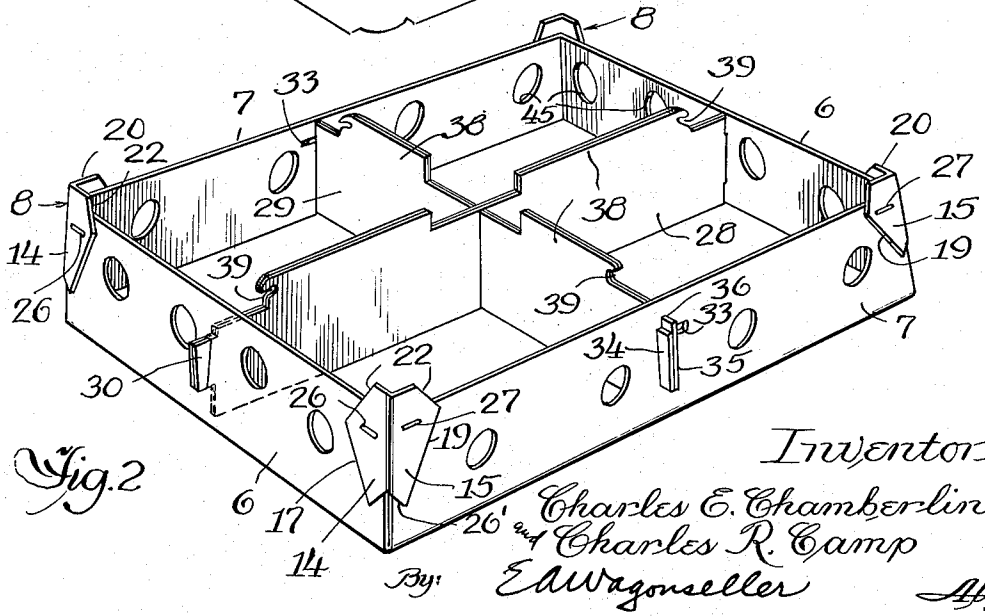


Fig. 2



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July 26, 1955 C. R. CAMP ET AL 2,713,962

REINFORCED CONTAINER

Filed April 2, 1953 2 Sheets-Sheet 2

Fig. 6

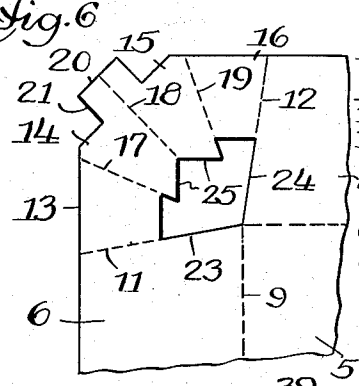
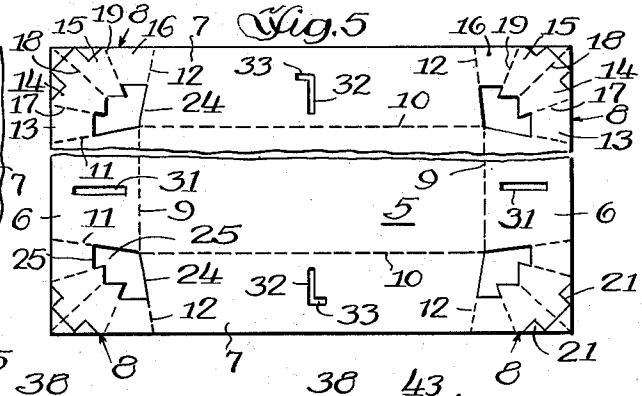


Fig. 5



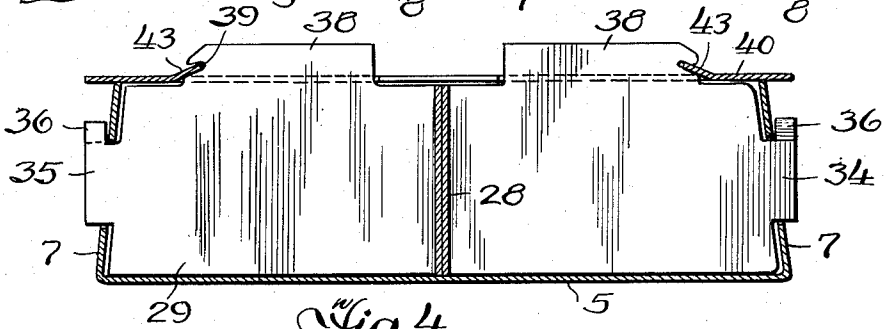
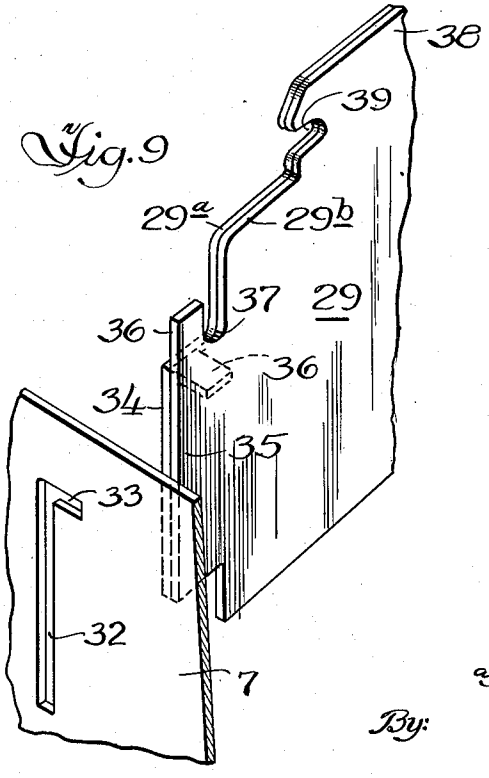


Fig. 4

Fig. 9



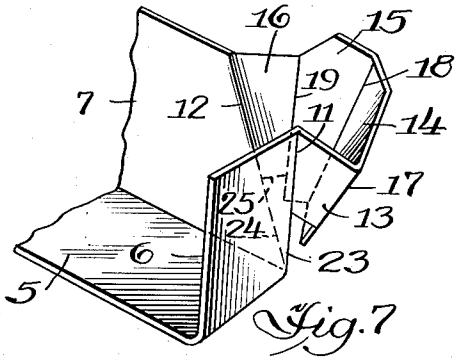


Fig. 7

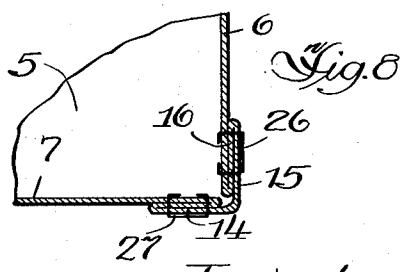


Fig. 8

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REINFORCED CONTAINER

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Application April 2, 1953, Serial No. 346,444

2 Claims. (Cl. 229—31)

The present invention relates to reinforced containers and more particularly to containers formed of paperboard or similar sheet material having dividing partitions locked into place and integrally reinforced corners.

In its preferred form the container of the present invention comprises a tray formed of corrugated fibreboard having a bottom panel and four side walls which may be perpendicular to the bottom panel or may be somewhat inclined in either direction. The tray is provided with partition elements interlockingly engaged with the side walls and having upstanding parts engageable with slotted openings in the cover. The tray is also provided with integral corner reinforcements that project above the walls of the tray so that a plurality of trays may be nested if the side walls are perpendicular or if they are inclined outwardly. The projecting portions of the corner reinforcements space the containers vertically if the walls are tapered or inclined inwardly. Such spacing is important if the containers are used for chickens or for any product requiring ventilation.

The objects of the invention are to provide a light, strong container, particularly adapted for transportation of baby chickens, having integrally reinforced corners that will space adjacent containers stacked in vertical relationship.

Another object is to provide means for interlocking ends of the partition with the side walls of the tray.

Other objects will be apparent from the following specification and in the claims appended thereto.

In the drawings:

Fig. 1 is a perspective view of a container embodying the present invention;

Fig. 2 is a perspective view of the container with the cover removed to illustrate the interior construction of the container tray or bottom portion;

Fig. 3 is a perspective view of the cover;

Fig. 4 is a cross sectional view, taken along the line 4—4 of Fig. 1;

Fig. 5 is a plan view of the blank from which the tray is formed;

Fig. 6 is a fragmentary plan view showing the blank of the corner structure on an enlarged scale;

Fig. 7 is a fragmentary perspective view of a corner in partially assembled position;

Fig. 8 is a cross sectional view, taken along the line 8—8 of Fig. 1; and

Fig. 9 is a fragmentary perspective view of the side wall of the tray and the partition element in disassociated relationship.

Referring particularly to Figs. 5, 6 and 7 of the drawings, the container comprises a bottom panel 5, a pair of end walls 6 which are duplicates, a pair of side walls 7 which are also duplicates, and four corners, each of which is positioned between one end of one side wall and the adjacent end of one end wall. The bottom panel 5 is rectangular and is separated from the end walls 6 by parallel score lines 9. The side walls 7 are also separated

from the bottom panel 5 by parallel score lines 10 which extend at right angles to the score lines 9.

Each corner is defined by a score line 11 separating it from the end wall 6 and a score line 12 separating it from the side wall 7. In the preferred embodiment of the invention illustrated the score lines 11 extend at an angle of somewhat less than 90° from the score line 9 so that the score lines 11 at either end of the tray blank converge outwardly. The score lines 12 extend at the same angle from the score lines 10 so that the score lines 12 at either side of the blank also converge outwardly. When the tray is set up the edges of the end and side walls defined by adjacent score lines 11 and 12 are juxtaposed, and the end and side walls are inclined inwardly. If the tray walls were to be perpendicular, the score lines 11 and 12 would extend at right angles to each other, and if they were to be inclined outwardly, the angle between the adjacent score lines would be less than 90°.

The corner portions 8 are each divided into four sections 13, 14, 15 and 16, by score lines 17, 18 and 19 which extend angularly outwardly from the intersection of the score lines 11 and 12. The outer corner portion is cut away to provide the assembled corner reinforcement with a horizontal top edge 20, as shown in Figs. 1 and 2. The portions on each side of the cut edge 20 are also cut away, as indicated at 21, to provide the upper edge portions of the assembled corner reinforcements with angular surfaces 22 that harmonize with the angular configuration of the lower portion of the corner reinforcement, defined by the score lines 17 and 19, to give the corners a neat, attractive appearance. The bottom portion of the corner adjacent the intersection of score lines 11 and 12 is cut away along lines 23, 24, aligned respectively with score lines 11 and 12, and 25 which extends, in zig-zag fashion between the outer ends of 23 and 24. The cut out defined by the lines 23, 24 and 25 removes the area of the corner adjacent the intersection of score lines 11, 12, 17, 18 and 19 which would be too bulky to fold neatly. The zig-zag arrangement of the cut line 25 provides a neat angular shape for the lower edge 26' of the assembled corner reinforcement.

To set up the tray, the end walls 6 and the side walls 7 are bent upwardly along the score lines 9 and 10, respectively. The corner portion is folded outwardly along score lines 11, 12 and 18, and inwardly along score lines 17 and 19. This folding operation superimposes section 13 on the adjacent portion of end wall 6 and section 14 on section 13. In like manner sections 15 and 16 are superimposed on the adjacent portion of side wall 7 to form triple-ply corner portions. The sections 13 and 14 are secured to the end wall 6 by a staple 26, and sections 15 and 16 are secured to the side wall 7 by a staple 27 (Figs. 1 and 2) to provide a rugged corner structure.

The tray is preferably divided into four compartments by a pair of partition members 28 and 29 (Figs. 1, 4 and 9). Each of the partition members comprises two thicknesses of corrugated fibreboard and is centrally notched to permit them to be interfitted. The partition 28 is provided with reduced outwardly projecting end portions 30 which extend through slots 31 provided in each end wall 6. The side walls 7 each have a slot 32 provided adjacent its upper end with an extension 33 at right angles thereto. The two thicknesses comprising the partition 29 are designated as 29*a* and 29*b* in Fig. 9. The member 29*a* is provided at one end with an outwardly projecting end portion 34 of approximately the same length as slot 32 and adapted to extend therethrough. The member 29*b* has an outwardly projecting end portion 35 similar to the end portion 34 but extending upwardly beyond the portion 34, as indicated at 36. The upwardly extending portion 36 is separated from the body portion of 29*b* by a notch or recess 37. The opposite end portion of the partition 29 is

the same except that it is reversed, the upwardly extending portion **36** being on the end portion of the member **29***a* instead of **29***b*.

In order to insert the partition **28** in the tray the end walls **6** are forced outwardly far enough to permit the partition to fit between the end walls. When the pressure on the end walls is released they move back into their normal position, with the projecting portions **30** extending through the slots **31**. The side walls **7** are then forced apart and the partition member **29** is inserted in the tray and interfitted with the partition member **28**. The portions **36** are bent at right angles to extend through the slots **33** to permit the side walls **7** to move back to their normal positions. The portions **36** are then released, and they snap up into their normal vertical positions to provide a positive interlock for the partition and tray.

The partition members **28** and **29** are each provided with a pair of upwardly extending portions **38** each of which has an angularly disposed upwardly extending notch **39** adjacent its outer end. The cover for the container comprises a flat panel **40** having each corner notched, as indicated at **41**, Fig. 3, to fit around the upwardly projecting portions of the corner reinforcements **8**, and having slots **42** adapted to fit over the projecting portions **38** of the partition members. A tab **43** is positioned contiguous to the outer end of each slot **42** so that the tabs ride over the ends of projecting portions **38** as the cover is pressed downwardly into position on the tray. The tabs **43** are scored along their base line, as indicated at **44**, and are forced upwardly out of the plane of the cover by pressure against the outer end of projecting portions **38** when the cover is pressed downwardly into container closing position. The tabs **43** snap into the notches **39** to secure the cover against accidental displacement relative to the tray. The edges of the cover **40** project beyond the outer walls of the tray to facilitate removal of the cover from the tray. This is accomplished by merely lifting the cover until the tabs bend downwardly to ride past the ends of the portions **38**. The fibreboard has sufficient resilience to permit the tabs to be bent repeatedly in opposite directions without breaking.

When the container is completely assembled, the projecting end portions **30**, **34** and **35**, of the partition members prevents any container from being pushed too closely against either side or end wall of the container. The top edges **20** of the corner reinforcements **8** cooperate with the top edges of partition members **28** and **29** to support a superimposed container in spaced relationship to the top panel **40** of the container. The top panel and walls of the container are provided with a plurality of ventilating apertures **45**, and the spacing members hereinabove described will prevent blocking out of such apertures by containers stacked adjacent each other.

From the foregoing it is apparent that there is provided a container having simple and efficient means for reinforcing the corners and for interlocking the partition members and cover with the tray. The corner reinforcements are integral with the tray blank and do not require

any more material than a conventional tray of comparable size.

While the present description sets forth a preferred embodiment of the invention, certain changes may be made in the construction without departing from the spirit of the invention, and it is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

We claim:

1. A paperboard tray comprising a bottom panel, two end walls, two side walls, and four corner portions, each corner portion being integrally joined at one end with the end of an end wall and at its other end with the adjacent end of a side wall, each corner portion being divided into four sections by score lines extending angularly outwardly from the intersection of the end and side wall connected thereby, the sections being folded in opposite directions along the score lines to superimpose two corner sections against the end wall and the other two corner sections against the adjacent end of the side wall to reinforce each tray corner, each corner portion being cut away adjacent said intersection to space the lower edge of the corner reinforcement from the lower edge of the tray and thereby facilitate folding of the corner portions.

2. A paperboard tray comprising a bottom panel, two end walls, two side walls, the end and side walls each converging inwardly from its base, and four corner reinforcing portions each extending above the upper edges of the end and side walls, each corner portion being integrally joined at one end with the end of an end wall and at its other end with the adjacent end of a side wall, each corner portion being divided into four sections by score lines extending angularly outwardly from the intersection of the end and side wall connected thereby, the sections being folded in opposite directions along the score lines to superimpose two corner sections against the end wall and the other two corner sections against the adjacent end of the side wall to reinforce each tray corner, each corner portion being cut away adjacent said intersection to space the lower edge of the corner reinforcement from the lower edge of the tray and thereby facilitate folding of the corner portions.

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